CATEGORY 1

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RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Responds to NRC 971117 ltr re violations noted in insp repts 50-269/97-14,50-270/97-14 & 50-287/97-14.Corrective actions: procedure was added to Lee shift supervisors schedule to cover w/each crew quarterly.

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December 17, 1997

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

Subject: Oconee Nuclear Site
Docket Nos. 50-269, -270, -287
Inspection Report 50-269, -270, -287/97-14
Reply to Notices of Violation

Gentlemen:

By letter dated November 17, 1997, the NRC issued eight Notices of Violation as described in Inspection Report No. 50-269/97-14, 50-270/97-14, and 50-287/97-14.

Duke Energy Corporation (Duke) accepts these violations. As described in the attachments, Duke is proposing corrective actions to address the root causes of the violations. In addition, broader initiatives are underway at Oconee to improve performance. These initiatives were recently described at a November 13, 1997, meeting with Region II and are collectively referred to as the Oconee Recovery Plan. Oconee is committed to improving performance and keeping the NRC informed of progress via bi-monthly meetings with Region II. The next bi-monthly meeting will be at Oconee on January 8, 1998.

Pursuant to the provisions of 10 CFR 2.201, the attachments provide written responses to the subject violations as identified in the subject Inspection Report.

Corrective actions in Section 3 of each response are considered

IE01

regulatory commitments.

Very truly yours,

W. R. McCollum, Jr.
Site Vice President
Oconee Nuclear Station

Attachments (8)

cc: Mr. L. A. Reyes, Regional Administrator
U. S. Nuclear Regulatory Commission, Region II

Mr. D. E. LaBarge, Project Manager
Office of Nuclear Reactor Regulation

Mr. M. A. Scott
Senior Resident Inspector
Oconee Nuclear Site

Attachment 1
Reply to Notice of Violation A (Reply)
Violation 97-14-02

Restatement of violation 97-14-02

Technical Specification 6.4.1 requires that the station be operated in accordance with approved procedures and that one of the procedure types is nuclear safety-related periodic test procedures.

Technical Specification 4.6.7 requires a safety-related test which demonstrates the start and electrical connection of a Lee Station combustion turbine every 18-months.

Oconee Procedures PT/1/A/0610/06, 100 KV (Kilo Volt) Power Supply From Lee Steam Station, Revision 14, and OP/0/A/1107/03A, Oconee Nuclear Station and Lee Steam Station, Revision 5 and Lee Steam Station Operating Procedure, Emergency Power or Back-up Power to Oconee, effective January 4, 1997, are collectively, safety-related periodic test procedures that implement Technical Specification 4.6.7.

Contrary to the above, the station was not operated in accordance with periodic test procedures in that, on June 20, 1997, Lee Station Operators were in the process of Performing the Lee Operating Procedure for implementation of Technical Specification 4.6.7, and intending to perform steps 6.1.5, "close 89-3 switcher" and then 6.1.6 "opening 89-2 switcher." Instead, the operators reversed the steps and performed step 6.1.6 prior to 6.1.5.

This resulted in the Lee Station to be first separated from the grid and then being reconnected and ultimately causing a loss of power to the Oconee Unit 1 main feeder buses and subsequently a Keowee Hydro Units emergency start signal from the main feeder buses.

This is a Severity Level IV violation (Supplement I).

Attachment 1
Reply to Notice of Violation A (Reply)
Violation 97-14-02

RESPONSE:

Duke accepts the violation.

1. The reason for the violation:

   The root cause review determined that the switching incident which occurred on June 20, 1997, was due to operator error. The procedure in use at the time, "Lee Steam Station Operating Procedure, Emergency Power or Back-up Power to Oconee", prescribed the proper method for aligning equipment at Lee Steam Station for supplying backup power to Oconee. However, the operator performing the task failed to follow the procedure as written and performed step 6.1.6 prior to 6.1.5. This resulted in power interruption to Oconee.

   A contributing factor to this personnel error was the operator had been assigned multiple tasks which distracted his focus when making the backup power to Oconee lineup.

2. The corrective steps that have been taken and the results achieved:

   The procedure performance process at Lee has been changed since this event. The shift supervisors were instructed to review the Oconee emergency and backup power procedures with each rotating team. The instructions stated: "Emphasis shall be placed on the sequential execution of each step of the procedure. My expectation (and yours) shall be that each step is read out loud to the operator who is to perform the step. The performing operator will then execute the step. The step is then signed off and the time is noted before proceeding to the next step. The current procedure is technically sound. There is ample time between steps to read, repeat back, execute, and sign off".

   This procedure was added to the Lee Shift Supervisors schedule to cover with each crew quarterly.

Attachment 1
Reply to Notice of Violation A (Reply)
Violation 97-14-02

To address the contributing factors, Shift Supervisors are to ensure that the control room operators are able to perform backup power procedures without distractions when the steam units are running.

The quarterly training on the Oconee backup/emergency power procedure for all four Lee operations teams has been implemented as of June 30, 1997. The training for performance of the procedure emphasizes the read, repeat back, verify, and conduct the step methods.

Additional actions that have been completed to enhance the process for supplying BACKUP/EMERGENCY power from Lee:

- A review of all ONS procedures that interface with Lee Steam Station has been completed for the purpose of identifying points where ONS directs Lee Steam Station to take action. Changes to the applicable ONS procedures and the Lee Steam Station Operating Procedure, "Emergency Power or Back-up Power to Oconee", were made to provide line by line correspondence and direction from ONS to Lee Steam Station during critical steps.

- The Lee Steam Station procedure used to start, align, and operate the Combustion Turbine Units when supplying power to ONS has been evaluated. The evaluation concluded that the Lee Steam Station procedure should be controlled by ONS in accordance with Nuclear System Directive requirements. Therefore, the Lee Steam Station procedure has been incorporated into ONS operating procedure, OP/0/A/1107/003A, "Procedure For Furnishing Emergency or Backup Power to Oconee."

- The need to establish cross training has been evaluated. As a result of this evaluation, Lee personnel will be given STAR training by ONS Training group personnel. Training on the newly formatted procedure has been

given to the Lee Operators involved with supplying Backup Power to ONS on June 20, 1997.

- Quarterly refresher training on the Oconee backup/emergency power procedure for all Operations teams has been implemented. The training emphasizes read, repeat back, verify, and conduct the step methods.

- The 100KV Power From Lee Test (PT/0/A/0610/006) has been rewritten to ensure the wording is understood by both stations. This was accomplished by:

  a) including instructions where the two stations are communicating with each other, and

  b) performing the test so that Lee Steam Station will complete the task of starting and aligning the Combustion Turbine to Central Substation. The past practice had been to perform part of that task and then wait for confirmation from ONS prior to continuing the alignment. This change in the process of aligning power from Lee to Oconee lessens the chance for miscommunication.

3. The corrective steps that will be taken to avoid further violations:

   Star simulator training for the four Lee Steam Station Operations teams is scheduled to be conducted in January of 1998.

4. The date when full compliance will be achieved:

   Oconee Nuclear Site is in full compliance.

Attachment 2
Reply to Notice of Violation B (Reply)
Violation 97-14-03

Restatement of violation 97-14-03

Technical Specification 6.4.1 requires in part that the station be maintained in accordance with approved procedures and that these procedures be provided with appropriate instructions. One of the procedure types is for normal operation of the complete facility and of all systems and components involving nuclear safety of the facility.

Alarm Response Guide SA1/E-04, 600V (volt) SWGR (switchgear) 1X Lockout Relay, Revision 7 specifies the normal nuclear safety operation of the Keowee Hydro Units, a part of the complete Oconee facility, for reacting to a Switchgear 1X lockout.

Contrary to the above, instructions in Alarm Response Guide SA1/E-04 were not appropriate in that they required a Keowee operator on June 23, 1997 , to reset a Switchgear 1X lockout with the Keowee Hydro Units Air Circuit Breakers 5 and 7 transfer scheme in automatic, which caused an unanticipated circuit response and blown fuses.

This is a Severity Level IV violation (Supplement I).

RESPONSE:

Duke accepts the violation.

1. The reason for the violation:

   The root cause for the violation was the Keowee Alarm Response Guideline did not include the condition to which the switchgear was exposed.

   A lockout of the KHU-1 1X Switchgear was activated on June 23, 1997 during a planned dead bus transfer of ONS 1TC switchgear as part of the electrical system realignment following the performance of PT/1/A/0610/006 (100 KV Power Supply From Lee Steam Station). KHU-1 1X Switchgear was being supplied by Breaker No. 4 of the 1TC Switchgear,

through the Keowee CX Transformer, and ACB No. 7. Upon subsequent examination, Keowee ACB No. 7 was found to contain a failed "Y" timer. It was determined that a time delay adjustment potentiometer, of the "Y" timer, contained a short, resulting in a very low time delay interval which allowed the timer to de-energize the close coil prior to the breaker fully closing.

Upon discovery of this lockout, the Keowee operator referred to the Statalarm response guideline, revision #7. This guideline directed the Keowee operator to notify the ONS Unit 2 Supervisor, Charlotte coordinator, and the "on call" Keowee Technical Support person. This notification was performed. While communicating with Keowee Technical Support, the operator inspected and reset the impact spring of ACB No. 7 which was the cause of the 1X Switchgear lockout relay. Upon further examination, no additional related alarms were activated. The Keowee operator, with concurrence from Keowee Technical Support and following the approved guideline, reset the 1X Switchgear lockout relay. Due to the availability of both auxiliary power sources, both 1X Switchgear auxiliary power supply breakers (ACB No. 5 - supply from 1X Transformer and ACB No. 7 - supply from CX Transformer) attempted to close simultaneously. Due to electrical interlock circuitry associated with the ACBs, both breakers tripped open into a "trip free" state which re-activated the 1X Switchgear lockout relay and caused the control fuses to open. This condition was not anticipated by the Alarm Response Guideline.

With both auxiliary power supplies available, resetting a switchgear lockout relay with the auxiliary power transfer switch in the "AUTO" (automatic) position will simultaneously apply a close signal to both auxiliary power supply breakers. Therefore, the possibility of the simultaneous restoration of both power sources existed. In conclusion, when a switchgear lockout relay is activated, the auxiliary power transfer switch should be positioned to the "MAN" (manual) position before resetting the lockout relay.

Attachment 2
Reply to Notice of Violation B (Reply)
Violation 97-14-03

2. The corrective steps that have been taken and the results achieved:

   A FIP (Failure Investigation Process) team was initiated to investigate the cause of the failure.

   Upon investigation, a failed "Y" timer was discovered in ACB No. 7. The "Y" timer was replaced in ACB No. 7 and in a spare breaker which was placed in the ACB No. 5 position. Additionally, the control fuses for ACBs No. 5 and No. 7 were replaced. For KHU-2, ACB No. 6 and No. 8 were inspected and verified operable.

   The Alarm Response Guidelines for 1X and 2X switchgear lockouts were revised to provide for the placement of the associated unit's auxiliary power transfer switch to "MAN" (manual) before resetting of the switchgear lockout relay. This will prevent simultaneous closure signals being applied to both ACBs should both power sources be available.

   A review of the associated alarm response guidelines was conducted. The alarm response guidelines were revised to instruct the operators to place the auxiliary power transfer switch to the manual position before resetting a switchgear lockout relay.

3. The corrective steps that will be taken to avoid further violations:

   No further corrective actions are planned.

4. The date when full compliance will be achieved:

   Duke is in full compliance.

Attachment 3
Reply to Notice of Violation C (Reply)
Violation 97-14-04

Restatement of violation 97-14-04

Technical Specification 6.4.1 requires in part that the station shall be maintained in accordance with approved procedures and that these procedures will be provided with appropriate instructions. One of the procedure types is for preventive maintenance which could affect nuclear safety.

Procedure IP/O/A/2001/003B, Inspection and Maintenance of DB-50, DB-25 and DBF-16 Air Circuit Breakers, dated July 23, 1996, specifies the preventive maintenance activities for the DB-25 breakers, specifically for the Keowee Hydro Units' field flash breakers. The DB-25 vendor recommendations are contained in Westinghouse Electric Corporation Publication I.B. 33-850-1 and 2E, Instructions for De-ion Air Circuit Breakers Types DB-15, DB-25, DB-F, and DBL-25, 600 Volts AC (alternating current), 250 Volts DC (direct current), effective May 1965.

Contrary to the above, the station was not maintained in accordance with approved maintenance procedures with appropriate instructions, in that a vendor recommendation in Publication I.B. 33-850-1 and 2E to "Check for over-adjustment [of contacts] by manually pulling the moving contact away from the stationary contact, with the breaker in the closed position. It should be possible to obtain at least 1/64-inch gap between the contacts", was not incorporated into Procedure IP/O/A/2001/003B.

This missing step resulted in a June 20, 1997, Keowee Hydro Units' field flash breaker failure mechanism not being initially evaluated. Subsequent performance of this step on July 17, 1997, resulted in the verification of adequate adjustment.

This is a Severity Level IV violation (Supplement I).

RESPONSE:

Duke accepts the violation.

1. The reason for the violation:

   The failure to include the vendor recommendation to check for 1/64 inch gap between the stationary and moving contacts on

Westinghouse DB breakers was an oversight during the origination of procedure IP/O/A/2001/003B.

2. The corrective steps that have been taken and the results achieved:

Maintenance Procedure IP/O/A/2001/003B ("Inspection And Maintenance of DB-50, DB-25, And DBF-16 Air Circuit Breakers") has been revised to include Westinghouse's recommendation to check/verify DB Breaker contact gaps and compression tolerances. Maintenance was performed on the Keowee DB Breakers after the completion of the new revisions to the procedure. Performance of this procedure step on July 17, 1997, resulted in verification of adequate contact gap adjustment on all DB breakers. The procedure now includes vendor recommendations for contact review/adjustments. The contact checks include over-travel, over-adjustment, and contact pressure.

3. The corrective steps that will be taken to avoid further violations:

No additional corrective actions are planned.

4. The date when full compliance will be achieved:

Duke is in full compliance.

Attachment 4
Reply to Notice of Violation D (Reply)
Violation 97-14-06

Restatement of violation 97-14-06

10 CFR 50, Appendix B, Criterion XVI, Corrective Action, states in part that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective actions taken to preclude repetition.

Contrary to the above, as of October 7, 1997, corrective actions were not taken to preclude similar failures of automatic re-circulation valves on emergency feedwater pumps due to foreign material. Specifically, on February 2, 1997, the automatic re-circulation valve failed to open when required on a Unit 1 motor driven emergency feedwater pump due to foreign material on the main seat. The same failure occurred on a Unit 3 motor driven emergency feedwater pump on February 24, 1997, and on October 7, 1997.

RESPONSE:

Duke accepts the violation.

1. The reason for the violation:

The reason for the valve failures is foreign material entering the emergency feedwater (EFW) system and resulting in automatic re-circulation (ARC) valve failures. The reason for the violation is an inadequate understanding of the nature of the failure.

Background

FDW-380 is an Automatic Re-circulation (ARC) valve for the motor driven emergency feedwater (MDEFW) pumps on all three units. This valve provides a minimum re-circulation path for the MDEFW Pump when main line flow demand is not adequate for minimum pump flow requirements and system design pressure limits. This valve operates on system conditions and has no external controls. When there is a main line flow demand, the main disc of the valve

opens to pass flow. As the main line demand decreases, the main valve disc starts to close. When the main disc closes to a point, the bypass pilot is engaged and the bypass line begins to open. As the main disc continues to close the bypass pilot continues to open until the flow is completely down the bypass (minimum flow) line.

These ARC valves were recently installed on all three units. Unit 1 was installed in November 1995, Unit 2 in November 1994, and Unit 3 in July 1995. Since these valves were installed, there have been approximately 82 demands on these ARC valves with three failures identified. These failures were all attributed to foreign material intrusion.

The first two failures occurred in February 1997 while performing PT/*/A/0600/13, MDEFW pump test from the Upper Surge Tank (UST). This was after an extended outage of all three Oconee units with a significant amount of work on the secondary side of the plant. PT/*/A/0600/14, MDEFW pump test taking suction off the Hotwell, had been run just prior to both failures in February 1997 and no problems were noted.

A Problem Report (PIP) was written after each failure of the ARC valves. The root cause of each failure was investigated and determined to be foreign material related. After the first failure, the corrective actions completed were:

- PT/*/A/0600/13 was revised to add a step at the end of the pump test to assure that the ARC valve is working properly. This assures that there is no foreign material in the valve seat area preventing the pilot valve from opening the next time the MDEFW pump is started. This procedure change resulted in finding the Unit 3 problem in February 1997.

- Placing strainers in the suction path was evaluated and it was determined that strainers may cause pump NPSH problems. The configuration of the suction piping limits the use of strainers without significant piping changes.

- Flushing the suction lines was evaluated and determined to not be feasible due to check valves in the flow path and limited fluid velocity.

Prior to the last failure in October 1997, this problem was considered to be caused by debris from the hotwell deposited during refueling outages and detectable during normal start-up testing. Therefore, if foreign material entered the valve, it would fail and would be recognized prior to the requirement for EFW operability and corrected. This provided the basis for limiting the scope of the corrective actions to detection type actions.

The Unit 3 failure in October 1997, was the first failure that occurred mid-cycle. It is now recognized that this problem could occur randomly. Additionally, it is recognized that the tight clearances in the valves could trap material large enough to prevent it from working properly and may not be immediately detectable through testing.

The UST is the primary safety-related suction source for the MDEFW pumps with the hotwell as a non-safety back-up supply. Due to piping configuration and system operation, it is unlikely that the foreign material deposited in the ARC valve came from the UST. The most likely place of origin is the hotwell.

In the past, the only ARC valve failures have been on the B MDEFW train. The B side valves are installed up-side-down relative to those on the A side. The valve manufacturer stated that valve orientation is not a factor in these failures. The more likely cause of the B side failures is that the B MDEFW pump is procedurally the first pump tested off the hotwell. The test flushes the suction line through the B side ARC valve and the valve acts as a trap in the system.

Since the hotwell is the most likely place for the material to enter the EFW system, testing off the hotwell will be delayed in the unit start-up sequence until after the Condensate system is in clean-up for several hours. This will provide some assurance that the UST and the hotwell is cleaned up prior to testing. Thus, the corrective actions focus on minimizing the potential for foreign material intrusion from the hotwell.

2. The corrective steps that have been taken and the results

achieved:

a) Since this is a repetitive failure, EFW has been classified as an A1 Maintenance Rule System. It will remain so until the reliability of the system is proven to be acceptable. As an A1 system, a corrective action plan has been developed to return the system to A2 status and performance goals established and monitored.

b) PT/*/A/600/14 has been revised to require cleanup of the secondary side prior to testing the Emergency Feedwater system off the hotwell.

c) Changes have been made to AP/1,2,3/A/1700/19, Loss of Main Feedwater Procedure to provide warnings to the operator concerning ARC valve failure. Changes also include guidance to mitigate the consequences of failures in the ARC valves.

d) Normal quarterly pump testing frequency has been increased to monthly until system reliability is acceptable. The first monthly tests on all three units MDEFW pumps have been completed and no ARC valves failures have occurred.

e) The ARC valve associated with the first MDEFW pump tested off the hotwell will be disassembled after the MDEFW pump testing off the hotwell is complete. This practice will continue until other ways to control foreign material from entering the EFW system are established.

3. The corrective steps that will be taken to avoid further violations:

a) Options for modifications to the EFW System will be evaluated to minimize the potential for MDEFW Pump ARC valves failures in the future.

b) Maintenance procedures will be enhanced with steps to cover the EFW suction inlet to preclude foreign material

intrusion into the EFW system from the hotwell and upper surge tank.

4. The date when full compliance will be achieved:

Duke is currently in full compliance.

Attachment 5
Reply to Notice of Violation E(Reply)
Violation 97-14-07

Restatement of violation 97-14-07

10 CFR 50, Appendix B, Criterion XVI, Corrective Action states that measures shall be established to assure that conditions adverse to quality such as failure, malfunction, deficiencies, deviations, defective material, and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, although calculations had been documented and corrective actions completed that affirmed all unqualified insulation had been removed from the reactor building, additional unqualified insulation was found to be present from January 28, 1997 to October 18, 1997 in the Oconee reactor building, thereby indicating that corrective actions had not precluded repetition.

This is a Severity Level IV violation (Supplement I).

RESPONSE:

Duke accepts the violation.

1. The reason for the violation:

   Following a reactor building tour by the resident inspectors in January 1997, questions were raised regarding the installation of fibrous insulation on the Low Pressure Service Water (LPSW) System cooling piping to the reactor coolant pumps. An operability evaluation concluded that this insulation was installed prior to 1985 and was grandfathered under Generic Letter 85-22. However, this insulation on all three units was conservatively removed.

   All three reactor buildings were inspected for Owens-Corning SSL II fiberglass insulation. Due to inadequate communications between engineering personnel, the need to inspect for other fibrous insulation material was not specifically identified during the inspections.

Attachment 5
Reply to Notice of Violation E(Reply)
Violation 97-14-07

In June 1997, during the Unit 1 HPI nozzle inspection outage, it was determined that there was unqualified blanket insulation installed on RCS piping in the reactor building. This insulation had been used as a substitute for the metal reflective insulation. Inspections were planned for all three units to determine the extent of unqualified insulation in the reactor buildings. At the time of these inspections, Units 2 and 3 were operating at reduced power. Because of dose considerations, inspections on Units 2 and 3 were performed in an expedited manner. A checklist was developed to aid in the inspections and provide reasonable assurance that affected areas in the reactor building would be checked for unqualified insulation. Although the checklist did not include a complete listing of all piping in the reactor building, it did assure that major piping systems and areas surrounding equipment were checked and it included steps for independent verification. Since Unit 1 was in an outage, the same time constraints did not exist. Since more time existed to canvas the Unit 1 reactor building, the need for a formalized inspection process was not recognized.

Unqualified insulation identified in all three units was removed. An operability evaluation determined at the time the reactor building emergency sump had been inoperable because of the unknown characteristics of the insulation. This is documented in LER 269/97-07.

Subsequent testing and engineering analyses concluded that the transportability characteristics of the unqualified insulation did not challenge operability of the reactor building emergency sump.

It was believed that all unqualified insulation had been identified and removed until an additional piece of blanket insulation was found on Unit 1 in October 1997. This piece of insulation was on the hot leg piping as it entered the primary shield wall, hidden behind shield blocks. An operability evaluation was performed at the time for all three units and it was determined that the amount of insulation found would not be a concern. During a forced outage this fall, an inspection of

Unit 3 has confirmed that there was no insulation in the similar location.

The violation occurred because expectations were not clear regarding the need for a detailed, formalized inspection of each reactor building during the earlier inspections. If earlier inspections had been more comprehensive, corrective actions to remove unqualified insulation would probably have been successful. A contributing cause to the insulation problems is that there was inadequate guidance or criteria on replacing insulation for both maintenance and modification activities to piping in the reactor building. Because of this, in some cases blanket insulation was substituted for unusable metal reflective insulation.

2. The corrective steps that have been taken and the results achieved:

   a) A checklist has been developed to assure all potentially affected sections of piping in the Unit 1 reactor building are inspected. A pre-job briefing was held with personnel performing the inspection to ensure that expectations were clear for performing a comprehensive inspection.

   b) A detailed inspection of the Unit 1 reactor building using this more comprehensive process has been completed and did not identify any additional unqualified insulation.

3. The corrective steps that will be taken to avoid further violations:

   a) The expectations and the importance of following the modification process for removal and replacement of insulation will be communicated to all involved Engineering and Maintenance personnel. The training package has been written and is in the process of being reviewed.

   b) During the next refueling outage for Units 2 and 3, additional, more comprehensive inspections will be

performed to further ensure that no unqualified insulation exists in the Units 2 and 3 reactor buildings.

c) A 'decision tree' to aid the craft in selecting the correct type of insulation to be installed on piping at Oconee will be completed prior to the next refueling outage, 2EOC16.

d) The Duke specific specifications for thermal and reflective insulation will be reviewed and revised, as appropriate. The specifications need to clarify what insulation material can be used in the reactor building.

4. The date when full compliance will be achieved:

Duke will be in full compliance following the next refueling outages on Units 2 and 3 (2EOC16 and 3EOC17).

Attachment 6
Reply to Notice of Violation F(Reply)
Violation 97-14-08

Restatement of violation 97-14-08

10 CFR 50 Appendix B, Criterion V, states that activities affecting quality shall be prescribed by documented, instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, and drawings.

Contrary to the above, from September 15, to September 26, 1997, the station was not maintained and operated in accordance with approved procedures, in that operation of a crane to lift materials over the Unit 1 borated water storage tank was performed, with Unit 1 above cold shutdown, without a procedure. This activity had not been evaluated and could have potentially impacted the operation of the borated water storage tank and spent fuel pool.

This is a Severity Level IV violation (Supplement I).

RESPONSE:

Duke accepts the violation.

1. The reason for the violation:

Engineering used NUREG 0612 as the guidance document to provide field direction to crane operators when handling materials over safe shutdown equipment. NUREG 0612 does not specifically address mobile cranes. However, the plant uses the NUREG guidance to evaluate and give directions to the crane operators. Prior to moving the crane into the work area, the crane operators requested a support engineer to approve the location and identify restrictions. A support engineer provided verbal directions on the use of the crane and Safe Load Path (SLP) restrictions that had been in effect since the 1980's. The practice of setting up before cold shutdown had been in effect since tendon inspections began at plant start up in the 1970's. A specific procedure as

required by NUREG 0612 for crane use was not provided. The directions provided by the engineer were followed by the crane operator.

This violation occurred because previous evaluations were not thorough in addressing procedural requirements for handling heavy loads with mobile cranes. Further review concluded that a safer load path could be used to further minimize risk when above cold shutdown. Duke believes it is important to minimize risk when handling heaving loads and is implementing procedural guidance to assure risk is appropriately managed.

2. The corrective steps that have been taken and the results achieved:

   - Suspended work using the crane when the unit was above cold shutdown until a procedure and evaluation was issued.
   - Performed an evaluation per NUREG 0612 to identify the Safe Load Path (SLP) for this crane use.
   - Prepared a procedure with specific directions and identified SLP's before continuing work on tendons above cold shutdown.

3. The corrective steps that will be taken to avoid further violations:

   - Review plant drawings for other areas that have safe shutdown equipment where mobile cranes could be used to lift loads.
   - Develop procedures as appropriate to address the guidance in NUREG 0612 to appropriately manage risk when handling heavy loads with mobile cranes.

4. The date when full compliance will be achieved:

   Duke will be in full compliance by August 31, 1998.

Attachment 7
Reply to Notice of Violation G(Reply)
Violation 97-14-09

Restatement of violation 97-14-09

In October 1996 for Keowee Unit 2, and March 1997 for Keowee Unit 1, a set point design change for an overvoltage relay, Westinghouse Electric Corporation style SV 292B402A10, in the voltage regulator circuitry for the Keowee Hydro Units, was developed and implemented outside the Oconee design change process and without verifying the design change adequacy. Specifically, Calculation KC-Unit 1 and 2-2023, Analysis of Keowee Voltage Regulator Settings, approved in June 1995 and Calibration Procedure IP/0/A/2005/003, Westinghouse WTA Voltage Regulator Test, approved June 11,1996, lowered the relay set point from 100 to 70 volts without any post-modification testing.

RESPONSE:

Duke Energy accepts this violation.

1. The reason for the violation:

   The setpoints for the SV relays in the Keowee Field Flash breaker control circuit were changed from 100V to 70V based upon a calculation and a calibration procedure change. A 10CFR50.59 evaluation was properly performed for the procedure change. At Oconee, setpoints are controlled either in the Alarm and Setpoint Document and/or controlled drawings (other than in design calculations). The SV relay setpoints had not been originally controlled via either method. Therefore, the set point change was not implemented by a modification. The Keowee Unit return-to-service operability test following relay calibration was considered a sufficient verification check, due to the lack of knowledge of the individuals involved that the relay would behave differently at lower settings for a Keowee emergency start.

2. The corrective steps that have been taken and the results achieved:

A controlled database for components has been implemented at Oconee Nuclear Station. Since Site Directive SD-2.4.1 ("Set Point Control") scope did not previously require setpoints to be in a specific document, this directive has been revised to require component setpoints to be added to the controlled data base. In addition, SD-2.4.1 has been revised to require component setpoint revisions or additions in accordance with the modification program described in NSD-301 ("Nuclear Station Modifications"), NSD-408 ("Testing"), and SD-2.2.1 ("Minor Modification Program"). All changes to the controlled component data base, including component setpoints, now require a modification test plan to confirm the adequacy of the change.

3. The corrective steps that will be taken to avoid further violations:

The requirement to revise or add component setpoints in accordance with the modification process is sufficient to prevent future occurrence of this problem. No further action is required.

4. The date when full compliance will be achieved:

Duke is in full compliance.

Attachment 8
Reply to Notice of Violation H(Reply)
Violation 97-14-10

Restatement of violation 97-14-10

Technical Specification 6.4.1 requires that the station shall be operated and maintained in accordance with approved procedures.

System Radiation Protection Manual II-1, 3.1 states that all personnel who enter the Radiation Control Area or a Radiation Control Zone in the restricted area of the station shall be issued and required to wear thermoluminescent dosimeters and self-reading pocket dosimeters or electronic dosimeters when in these areas.

Contrary to the above, on September 26, and October 1, 1997, the station was not maintained and operated in accordance with approved procedures in that two individuals were observed separately inside posted radiation areas on these different dates without procedurally required dosimetry.

This is a Severity Level IV violation (Supplement I).

RESPONSE:

Duke accepts this violation.

1. The reason for the violation:

On September 26, 1997, a ladder that had been posted and used for accessing a Radioactive Materials Area (RMA), was de-posted because a work crew was instructed to remove the ladder. The ladder was not moved in time to prevent the unauthorized entry into the Radioactive Materials Area (RMA). The ladder was not a normal entry pathway to the RMA and was temporarily placed to assist the construction of the scaffolding. The worker knew the work area was posted as a RMA but had forgotten.

On October 1, 1997, immediately prior to entry into the RMA, the worker received instruction from RP to acquire proper dosimetry and log onto the appropriate RWP prior to conducting any work in the area. Contrary to the RP's instructions, the worker allowed himself to become distracted and entered the RMA without RWP and

dosimetry. RP had earlier conducted a pre-job brief with all available crew members in the affected work area as a result of the September 26th dosimetry event.

In both events the contact exposure rates were below 1 mR/hr in each of the respective RMA's, TLD's were worn by both workers, both workers worked in the same work crew and for the same supervisor, both workers were qualified and experienced rad workers, both RMA's were adjacent to one another, and the same RP coverage technicians were involved. The root cause of these failures to wear dosimetry is human error.

2. The corrective steps that have been taken and the results achieved:

On September 26, 1997, immediate corrective action was taken to repost the ladder in question as "NO ENTRY" and "Contact RP Prior to Entry". RP management conducted a search throughout the Turbine Building for similar situations and any other posting discrepancies. None were discovered. The worker's management was notified of the discrepancy and a Problem Investigation Process report was initiated. RP management continued heighten awareness and area tours for the remainder of the turbine refurbishment. No additional discrepancies have been discovered to date.
On October 1, 1997, immediate corrective action included the notification of the worker's management and the initiation of a Problem Investigation Process report.

A site wide work stoppage was conducted placing emphasis on proper radiological work practices. Each site employee was given a history of these events and related recent events, and site management's expectations for program compliance. Added emphasis during job observations on radiological program compliance is expected to prevent future occurrences. This work stoppage affected all site and vendor employees.

The affected workers and immediate supervisor involved in the two events were counseled and/or disciplinary action was taken. No further failure to wear dosimetry has been observed to date.

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3. The corrective steps that will be taken to avoid further violations:

No further corrective actions are required.

4. The date when full compliance will be achieved:

Duke is in full compliance.