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EGG-NTA-7507
March 1987

INFORMAL REPORT

TECHNICAL EVALUATION REPORT FOR OCONEE NUCLEAR STATION UNITS, 1, 2, AND 3 RESPONSE TO THE U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REACTOR REGULATION'S GENERIC LETTER NO. 83-37

J. C. Stachew

EG&G Idaho

Work performed under
DOE Contract
No. DE-AC07-76ID01570

Prepared for the
U.S. NUCLEAR REGULATORY COMMISSION

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Docket Nos. 50-269, 50-270, and 50-287

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EG&G Idaho, Inc.

Prepared for the
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
Under DOE Contract No. DE-AC07-76ID01570
FIN No. D6022

ABSTRACT

This EG&G Idaho, Inc., report evaluates the submittals provided by Duke Power Company for Oconee Nuclear Station Units 1, 2, and 3. The submittals are in response to Generic Letter No. 83-37, "NUREG-0737 Technical Specifications (TS)." Applicable sections of the Technical Specifications are evaluated to determine compliance to the guidelines established in the Generic Letter.

FOREWORD

This report is supplied as part of the "Technical Assistance for Operating Reactors Licensing Actions" being conducted for the U.S. Nuclear Regulatory Commission, Washington D.C., by EG&G Idaho, Inc., NRR and I&E Support.

The U.S. Nuclear Regulatory Commission funded the work under authorization B&R 20-19-10-11 1, FIN No. D6022.

Docket Nos. 50-269, 50-270, and 50-287
TAC Nos. 54402, 54403, 54404, 54551, 54552, and 54553

CONTENTS

TECHNICAL EVALUATION REPORT
OCONEE NUCLEAR STATION UNITS 1, 2, AND 3

1. INTRODUCTION

On November 1, 1983, a letter was sent by the Director, Division of Licensing, "To All Pressurized Water Reactor Licensees." This Generic Letter (83-37)[1] provided NRC Staff guidance on the contents of the Technical Specifications (TSs) associated with certain items in NUREG-0737.[2] Duke Power Company (DPC) filed common responses to Generic Letter 83-37 for Oconee Nuclear Station Units 1, 2, and 3. The following report provides the evaluation of the DPC submittals and makes recommendations for resolving the remaining issues. The comments are equally applicable to all three plants except where explicitly stated otherwise.

2. DISCUSSION AND EVALUATION

The Licensee was requested to provide Technical Specifications for several different systems. Each of these proposals is discussed and evaluated in an individual subsection below.

2.1 Reactor Coolant System Vents (II.B.1)

The Generic Letter[1] contains the following statement:

> "At least one reactor coolant system vent path (consisting of at least two valves in series which are powered from emergency buses) shall be operable and closed at all times (except for cold shutdown and refueling) at each of the following locations:
>
> a. Reactor Vessel Head
> b. Pressurizer steam space
> c. Reactor coolant system high point
>
> "A typical Technical Specification for reactor coolant system vents is provided in Enclosure 3. For the plants using a power operated relief valve (PORV) as a reactor coolant system vent, the block valve is not required to be closed if the PORV is operable."

Evaluation:

The Licensee responded in submittals dated October 8, 1984,[3] and August 13, 1986.[4] The Licensee's letter of August 13, 1986, submitted Limiting Conditions for Operation (LCO) and Actions per NRC Staff request.[5] The following deviations from the Generic Letter 83-37 guidance are noted.

1. In Specification 3.1.13.1.a, reactor coolant system vent paths should be operable whenever the reactor coolant average temperature is above 200°F rather than the specified 250°F. Vent path operability is required for hot shutdown (>200°F) in the Generic Letter 83-37. DPC states in the Bases that natural circulation core cooling is required above 250°F, and that below

250°F, the low pressure injection system can be utilized to remove decay heat. However, Specification 3.3.2, (p. 3.3-2, Amendments 105, 105, and 102), Low Pressure Injection (LPI) System, has no requirement for operability of the low pressure injection pumps when reactor coolant temperature is below 250°F. Even, if there were technical specification requirements for low pressure injection system operability below 250°F as there are in the Standard Technical Specifications, the 200°F choice in the Generic Letter is because at this temperature and below, boiling will not occur and, therefore, steam and noncondensables will likely not be formed.

2. In Specification 3.1.13.1.a, DPC does not state that vent paths should consist of at least two valves in series powered from emergency buses and closed. These requirements are stated explicitly in the Generic Letter to aid in ensuring a low probability of inadvertent or irreversible actuation and should, therefore, be specified. No justification was provided for this deviation.

3. In Specification 3.1.13.1.b, DPC does not follow the guidance for continued operation with an inoperable vent path. The missing requirements are: STARTUP and/or POWER OPERATION may continue provided the inoperable vent path is maintained closed with power removed from the valve actuator of all the valves in the inoperable vent path. No justification was provided for this deviation.

4. In Specifications 3.1.13.1.b and 3.1.13.1.c, DPC requires "hot shutdown within the next 12 hours and below 250°F in an additional 24 hours" when restoration cannot be made within the allowed 30 days. The Generic Letter guidance is "be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours." Therefore, under these circumstances, DPC allows up to an additional 6 hours of critical operation beyond that recommended in the Generic Letter guidance. DPC should justify

why they need this additional 6 hours of critical operation to get into hot shutdown. Also, the 250°F limit should be 200°F (see 1. above).

5. DPC does not provide Surveillance Requirements as in the Generic Letter, but instead, states that vent valve testing is done in the inservice test program that is required by the ONS Technical Specifications. Licensee's letter of October 8, 1984,[3] identified that: "Oconee Technical Specifications presently require inservice testing of ASME pumps and valves in accordance with Section XI. The RCS vent valves were included in the inservice test program submitted for NRC review by letters dated November 19, 1982, and October 10, 1983." DPC's reference to the Oconee Technical Specifications requiring inservice testing of ASME pumps and valves in accordance with Section XI is not adequate justification for not having the surveillance requirements recommended in the Generic Letter. Oconee Technical Specification 4.0.4 (p. 4.0-1, Amendment Nos. 109, 109, and 106) states that inservice testing of ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10 CFR 50 Section 50.55a(g)(4). Such reference to inservice inspection testing is standard and not unique to Oconee. See, for example, Section 4.0.5 of the Standard Technical Specification,[15] which contains almost verbatim the words appearing in the Oconee Technical Specification Section 4.0.4. As the NRC Staff was well aware of this Technical Specification general reference to the inservice inspection testing per the ASME code at the time the Generic Letter guidance was written, such reference is not an acceptable substitute for the guidance. Also, the Generic Letter Surveillances 4.4.11.1 and 4.4.11.3 on locked open valve position and verifying flow through the vent path, respectively, are specific requirements for this system that are not required by

code valve testing. Also, the designation of what Modes (co'd shutdown or refueling) that this testing should be in, would not be found in the ASME Code Section XI.

As a result of the review of the material cited, the Licensee needs to submit additional information to justify how the proposed Technical Specifications meet the Generic Letter (Item II.B.1) guidance or submit revised specifications that meet the guidance.

2.2 Postaccident Sampling (II.B.3)

The Generic Letter[1] contains the following statement:

> "Licensees should ensure that their plant has the capability to obtain and analyze reactor coolant and containment atmosphere samples under accident conditions. An administrative program should be established, implemented and maintained to ensure this capability. The program should include:
>
> a) training of personnel
> b) procedures for sampling and analysis, and
> c) provisions for maintenance of sampling and analysis equipment
>
> "It is acceptable to the Staff, if the licensee elects to reference this program in the administrative controls section of the Technical Specifications and include a detailed description of the program in the plant operation manuals. A copy of the program should be easily available to the operating staff during accident and transient conditions."

A typical Technical Specification for postaccident sampling was provided that required the capability to sample and analyze radioactive iodines and particulates in plant gaseous effluents.

Evaluation:

The Licensee responded in letter dated October 8, 1984,[3] proposing Administrative Controls Section 6.4.3. NRC Staff approved this proposed technical specification in Amendment Nos. 146, 146, and 143 to Facility Operating License Nos. DPR-38, DPR-47, and DPR-55 for the Oconee Nuclear Station, Unit Nos. 1, 2, and 3.[6]

As a result of the review of the cited material, this Item, II.B.3, Postaccident Sampling, was closed by previous NRC Staff correspondence.

2.3 Long Term Auxiliary Feedwater System Evaluation (II.E.1.1)

The Generic Letter[1] contains the following statement:

> "The objective of this item is to improve the reliability and performance of the auxiliary feedwater (AFW) system. Technical Specifications depend on the results of the licensee's evaluation and staff review of each plant. The limiting conditions of operation (LCO) and surveillance requirements for the AFW system should be similar to safety-related systems. Typical generic Technical Specifications are provided in Enclosure 3. These specifications are for a plant which has three auxiliary feedwater pumps. Plant specific Technical Specifications could be established by using the generic Technical Specifications for the AFW system."

Evaluation:

The Licensee responded in letter dated October 8, 1984,[3] by identifying that existing technical specification Sections 3.4 and 4.9 already adequately treat operability and surveillance of the emergency feedwater system. NRC Staff accepted the Licensee's existing technical specifications for the emergency feedwater system in letter dated October 31, 1985.[6]

As a result of the review of the cited material, this Item, II.E.1.1, Long Term Auxiliary Feedwater System Evaluation, was closed by previous NRC Staff correspondence.

2.4 Noble Gas Effluent Monitors (II.F.1.1)

The Generic Letter[1] contains the following statement:

> "Noble gas effluent monitors provide information, during and following an accident, which are considered helpful to the operator in accessing the plant condition. It is desired that these monitors be operable at all times during plant operation, but they are not required for safe shutdown of the plant. In case of failure of the monitor, appropriate actions should be taken to restore its operational capability in a reasonable period of time. Considering the importance of the availability of the equipment and possible delays involved in administrative controls, 7 days is considered to be the appropriate time period to restore the operability of the monitor. An alternate method for monitoring the effluent should be initiated as soon as practical, but no later than 72 hours after the identification of the failure of the monitor. If the monitor is not restored to operable conditions within 7 days after the failure a special report should be submitted to the NRC within 14 days following the event, outlining the cause of inoperability, actions taken and the planned schedule for restoring the system to operable status."

A typical Technical Specification for noble gas effluent monitors was also provided[1] that specified monitor locations and measurement ranges.

Evaluation:

The Licensee responded in letter dated October 8, 1984,[3] and a correction letter dated August 27, 1985.[7] A request for additional information was submitted to the Licensee by the NRC Staff letter dated November 25, 1985.[5] The Licensee submitted a revised technical specification by letter dated June 27, 1986,[8] that provided an additional action statement that resolved the NRC Staff's request for additional information.[5] The Licensee superseded its June 27, 1986, letter with a letter dated September 19, 1986.[9] For the purpose of this review, the following Licensee pages were used:

- P. 3.5-44 Licensee's letter of September 19, 1986[9]
- P. 3.5-43a Licensee's letter of August 27, 1985[7]
- P. 4.1-8 Licensee's letter of October 8, 1984[3]
- P. 4.1-8a Licensee's letter of October 8, 1984.[3]

The following deviations from the Generic Letter 83-37 guidance are noted:

1. The Licensee has specified only one of the seven monitoring locations given in the guidance and this one location has no redundancy. The Licensee did not provide any justification for not considering the other monitoring locations given in the guidance.

2. In Table 3.5.6.1, no alarm/trip setpoint or measurement range was specified for the noble gas effluent monitor (RIA-56). The guidance provided an alarm/trip setpoint and measurement range that were dependent on the monitor location. DPC provided no justification for this deviation.

3. DPC allows 30 days to submit a Special Report to the Commission with the noble gas monitor inoperable versus the guidance of 14 days. No justification was provided for this deviation.

4. No Action is specified as in the guidance for a radiation monitoring channel alarm/trip setpoint being exceeded. The guidance requires adjustment of the setpoint to within its limit within 4 hours or the channel should be declared inoperable.

5. DPC requires no channel check but the guidance is for a check at least once per 12 hours. No justification was provided for this deviation.

6. DPC requires a calibration annually, which is more often than the guidance of once per 18 months and is, therefore, acceptable.

As a result of the review of the material cited, the Licensee needs to submit additional information to justify how the cited Technical Specifications meet the Generic Letter (Item II.F.1.1) guidance or submit revised specifications that meet the guidance.

2.5 Sampling and Analysis of Plant Effluents (II.F.1.2)

The Generic Letter[1] contains the following statement:

> "Each operating nuclear power reactor should have the capability to collect and analyze or measure representative samples of radioactive iodines and particulates in plant gaseous effluents during and following an accident. An administrative program should be established, implemented and maintained to ensure this capability. The program should include:
>
> a) training of personnel
> b) procedures for sampling and analysis, and
> c) provisions for maintenance of sampling and analysis equipment
>
> "It is acceptable to the staff, if the licensee elects to reference this program in the administrative controls section of the Technical Specifications and include a detailed description of the program in the plant operation manuals. A copy of the program should be readily available to the operating staff during accident and transient conditions."

Evaluation:

The Licensee responded in letter dated October 8, 1984,[3] proposing Administrative Controls Section 6.4.4. NRC Staff approved this proposed technical specification in Amendment Nos. 146, 146, and 143 to Facility Operating License Nos. DPR-38, DPR-47, and DPR-55 for the Oconee Nuclear Station, Unit Nos. 1, 2, and 3.[6]

As a result of the review of the cited material, this Item, II.F.1.2, Sampling and Analysis of Plant Effluents, was closed by previous NRC Staff correspondence.

2.6 Containment High-Range Radiation Monitor (II.F.1.3)

The Generic Letter[1] contains the following statement:

> "A minimum of two in containment radiation-level monitors with a maximum range of 10^8 rad/hr (10^7 R/hr for photon only) should be operable at all times except for cold shutdown and refueling outages. In case of failure of the monitor, appropriate actions should be taken to restore its operational capability as soon as possible. If the monitor is not restored to operable condition within 7 days after the failure, a special report should be submitted to the NRC within 14 days following the event, outlining the cause of inoperability, actions taken and the planned schedule for restoring the equipment to operable status.
>
> "Typical surveillance requirements are shown in Enclosure 3. The setpoint for the high radiation level alarm should be determined such that spurious alarms will be precluded. Note that the acceptable calibration techniques for these monitors are discussed in NUREG-0737."

Evaluation:

The Licensee responded in letter dated October 8, 1984,[3] proposing Technical Specification 3.5.6 and a correction letter dated August 27, 1985.[7] A request for additional information was submitted to the Licensee by the NRC Staff letter dated November 25, 1985.[5] The Licensee submitted a reply to the NRC request for additional information by letter dated January 30, 1986.[10] While the Licensee's response[10] provided the high-range radiation monitor setpoint and its basis, no information was provided on what plant procedures require it to be set at that value and what action to take if it is not. The Licensee's response[10] is, therefore, judged to be inadequate. The Licensee revised p. 3.5-38a of their original October 8, 1984,[3] submittal by letter dated June 27, 1986,[8] and then superseded this revision by a second revision of letter dated September 19, 1986.[9] For the purpose of this review, the following Licensee pages were used:

- P. 3.5-44 Licensee's letter of September 19, 1986[9]
- P. 3.5-43a Licensee's letter of August 27, 1985[7]
- P. 4.1-3 Licensee's letter of October 8, 1984.[3]

The following deviations from the Generic Letter 83-37 guidance are noted (included here is a reiteration of the concerns in the NRC Staff request for additional information mentioned above[5]):

1. DPC specifies only one channel to be operable in Table 3.5.6.1. The guidance is for a minimum of two channels to be operable. DPC did not provide any justification for this deviation.

2. In Table 3.5.6.1, no alarm/trip setpoint or measurement range was specified for the high-range radiation monitors (RIA-57, -58). The guidance requires both to be specified. DPC provided no justification for this deviation.

3. DPC allows 30 days to submit a Special Report to the Commission with both high-range radiation monitors inoperable. The guidance is for 14 days with only one inoperable channel. No justification was provided for this deviation.

4. No Action is specified, as in the guidance when the alarm/trip setpoint is exceeded, to adjust the setpoint to within its limit within 4 hours or declare the channel inoperable. No justification was provided for this deviation.

5. No Action is specified, as in the guidance with an inoperable channel, to initiate the preplanned alternate method of monitoring within 72 hours. No justification was provided for this deviation.

6. DPC requires no channel check but the guidance is for a check at least once per 12 hours. No justification was provided for this deviation.

7. DPC requires a calibration at frequency "RF" (refueling outage) versus the guidance of at least once per 18 months. No justification was given for this deviation.

As a result of the review of the cited material, the Licensee's response is judged to not meet the guidance of the Generic Letter for Item II.F.1.3.

2.7 Containment Pressure Monitor (II.F.1.4)

The Generic Letter[1] contains the following statement:

> "Containment pressure should be continuously indicated in the control room of each operating reactor during Power Operation, Startup and Hot Standby modes of operation. Two channels should be operable at all times when the reactor is operating in any of the above mentioned modes. Technical Specifications for these monitors should be included with other accident monitoring instrumentation in the present Technical Specifications. Limiting conditions for operation (including the required Actions) for the containment pressure monitor should be similar to other accident monitoring instrumentation included in the present Technical Specifications. Typical acceptable LCO and surveillance requirements for accident monitoring instrumentation are included in Enclosure 3."

Evaluation:

The Licensee responded in letter dated October 8, 1984,[3] proposing technical specification 3.5.6 and a correction letter dated August 27, 1985.[7] A request for additional information was submitted to the Licensee by the NRC Staff letter dated November 25, 1985.[5] The Licensee submitted a reply to the NRC request for additional information by letter dated January 30, 1986.[10] The Licensee in their reply[10] did not provide the requested additional information, which was "The Technical Specification should be amended as requested in GL 83-37 to include an appropriate LCO or Duke should provide the technical basis for not having the suggested amendment." Instead, DPC stated that their proposed technical specifications[3] for this item meets the intent of the Generic Letter 83-37. DPC's justification for this position is inadequate for the following reasons. DPC stated: "containment pressure monitors are not required for mitigation of design basis accidents, since actuation of containment protection systems is automatic and already covered by Technical Specifications. Furthermore, actuation of Engineered

Safeguards (ES) Channels 5 & 6 and 7 & 8 would provide some containment pressure information to the operators." That engineered safety features are automatic and provide some containment protection for design basis accidents was well known and acknowledged when the Generic Letter 83-37 guidelines were written. The Generic Letter 83-37 accident monitoring instrumentation guidelines although applicable to design basis accidents because they provide the operator with information on the progression of an accident were, however, largely written to assess the approach to and recovery from beyond design basis events. For example, NUREG-0737[2] states that containment pressure monitors should provide a range to 3 to 4 times the containment design pressure. Typical engineered safety pressure instrumentation with setpoint actuation was generally intended to cause automatic actuations so that containment design pressure is not exceeded and, therefore, was not designed to the high range of NUREG-0737. Therefore, although DPC's justifications are acknowledged; as discussed, they are inadequate for not following the Generic Letter 83-37 guidance because they provide information that was already acknowledged and accounted for when the guidance was written.

The Licensee revised p. 3.5-38a of their original October 8, 1984,[3] submittal by letter dated June 27, 1986,[8] and then superseded this revision by a second revision of letter dated September 19, 1986.[9] For the purpose of this review, the following Licensee pages were used:

- P. 3.5-44 Licensee's letter of September 19, 1986[9]
- P. 3.5-43a Licensee's letter of August 27, 1985[7]
- P. 4.1-8a Licensee's letter of October 8, 1984.[3]

The following deviations from the Generic Letter 83-37 are noted (included here is a reiteration of the concerns in the NRC Staff request for additional information mentioned above[5]):

1. DPC does not have any Action for less than the "required Number of Channels," namely two. The guidance requires restoration in 7 days or be in at least hot shutdown within the next 12 hours. No justification other than that already discussed above was provided for this deviation.

2. With less than the "minimum channels operable," DPC requires restoration of operability within 7 days or a report to the Commission within the next 30 days. The guidance requires restoration in 48 hours or be in at least hot shutdown within the next 12 hours. No justification other than that already discussed above was provided for this deviation.

3. DPC's mode applicability and surveillance requirements exceed those of the guidance and are therefore acceptable.

As a result of the review of the cited material, the Licensee's response is judged to not meet the requirements of the Generic Letter for Item II.F.1.4.

2.8 Containment Water Level Monitor (II.F.1.5)

The Generic Letter[1] contains the following statement:

> "A continuous indication of containment water level should be provided in the control room of each reactor during Power Operation, Startup and Hot Standby modes of operation. At least one channel for narrow range and two channels for wide range instruments should be operable at all times when the reactor is operating in any of the above modes. Narrow range instruments should cover the range from the bottom to the top of the containment sump. Wide range instruments should cover the range from the bottom of the containment to the elevation equivalent to a 600,000 gallon (or less if justified) capacity.

"Technical Specifications for containment water level monitors should be included with other accident monitoring instrumentation in the present Technical Specifications. LCOs (including the required Actions) for wide range monitors should be similar to other accident monitoring instrumentation included in the present Technical Specifications. LCOs for narrow range monitor should include the requirement that the inoperable channel will be restored to operable status within 30 days or the plant will be brought to Hot Shutdown condition as required for other accident monitoring instrumentation. Typical acceptable LCO and surveillance requirements for accident monitoring instrumentation are included in Enclosure 3."

Evaluation:

The Licensee responded in letter dated October 8, 1984,[3] and a correction letter dated August 27, 1985.[7] A request for additional information was submitted to the Licensee by the NRC Staff letter dated November 25, 1985.[5] The Licensee submitted a revised technical specification by letter dated June 27, 1986,[8] that provided an additional action statement that partially resolved the NRC Staff's request for additional information.[5] The Licensee superseded its June 27, 1986, letter with a letter dated September 19, 1986.[3] For the purpose of this review, the following Licensee pages were used:

- P. 3.5-44 Licensee's letter of September 19, 1986[9]
- P. 3.5-43a Licensee's letter of August 27, 1985[7]
- P. 4.1-8 Licensee's letter of October 8, 1984[3]
- P.4.1-8a Licensee's letter of October 8, 1984.[3]

The following deviations from the Generic Letter 83-37 guidance are noted (included here is a reiteration of the concerns in the NRC Staff request for additional information mentioned above[5] that were not answered by the Licensee's response of June 27, 1986[8]):

1. DPC does not have an Action for less than the "required Number of Channels," for the wide range water level instrument, namely two. The guidance requires restoration in 7 days or be in at least hot shutdown within the next 12 hours. No justification was provided for this deviation.

2. With less than the "minimum channels operable" for the wide range water level instrument, DPC requires restoration of operability within 30 days or the unit shall be in hot shutdown within the next 12 hours. The guidance requires restoration in 48 hours or be in at least hot shutdown within the next 12 hours. No justification was provided for this deviation.

3. For the narrow range water level instruments, DPC requires restoration of operability within 7 days or a report to the Commission within the next 30 days. The guidance requires restoration within 30 days or be in at least hot shutdown within the next 12 hours. No justification was given for this deviation.

4. DPC requires calibration at "refueling-outages (RF)." The guidance requires calibration at least once per 18 months. No justification was given for this deviation.

5. DPC in their letter of June 27, 1986,[8] did not respond to all of the NRC Staff concerns raised in the request for additional information in the NRC letter of November 25, 1985.[5] The NRC letter stated:

> "The Technical Specifications should be amended to require a hot shutdown if Containment Level Monitors are out of service for more than some reasonable period of time. The definition of this reasonable period should be supported by a description of alternative methods for establishing plant conditions and trends and an identification of the emergency operating procedures that would supplant the normal operating procedures for the interim. Duke should also describe the training that has been given to the operators for this degraded instrumentation and display condition."

The requirement for hot shutdown was partially responded to by DPC in their June 27, 1986,[8] response. The remaining requirements for hot shutdown that remain open are stated directly above in the noted deviations 1 and 3. The remaining NRC Staff concerns of alternate methods for establishing plant conditions and trends, emergency operating procedures, and operator training, although pertinent, should not be tied to closure of the technical specification issue, as these requirements are not specifically identified in the Generic Letter 83-37.

As a result of the review of the cited material, the Licensee's response is judged to not meet the guidance of the Generic Letter for Item II.F.1.5.

2.9 Containment Hydrogen Monitor (II.F.1.6)

The Generic Letter[1] contains the following statement:

> "Two independent containment hydrogen monitors should be operable at all times when the reactor is operating in Power Operation or Startup modes. LCO for these monitors should include the requirement that with one hydrogen monitor inoperable, the monitor should be restored to operable status within 30 days or the plant should be brought to at least a hot standby condition within the next 6 hours. If both monitors are inoperable, at least one monitor should be restored to operable status within 72 hours or the plant should be brought to at least hot standby condition within the next 6 hours. Typical surveillance requirements are provided in Enclosure 3."

Evaluation:

The Licensee responded in letter dated October 8, 1984,[3] proposing technical specification 3.5.6 and a correction letter dated August 27, 1985.[7] A request for additional information was submitted to the Licensee by the NRC Staff letter dated November 25, 1985.[5] The Licensee submitted a reply to the NRC request for additional information by letter

dated January 30, 1986.[10] The Licensee in it's reply[10] did not provide the requested additional information, which was "The Technical Specification should be amended as requested in GL 83-37 to include an appropriate LCO or Duke should provide the technical basis for not having the suggested amendment." Instead, DPC stated that their proposed technical specifications[3] for this item meets the intent of the Generic Letter 83-37.

> "As described in Section 15.16 of the Oconee FSAR, for the design basis hydrogen generation event, reduction of the containment hydrogen is not required until more than a month after the event. This is the time at which the containment hydrogen concentration will reach the control limit of 3.5 volume/percent. That is enough time to return any inoperable hydrogen monitor to an operable status and is consistent with the requirements of the proposed technical specification.
>
> "The containment hydrogen monitors, although provide indication of hydrogen concentrations during normal and post-accident conditions, they do not have a safety function in terms of accident mitigation. The containment hydrogen reduction is accomplished by the hook-up and operation of the Containment Hydrogen Recombiner System (CHRS). Presently, Oconee procedures required the hook-up and operation of the CHRS following a hydrogen generation event regardless of the hydrogen monitor indications. Proposed technical specifications governing the operation and maintenance of the CHRS are being developed for submittal in the near future.
>
> "Duke believes that the proposed technical specification meets the intent of the Generic Letter 83-37. The continuous function of the containment hydrogen monitors is not essential during the normal operation. For post-accident situations, the containment hydrogen concentration is controlled by the CHRS. However, the proposed technical specification assures that the containment hydrogen monitors will be operable when their function is needed."

DPC's justification for this position is inadequate for the following reasons.

As already explained in II.F.1.4, containment pressure monitor, above, the Generic Letter 83-37 accident monitoring instrumentation guidelines although applicable to design basis accidents because they provide the operator with information on the progression of an accident, were largely written to assess the approach to and recovery from beyond design basis

events. Therefore, DPC's discussion of their design basis hydrogen generation event and the allowable 30 days for repair before the control limit of 3.5 volume/percent hydrogen concentration is reached, is by itself inadequate because it does not address beyond design basis accident events. The Generic Letter 83-37 Actions were established to reduce the probability of entering a beyond design basis event without operable hydrogen monitors and not necessarily to allow for time for repair during a design basis event but before the hydrogen concentration control limit is reached.

DPC's discussion of their Containment Hydrogen Recombiner System (CHRS) is also inadequate as the requirements for combustible gas control were addressed concurrently with the hydrogen monitoring requirements by the NRC Staff (see NUREG-0578,[11] P. A-21, Capability to Install Hydrogen Recombiner at Each Light Water Nuclear Power Plant (Section 2.1.5.c), 10 CFR 50.44,[12] Standards for Combustible Gas Control System in Light-Water Cooled Power Reactors). Therefore, the existence of a CHRS is not a substitute for the hydrogen monitor requirements as implied by DPC.

For the purpose of this review, the following Licensee pages were used:

- P. 3.5-44 Licensee's letter of September 19, 1986[9]
- P. 3.5-43a Licensee's letter of August 27, 1985[7]
- P. 4.1-9 Licensee's letter of October 8, 1984[3]
- P. 4.1-8a Licensee's letter of October 8, 1984.[3]

The following deviations from the Generic Letter 83-37 guidance are noted (included here is a reiteration of the concerns in the NRC Staff request for additional information mentioned above[5] that were not answered by the Licensee's response of June 27, 1986[8]):

1. DPC stated that the provisions of Technical Specifications 3.0 do not apply. The guidance does not provide for any relief from the Section 3.0 requirements. No justification was provided for this deviation other than as already discussed above in response to DPC's January 30, 1986, letter.[10]

2. DPC requires only one of two hydrogen monitors to be operable. The guidance requires two independent containment hydrogen monitors to be operable. No justification was provided for this deviation other than as already discussed above in response to DPC's January 30, 1986, letter.[10]

3. DPC has no Action with only one inoperable hydrogen monitor. The guidance requires restoration of one inoperable hydrogen monitor within 30 days or be in at least hot standby within the next 6 hours. No justification was provided for this deviation other than as already discussed above in response to DPC's January 30, 1986, letter.[10]

4. With both hydrogen monitors inoperable, DPC allows 7 days to restore operability of one instrument or report the event to the Commission within the next 30 days. The guidance is for restoration in 72 hours or be in at least hot standby within the next 6 hours. No justification was provided for this deviation other than as already discussed above in response to DPC's January 30, 1986, letter.[10]

5. DPC requires a channel check monthly versus the guidance of at least once per 12 hours and requires no analog channel operational test versus the guidance of at least once every 31 days. Also, DPC requires channel calibration annually versus the guidance of at least once per 92 days on a staggered test basis. DPC also fails to state the hydrogen and nitrogen volume requirements for the calibration tests. No justification was provided for this deviation other than as already discussed above in response to DPC's January 30, 1986, letter.[10]

As a result of the review of the cited material, the Licensee's response is judged to not meet the requirements of the Generic Letter for Item II.F.1.6.

2.10 Instrumentation for Detection of Inadequate Core Cooling (II.F.2)

The Generic Letter[1] contains the following statement:

> "Subcooling margin monitors, core exit thermocouples, and a reactor coolant inventory tracking sytem (e.g., differential pressure measurement system designed by Westinghouse, Heated Junction Thermocouple System designed by Combustion Engineering, etc.) may be used to provide indication of the approach to, existence of, and recovery from inadequate core cooling (ICC). These instrumentation should be operable during Power Operation, Startup, and Hot Shutdown modes of operation for each reactor.
>
> "Subcooling margin monitors should have already been included in the present Technical Specifications. Technical Specifications for core exit thermocouples and the reactor coolant inventory tracking system should be included with other accident monitoring instrumentation in the present Technical Specifications. Four core-exit thermocouples in each core quadrant and two channels in the reactor coolant tracking system are required to be operable when the reactor is operating in any of the above mentioned modes. Minimum of two core-exit thermocouples in each quadrant and one channel in the reactor coolant tracking system should be operable at all times when the reactor is operating in any of the above mentioned modes. Typical acceptable LCO and surveillance requirements for accident monitoring instrumentation are provided in Enclosure 3."

Evaluation:

By letters dated October 8, 1984,[3] June 4, 1985,[13] and January 30, 1986,[10] DPC committed to submitting technical specifications for inadequate core cooling instrumentation 90 days after installation of the system for all three Oconee units (previously estimated for the fourth quarter of 1987[13]). The DPC letter of January 30, 1986,[10] was in response to a request for additional information from the NRC Staff by letter dated November 25, 1985.[5] This item is, therefore, open pending

receipt of technical specifications after the inventory tracking system has been installed and approved. However, the Licensee currently has in effect technical specifications for one item of II.F.2, namely the subcooling margin monitor. The subcooling margin monitor technical specification Sections are 3.1.12, Reactor Coolant System Subcooling Margin Monitor, and Table 4.1-2, Minimum Equipment Test Frequency, approved by Amendment Nos. 92, 92, and 85 for License Nos. DPR-38, DPR-47, and DPR-55 for Oconee Nuclear Station Units Nos. 1, 2, and 3.[14] Although Section 3.1.12 has not been identified by the Licensee as its response to II.F.2 for the subcooling margin monitor, Section 3.1.12 was reviewed against the Generic Letter 83-37 guidance; this with the expectation that the Licensee would most likely identify Section 3.1.12 as its response. The following deviations from the Generic Letter 83-37 guidance are noted:

1. In 3.1.12.1.a., DPC requires operability of the subcooling monitors when the average RCS coolant temperature is above 300°F. The guidance requires operability in Modes 1, 2, and 3. As Oconee has no Mode definitions, there is not a direct one-to-one relationship. Mode 3, hot standby, is characterized by $K_{eff} < 0.99$, 0% rated power, and $\geq$300°F. Oconee's "hot standby" condition (Definition 1.2.4 of the Technical Specifications) is characterized by reactor is critical, $\leq$2% rated power, and $T_{avg} > 525°F$. If the subcooling margin monitor was covered in the proposed Table 3.5.6.1,[3] Accident Monitoring Instrumentation, instead of in Section 3.1.12, this would locate it with other accident monitoring instrumentation as is done in the guidance. Also, the applicability in Table 3.5.6.1 of "at all times except for cold shutdown and refueling outages" would then unequivocally meet the guidance applicability of Modes 1, 2, and 3.

2. In 3.1.12.1.c., DPC allows relief to submit a report pursuant to Specification 6.6.2 that references 10 CFR 50.73, Licensee Event Report requirements. Although this relief is not explicitly stated in the guidance, it is acceptable here because (a) DPC

limits it to an outage of less than 4 hours with a backup method for determining subcooling margin in force, (b) the 4 hours is well within the 48 hours allowed for restoration of at least one monitor before hot shutdown is required, and (c) unless specifically directed otherwise by previous correspondence, 10 CFR 50.73 does not have applicability to the situation addressed in 3.1.12.1.

3. In Table 4.1-2, DPC only requires a functional test each refueling. The guidance calls for a channel check monthly and a calibration at least once per 18 months.

As a result of the review of the cited material, the Licensee's response for Technical Specifications for Item II.F.2, inadequate core cooling instrumentation, is open pending completion of installation and approval of the inventory tracking system. Also, comments have been provided for the existing technical specifications for the subcooling margin monitors. For the reasons cited above, these technical specifications for the subcooling margin monitor are judged not to meet the guidance of the Generic Letter.

2.11 Control Room Habitability Requirements (III.D.3.4)

The Generic Letter[1] contains the following statement:

> "Licensees should assure that control room operators will be adequately protected against the effects of the accidental release of toxic and/or radioactive gases and that the nuclear power plant can be safely operated or shutdown under design basis accident conditions. If the results of the analyses of postulated accidental release of toxic gases (at or near the plant) indicate any need for installing the toxic gas detection system, it should be included in the Technical Specifications. Typical acceptable LCO and surveillance requirements for such a detection system (e.g. chlorine detection system) are provided in Enclosure 3. All detection systems should be included in the Technical Specifications.

"In addition to the above requirements, other aspects of the control room habitability requirements should be included in the Technical Specifications for the control room emergency air cleanup system. Two independent control room emergency air cleanup systems should be operable continuously during all modes of plant operation and capable of meeting design requirements. Sample Technical Specifications are provided in Enclosure 3."

Evaluation:

By letters dated October 8, 1984,[3] and January 30, 1986,[10] DPC committed to submitting technical specifications for control room habitability by May 15, 1986. This submittal has not been received. Therefore, this item is open.

As a result of reviewing the cited material, the Licensee's response for Technical Specifications for Item III.D.3.4, control room habitability, is pending and, therefore, this item remains open.

3. ADDITIONAL INFORMATION REQUIRED TO COMPLETE THIS REVIEW

In Section 2, "Discussion and Evaluation," it is shown that for compliance with the Generic Letter,[1] additional information from or action by the Licensee is required for some items. Following is a compilation of the noncompliance items with a description for each of the needed information or action. As an alternative to revising the specifications as detailed below, the Licensee may provide site specific technical information and or safety analysis to justify why the revisions are not required for the protection of the public health and safety.

3.1 Reactor Coolant System Vents (II.B.1)

1. Submit a Technical Specification for LCO 3.1.13.1.a, that requires applicability of the reactor coolant system vents above 200°F rather than 250°F.

2. Submit a Technical Specification for LCO 3.1.13.1.a, that requires at least two valves in series powered from emergency buses and closed for each vent path.

3. In Specification 3.1.13.1.b, state the requirements for continued operation with an inoperable vent path of: Startup and/or Power Operation may continue provided the inoperable vent path is maintained closed with power removed from the valve actuator of all the valves in the inoperable vent path.

4. In Specifications 3.1.13.1.b and 3.1.13.1.c, when restoration cannot be made in 30 days, require hot standby within 6 hours and below 200°F within the following 30 hours rather than hot shutdown within the next 12 hours and below 250°F in an additional 24 hours.

5. Provide the Surveillance Requirements (4.4.11.1, 2., and 3.), as recommended in the Generic Letter.

3.2 Noble Gas Effluent Monitors (II.F.1.1)

1. Submit a Technical Specification revision for Table 3.5.6.1 that identifies multiple noble gas monitors for several locations, as recommended in the Generic Letter.

2. Submit a Technical Specification revision for Table 3.5.6.1 or create another table as recommended in the Generic Letter that provides alarm/trip setpoint and measurement range for the noble gas monitors.

3. Submit a Technical Specification revision for Section 3.5.6.2 for the noble gas monitors in the Action that requires 14 days to submit a Special Report to the Commission rather than 30 days, when the number of operable channels is less than the minimum channels operable requirement.

4. Submit a Technical Specification revision for Section 3.5.6.2 for the noble gas monitors in the Action for when the alarm/trip setpoint is exceeded, as recommended in the guidance.

5. Provide a channel check a least once per 12 hours for the noble gas monitors.

3.3 Containment High-Range Radiation Monitor (II.F.1.3)

1. Submit a revision to Table 3.5.6.1, requiring a minimum of two operable channels, as in the guidance.

2. Submit a revision to Table 3.5.6.1, that specifies alarm/trip setpoint and measurement range for the high-range radiation monitors or create another table, as recommended in the Generic Letter that provides alarm/trip setpoints and measurement range for the high-range radiation monitor.

3. Submit a revision to Specification 3.5.6.1, that specifies a Special Report to the Commission within the next 14 days with one channel inoperable after 7 days.

4. Specify an Action when the alarm/trip setpoint is exceeded, as in the guidance.

5. Specify an Action to initiate the preplanned alternate method of monitoring within 72 hours with an inoperable channel(s), as in the guidance.

6. Specify a Surveillance Requirement for a channel check at least once per 12 hours, as in the guidance.

7. Specify a Surveillance Requirement for a calibration at least once per 18 months, as in the guidance, rather than at refueling outages.

3.4 Containment Pressure Monitor (II.F.1.4)

1. Specify an Action for less than the "required number of channels" (two), as in the guidance.

2. With less than the "minimum channels operable" (one), revise the Action to require restoration in 48 hours or be in at least hot shutdown within the next 12 hours, as in the guidance.

3.5 Containment Water Level Monitor (II.F.1.5)

1. Specify an Action for less than the "required number of channels" (two), for the wide range water level instrument, of restore the inoperable channel(s) in 7 days or be in at least hot shutdown within the next 12 hours, as in the guidance.

2. Specify an Action for less than the "minimum channels operable" (one), for the wide range water level instrument, of restore the inoperable channel in 48 hours or be in at least hot shutdown within the next 12 hours, as in the guidance.

3. For the narrow range water level instrument, revise the Action, as in the guidance, to require hot shutdown within the next 12 hours if the allowable restoration period is not met.

4. Revise the calibration frequency, as in the guidance, to at least once per 18 months rather than at refueling outages.

3.6 Containment Hydrogen Monitor (II.F.1.6)

1. Delete the relief for exception to Specification 3.0, as this is not allowed per the guidance.

2. Revise the Specification, as in the guidance, to require two independent containment hydrogen monitors to be operable rather than just one.

3. Specify an Action for one inoperable hydrogen monitor, as in the guidance, of restore to operable status within 30 days or be in at least hot standby within the next 6 hours.

4. Revise the Action for two inoperable hydrogen monitors, as in the guidance, to restore at least one to operable status within 72 hours or be in at least hot standby within the next 6 hours.

5. Revise the Surveillance Requirements to state, as in the guidance, a channel check at least once per 12 hours rather than monthly, an analog channel operational test at least once per 31 days, a calibration at least once per 92 days on a staggered test basis rather than annually, and specify the hydrogen and nitrogen volume requirements for the calibration tests.

3.7 Instrumentation for Detection of Inadequate Core Cooling (II.F.2)

1. DPC should submit Technical Specifications 90 days after installation of the inventory tracking system for all three Oconee units, for the core exit thermocouples and reactor vessel level monitoring system, as previously committed.

2. Submit a revised specification for the subcooling margin monitors to state applicability, as in the guidance, for conditions characterized by the Standard Technical Specification "Hot Standby" (Mode 3) of $K_{eff} < 0.99$, 0% rated power, and $\geq$300°F. It is recommended that the specifications for the subcooled margin monitors be located in proposed Table 3.5.6.1, Accident Monitoring Instrumentation, as this would locate it with other accident monitoring instrumentation, as is done in the guidance.

3. Submit a revised Surveillance Requirement that provides a channel check monthly and a calibration at least once per 18 months for the subcooled margin monitors.

3.8 Control Room Habitability Requirements (III.D.3.4)

DPC should submit Technical Specifications for control room habitability, as in the guidance. As these specifications had been previously committed to by the Licensee for May 15, 1986,[10] the Licensee should expeditiously submit them or justify a further delay.

4. SUMMARY

The following subsections describe those issues addressed by the Licensee that were closed by previous NRC correspondence:

- o Postaccident Sampling (II.B.3)
- o Long Term Auxiliary Feedwater System Evaluation (II.E.1.1)
- o Sampling and Analysis of Plant Effluents (II.F.1.2).

The following subsections describe those issues addressed by the Licensee that are considered to be not in compliance with the guidance in Generic Letter 83-37:

- o Reactor Coolant System Vents (II.B.1.)
- o Noble Gas Effluent Monitors (II.F.1.1)
- o Containment High-Range Radiation Monitor (II.F.1.3)
- o Containment Pressure Monitor (II.F.1.4)
- o Containment Water Level Monitor (II.F.1.5)
- o Containment Hydrogen Monitor (II.F.1.6).

The Licensee has not submitted specifications for the following items pending equipment hardware installation and approval (although there are existing technical specifications for the subcooling margin monitor, one sub-item of II.F.2, they are inadequate):

- o Instrumentation for Detection of Inadequate Core Cooling (II.F.2.)
- o Control Room Habitability Requirements (III.D.3.4).

5. REFERENCES

1. D.G. Eisenhut, NRC letter, "To All Pressurized Power Reactor Licensees," NUREG-0737 Technical Specifications (Generic Letter 83-37), November 1, 1983.

2. NUREG-0737, Clarification of TMI Action Plan Requirements, published by the Division of Licensing, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, November 1980.

3. Hal B. Tucker letter to Harold R. Denton, "Oconee Nuclear Station Docket Nos. 50-269,-270,-287," Duke Power Company, October 8, 1984.

4. Hal B. Tucker letter to Harold R. Denton, "Oconee Nuclear Station Docket Nos. 50-269,-270,-287," Duke Power Company, August 13, 1986.

5. John F. Stolz letter to Hal B. Tucker, "Request For Additional Information: Generic Letter 83-37, NUREG-0737 Technical Specifications," U.S. Nuclear Regulatory Commission, November 25, 1985.

6. Helen Nicolaras letter to Hal B. Tucker, U.S. Nuclear Regulatory Commission, October 31, 1985.

7. Hal B. Tucker letter to Harold R. Denton, "Oconee Nuclear Station Docket Nos. 50-269, -270, -287," Duke Power Company, August 27, 1985.

8. Hal B. Tucker letter to Harold R. Denton, "Oconee Nuclear Station Docket Nos. 50-269, -270, -287," Duke Power Company, June 27, 1986.

9. Hal B. Tucker letter to Harold R. Denton, "Oconee Nuclear Station Docket Nos. 50-269, -270, -287," Duke Power Company, September 19, 1986.

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11. NUREG-0578, TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, July 1979.

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14. Robert W. Reid letter to William O. Parker, Jr., U.S. Nuclear Regulatory Commission, January 28, 1981.

15. NUREG-0103, Revision 4, Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, October 1980.

NRC FORM 335 (2.84) NRCM 1102, 3201, 3202

U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

SEE INSTRUCTIONS ON THE REVERSE

1 REPORT NUMBER (Assigned by TIDC and Vol. No., if any)

EGG-NTA-7507

2. TITLE AND SUBTITLE

Technical Evaluation Report for Oconee Nuclear Station Units 1, 2, and 3 Response to the U. S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation's Generic Letter No. 83-37

3 LEAVE BLANK

4 DATE REPORT COMPLETED

MONTH: March YEAR: 1987

5. AUTHOR(S)

J. C. Stachew

6 DATE REPORT ISSUED

MONTH: March YEAR: 1987

7 PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

NRR and I&E Support
EG&G Idaho, Inc.
P. O. Box 1625
Idaho Falls, ID 83415

8 PROJECT/TASK/WORK UNIT NUMBER

9 FIN OR GRANT NUMBER

D6022

10 SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555

11a TYPE OF REPORT

Final Technical Evaluation Report

b PERIOD COVERED (Inclusive dates)

12 SUPPLEMENTARY NOTES

13 ABSTRACT (200 words or less)

Interim Technical evaluation report on the audit of the Oconee Nuclear Station Units 1, 2, and 3 Technical Specifications performed for the NRC in connection with conformance to the requirements of the NRR Generic Letter No. 83-37, "NUREG-0737 Technical Specifications".

14 DOCUMENT ANALYSIS - a KEYWORDS/DESCRIPTORS

b IDENTIFIERS/OPEN-ENDED TERMS

15 AVAILABILITY STATEMENT

Unlimited

16 SECURITY CLASSIFICATION

(This page) Unclassified

(This report) Unclassified

17 NUMBER OF PAGES

18 PRICE