Duke Power

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August 22, 2005

U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Document Control Desk

SUBJECT: Duke Energy Corporation
Oconee Nuclear Station Units 1, 2, and 3
Docket Nos. 50-269, 270, and 287
Supplement to License Amendment Request (LAR) for Temporary Extension to Technical Specification 3.8.1, AC Sources - Operating
Technical Specification Change (TSC) 2005-07

In a submittal dated August 21, 2005 Duke Energy Corporation (Duke) proposed to amend the Facility Operating Licenses and Technical Specifications (TS) for Oconee Nuclear Station. This proposed amendment requested that the Completion Time (CT) of Technical Specification (TS) 3.8.1, AC Sources – Operating, Required Action (RA) C.2.1 be temporarily extended to allow for a total completion time of 168 hours.

On August 22, 2005 it was determined that a revision was needed to Duke Calculation OSC-8813, "NOED Risk Assessment for the Keowee Unit 2 Lockout on 8/10/2005". The original version incorporated an assumed conservative failure rate of 0.10 for the common cause case. It has been determined that this assumption is overly conservative as a result of the extensive trouble shooting efforts that have taken place since the August 20 lockout event. These efforts have not found any indication of a shared deficiency between the Keowee units. A common cause failure rate of 1.13E-2 was assumed in the revised version of OSC-8813. As a result of the OSC-8813 revision, the attached LAR Technical Justification, Attachment 3, has been revised accordingly.

The revisions to this portion of the LAR do not affect either the retyped or marked up TS page, included as Attachments 1 and 2 respectively. Also, this revision does not affect the conclusions of the No Significant Hazards Consideration or the Environmental Impact Analysis, which are included as Attachments 4 and 5 respectively.

Pursuant to 10 CFR 50.91, a copy of this amendment request is being sent to the designated official of the State of South Carolina.

A001

Risk reduction actions to be implemented during the TS extension period as detailed in the LAR are considered to be NRC commitments. These commitments are listed in Attachment 6 and will remain in effect for the duration of the extended Required Action Statement.

Due to the urgent nature of this amendment request, implementation for this proposed TS change is requested to occur immediately upon approval. Inquiries on this matter should be directed to Stephen C. Newman at 864-885-4388.

Very truly yours,

R. A. Jones, Vice President
Oconee Nuclear Site

xc w/Attachments:

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R. A. Jones, affirms that he is the person who subscribed his name to the foregoing statement, and that all the matters and facts set forth herein are true and correct to the best of his knowledge.

R. A. Jones, Vice President

Subscribed and sworn to me: 8/22/05
Date

Rebecca M Burrell, Notary Public

My commission expires: May 21, 2007
Date

SEAL

bxc w/Attachments:

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Oconee Master File – ON03DM (File OS 801.01)

ATTACHMENT 1

REVISED TECHNICAL SPECIFICATIONS

Remove Page	Insert Page
3.8.1-3	3.8.1-3

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. KHU or its required overhead emergency power path inoperable due to reasons other than Condition A.	C.1	Perform SR 3.8.1.3 for OPERABLE KHU.	1 hour if not performed in previous 12 hours AND Once per 7 days thereafter
	AND		
	C.2.1	Restore the KHU and its required overhead emergency power path to OPERABLE status.	----------NOTE---------- An additional 96 hours can be added to the following completion times. This expires on August 27, 2005 @1058 hours ---------- 72 hours AND 72 hours from discovery of inoperable KHU
	OR		
	C.2.2.1	Energize both standby buses from LCT via isolated power path.	72 hours AND 1 hour from subsequent discovery of deenergized standby bus
	AND		
	C.2.2.2	Suspend KHU generation to grid except for testing.	72 hours
	AND		

(continued)

ATTACHMENT 2

MARKUP OF TECHNICAL SPECIFICATIONS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. KHU or its required overhead emergency power path inoperable due to reasons other than Condition A.	C.1 Perform SR 3.8.1.3 for OPERABLE KHU.	1 hour if not performed in previous 12 hours AND Once per 7 days thereafter
	AND	
	C.2.1 Restore the KHU and its required overhead emergency power path to OPERABLE status.	72 hours AND 72 hours from discovery of inoperable KHU
	OR	
	C.2.2.1 Energize both standby buses from LCT via isolated power path.	72 hours AND 1 hour from subsequent discovery of deenergized standby bus
	AND	
	C.2.2.2 Suspend KHU generation to grid except for testing.	72 hours
	AND	

(continued)

---Note---
An additional 96 hours can be added to the following completion times. This expires on August 27, 2005 @ 1058 hours

ATTACHMENT 3

TECHNICAL JUSTIFICATION

ATTACHMENT 3

TECHNICAL JUSTIFICATION

PURPOSE

This purpose of this LAR is to obtain one-time NRC approval to extend the CT for TS 3.8.1 Condition C.2.1 in order to avoid an unplanned forced shutdown of all three Oconee Units and the potential safety consequences and operational risks associated with that action. Conservative risk analysis fully supports the requested additional time. Due to the emergency nature of this LAR, an expedited one-time TS extension is being requested.

The PRA analysis has been conducted by assuming the Keowee unit aligned to the overhead path is failed. Two cases are considered. First, the Keowee unit aligned to the underground path is assumed to not be affected by a similar component failure and its failure probability is the normal random failure probability. Second, the Keowee unit aligned to the underground path is assumed to be potentially affected by a similar component failure. A common cause failure probability of 1.13E-2 is assumed as the failure probability of the underground unit based on high confidence that a component failure does not transport to the Keowee unit aligned to the underground path.

In both cases, the risk results support a 96 hour extension of the completion time.

BACKGROUND

Technical Specification Limiting Condition for Operation (LCO) 3.8.1, Condition C.2.1, was entered for all three Oconee Units beginning on Saturday, August 20, 2005 at 1058 hours. The condition was initially entered for Keowee Hydro Unit 2 (KHU #2) testing. Shortly thereafter, KHU #2 experienced an emergency lockout condition. While logged into LCO 3.8.1, required action (RA) C.1 commenced that verified, within the required completion time (CT), the operability of the remaining KHU Unit 1 and underground power path.

Pursuant to LCO 3.8.1, RA C.2.1, if the inoperable KHU Unit is not restored by 1058 hours on Tuesday, August 23, 2005, Condition M applies and all three Oconee Units must be in MODE 3 within 12 hours and MODE 5 within 84 hours. This proposed change seeks additional time to extend the CT for RA C.2.1 in order to continue troubleshooting efforts, perform repairs, and to return the unit to service. At the time of this submittal, the root cause of the condition has not been determined; however, a unit threat team has been formed and is working around the clock to determine the cause and subsequent repairs to prevent recurrence.

A similar event occurred to KHU # 2 on August 10, 2005. During a normal start on that day, an emergency lockout signal was received. LCO 3.8.1 RA C.2.1 was entered at time of lockout. Exhaustive troubleshooting singled out a Bus Differential Relay as the most probable cause of the event. This relay was replaced with a refurbished and tested (at the manufacturer's facility in Coral

Gables, Florida) spare, and post-maintenance testing was determined to be acceptable. At that time, there was reasonable assurance that this relay had caused the lockout condition. Approximately 10 start cycles of KHU # 2 have taken place since that time with no further lockout indications until the August 20, 2005 event.

DESCRIPTION OF PROPOSED CHANGE

The proposed amendment requests that the CT for TS LCO 3.8.1, "AC Sources – Operating," required action (RA) C.2.1 be extended 96 hours to provide additional time to effect repairs on KHU #2. This CT will be revised to restore the KHU, along with its required overhead emergency power path, to OPERABLE status within 168 hours from the time of initial TS LCO 3.8.1 entry. A "Note" will also be added to document that this is a one-time change expiring on August 27, 2005 at 1058 hours.

JUSTIFICATION

Revision 3 of the Oconee Probabilistic Risk Assessment fault tree and databases were used to perform a risk evaluation to justify the extension from 72 hours to 168 hours. This evaluation was documented in Duke Calculation OSC-8813, "NOED Risk Assessment for the Keowee Unit 2 Lockout on 8/10/2005," created by the Corporate PRA Group. The intent of this original calculation was to support a NOED request for a similar lockout event that occurred on KHU #2 August 10, 2005 as described previously. OSC-8813 was initially approved and issued during the week of August 15, 2005. The NOED was not required since KHU #2 was restored to operable status prior to expiration of the CT. Since the August 20, 2005 lockout event is essentially identical to the previous event, assumptions and limitations are the same and the conclusions of this calculation remain valid to justify this TS change request. Following extensive troubleshooting efforts following the August 20 KHU #2 lockout event, OSC-8813 was subsequently revised and approved on August 22, 2005 to include updated common cause probability data.

Results and conclusions:

The ICCDP and ICLERP are estimated on a per day basis.

The upper bound ICCDP is (3.6E-05 - 3.5E-05)/0.9/365 = 3.0E-09/day.

The upper bound ICLERP is (2.0E-06 - 2.0E-06)/0.9/365 = 0/day.

From the NRC Inspection Manual Part 9900, the guidance is for the ICCDP and ICLERP to be less than 5E-07 and 5E-08 respectively.

Using the upper bound estimates the ICCDP is limiting and would justify an extension of approximately 166 days.

For the common cause case:

The upper bound ICCDF is (3.8E-05 - 3.5E-05)/0.9/365 = 9.1E-09/day.

The upper bound ICLERF is (2.0E-06 - 2.0E-06)/0.9/365 = 0/day.

Therefore, assuming common cause effects, using the upper bound estimates the ICCDP is limiting and would justify an extension of approximately 55 days. Oconee is requesting a 96 hour extension. The ICCDP assuming common cause effects for the 96 hour extension is 3.6E-8.

In summary, the requested 96 hour extension request would result in an ICCDP increase of 3.6E-8. For reference, although not a permanent change request, these values are well below the required ICCDP and ICLERP acceptance thresholds described in RG 1.177.

Bases for the extension:

The ICCDP and ICLERP have been conservatively evaluated to be 3.0E-09/day and 0/day respectively. These values would justify an additional 166 days of operation to restore Keowee Unit 2. If the impacts of common cause are considered, the ICCDF and ICLERF have been conservatively evaluated to be 9.1E-09/day and 0/day respectively. These values would justify a total of 168 hours of operation to restore Keowee Unit 2. The core damage result is limiting. This result is judged to be conservative as many new cutsets containing previously unanalyzed combinations of human errors are present in the results. The human error probability is assumed to be 1.0 for those human actions not included in the dependency analysis, that is, complete dependency is assumed for the additional human actions in the cutset.

The dominant contributors to the CDF risk are Loss of Offsite Power (LOOP) initiated sequences. With Keowee Unit 2 unavailable, a station blackout results if Keowee Unit 1 and LCT also fail. Subsequent failure of the SSF leads to a seal LOCA with no injection capability available and results in core damage.

Additional risk reduction actions will be taken during the extension period.

The following items are not credited in the PRA evaluation but will be performed as additional risk reduction measures:

I. **Pre-stage Operators at the SSF.** To improve the reliability of the SSF which can maintain the plant in a safe condition completely independent of emergency power. This measure has not been included in the quantitative evaluation. However, an improvement in the operator response for manning the SSF would reduce the estimated CDF.

II. **No high risk maintenance work that could cause an Oconee trip.** No planned high risk maintenance activities, that could cause a trip or render safety systems with mitigation functions unavailable, will be undertaken during the extension period.

III. **Start a second LCT and maintain in hot idle conditions.** During the 96 hour extension period, a Lee Combustion Turbine (LCT) will be energizing the standby bus via an isolated power path. A second LCT is operating in standby. The third remaining LCT is also available and can be started and used to supply both standby buses should the running LCT fail. To enhance unit availability, no major preventative maintenance work will be performed on the third LCT.

With a conservative assumption concerning common cause, a seven (7) day extension to the completion time can be supported.

External events are accounted for in the PRA model with the exception of the seismic events. The seismic sequences typically involve failure of the switchyard power insulators and would not be sensitive to the unavailability of Keowee Unit 2. Seismic events that are important to the core damage frequency are of such magnitude that the switchyard and offsite power are lost. As such the overhead path, to which the unavailable Keowee unit is aligned, is also failed. This reduces the importance of the unit aligned to the overhead path. Additionally, the seismic results are rarely sensitive to the unavailability of a single component. The seismic contribution to the change in CDF is judged to be negligible compared to the results from the other initiating events.

ATTACHMENT 4

NO SIGNIFICANT HAZARDS CONSIDERATION

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NO SIGNIFICANT HAZARDS CONSIDERATION

Pursuant to 10 CFR 50.91, Duke Power Company (Duke) has made the determination that this amendment request involves a No Significant Hazards Consideration by applying the standards established by the NRC regulations in 10 CFR 50.92. This ensures that operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated:

Response: No

The request for enforcement discretion involves a one-time extension of the Completion Time for Required Action C.2.1 associated with restoring compliance with TS LCO 3.8.1.

The probability of an event occurring during the extended Completion Time of 168 hours are the same as those that would occur during the existing 72-hour Completion Time; therefore, the probability of an accident previously evaluated is not significantly increased.

The consequences associated with extending the Completion Time to 168 hours have been evaluated and results show only a minimal increase for a previously evaluated accident. In addition, the additional time to effect repairs to the KHU will permit Duke to avoid an unplanned forced shutdown of all three Oconee Units and the potential safety consequences and operational risks associated with that action.

There are no adverse impacts on containment integrity, radiological release pathways, fuel design, filtration systems, main steam relief valve set points, or radwaste systems. No new radiological release pathways are created.

As additional conservative measures, a Lee Combustion Turbine (LCT) will be energizing the standby bus via an isolated power path. A second LCT is operating in standby. The third remaining LCT is also available and can be started and used to supply both standby buses should the running LCT fail. Also, several risk reduction actions will be implemented to further reduce the risk impact during the extension period.

(2) Create the possibility of a new or different kind of accident from any kind of accident previously evaluated:

Response: No

The request for this one-time TS change involves an extension of the Completion Time for TS LCO 3.8.1, RA C.2.1, associated with restoring compliance with the LCO. The proposed change will not physically alter the present plant configuration nor adversely effect how the plant is currently operated. Also, measures previously specified in this submittal are in-place as additional risk minimizing actions; Consequently, this request does not create the possibility of a new or different kind of accident from any kind of accident previously evaluated.

(3) Involve a significant reduction in a margin of safety.

Response: No

Since the proposed change will not physically alter the present plant configuration nor adversely effect how the plant is currently operated, the proposed change does not adversely affect any plant safety limits, setpoints, or design parameters. The change also does not adversely affect the fuel, fuel cladding, Reactor Coolant System, or containment integrity. Also, measures previously specified in this submittal are in-place as additional risk minimizing actions. Therefore, the proposed change does not involve a reduction in a margin of safety.

Duke has concluded that, based on the above responses, that there are no significant hazards considerations involved in this amendment request.

ATTACHMENT 5

ENVIRONMENTAL ASSESSMENT

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ENVIRONMENTAL ASSESSMENT

Pursuant to 10 CFR 51.22(b), an evaluation of the license amendment request (LAR) has been performed to determine whether or not it meets the criteria for categorical exclusion set forth in 10 CFR 51.22(c)9 of the regulations. The LAR does not involve:

1) A significant hazards consideration.

   The consequences of an event occurring during the extended Completion Time of 168 hours are the same as those that would occur during the existing 72-hour Completion Time. Therefore, the probability or consequences of an accident previously evaluated is not significantly increased.

   This conclusion is supported by the determination of no significant hazards contained in Attachment 4.

2) A significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

   This LAR will not change the types or amounts of any effluents that may be released offsite.

3) A significant increase in the individual or cumulative occupational radiation exposure.

   This LAR will not increase the individual or cumulative occupational radiation exposure.

In summary, this LAR meets the criteria set forth in 10 CFR 51.22 (c) 9 of the regulations for categorical exclusion from an environmental impact statement.

ATTACHMENT 6

COMMITMENTS

The following commitment table identifies those actions committed to by Duke Energy Corporation (Duke) in this submittal. These commitments will remain in effect for the duration of the extended Required Action Statement. Other actions discussed in the submittal represent intended or planned actions by Duke. They are described to the Nuclear Regulatory Commission (NRC) for the NRC's information and are not regulatory commitments.

Commitment	Implementation Date
Pre-stage Operators at the SSF	August 21, 2005
No high risk maintenance work will be performed that could cause an Oconee trip	August 21, 2005
Start a second LCT and maintain in hot idle conditions	August 21, 2005