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August 22, 2002

U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Oconee Nuclear Station
Docket Numbers 50-269, 270, and 287
License Amendment Request for Temporary Extensions to the Completion Times for One or Two Keowee Hydro Units Inoperable
Technical Specification Change (TSC) Number 2002-05

Pursuant to Title 10, Code of Federal Regulations, Part 50, Section 90 (10 CFR 50.90), Duke Energy (Duke) proposes to amend Appendix A, Technical Specifications (TSs), for Facility Operating Licenses DPR-38, DPR-47 and DPR-55 for Oconee Nuclear Station, Units 1, 2, and 3, respectively. The proposed license amendment request (LAR) involves a temporary extension of TS 3.8.1 Required Action (RA) Completion Times when in the Conditions for one or two Keowee Hydro Unit (KHU) inoperable to support significant maintenance and upgrades.

The Keowee hydroelectric station has been in service since 1971, with the last major overhaul performed in 1985. Duke Power experience with comparable hydro stations indicates that a complete inspection and overhaul of each KHU is necessary to ensure future reliability. As part of the Oconee Refurbishment Program, Duke performed a design study to determine the overall health of the KHUs. The inspection and review included in this study revealed no major problems. However, degradation due to cavitation is evident as a normal condition for hydro operation and requires weld repair to the turbine blades and discharge ring.

By letter dated November 29, 2001, Duke advised the NRC that a temporary LAR to support planned maintenance work on the KHUs would be submitted. Duke plans to implement

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significant upgrades on the KHUs in 2003 and 2004. This work currently includes replacement of the governor, exciters, and batteries, and weld repair on the turbine blades and discharge ring along with draft tube concrete repair. An out of tolerance (OOT) logic modification will also be implemented. The OOT logic modification, in combination with the installation of a digital governor, will resolve the KHU frequency and voltage overshoot characteristic.

Duke has determined that a six-day, dual unit outage will be necessary to isolate a KHU from the common intake for repair and to restore the other KHU to operable status. This estimate is based on Duke's previous experience with KHU isolation in 1979 and 1983 for similar turbine weld repair. The turbine repair work on the isolated unit may take as long as 45 days. Following completion of the work on the isolated unit, Duke estimates that a four-day, dual unit outage will then be required to unisolate the refurbished KHU. Additional testing will then be required to restore the refurbished KHU to OPERABLE status. The governor, exciter and batteries will be replaced within the same work window.

The planned overhaul work will be performed for each Keowee unit so two different Keowee outages of similar duration will be necessary. This work will be controlled by a critical evolution plan, which requires Plant Operations Review Committee approval. The work will be categorized as a planned overhaul activity relative to reporting unavailable Performance Indicator hours in accordance with NEI 99-02, Revision 2.

To support this effort, Duke requests to temporarily extend the Completion Time for restoring one Keowee Hydro Unit (KHU) when both are inoperable from 60 hours to 144 hours for KHU Refurbishment Upgrades performed prior to April 30, 2005. The proposed LAR also temporarily extends the Completion Time for restoring the KHU associated with the overhead emergency power path from 45 days to 62 days for the same reason. Currently, TS 3.8.1, Required Action H.2, requires one KHU and its required emergency power path to be restored to OPERABLE status within 60 hours. TS 3.8.1 Required Action C.2.2.5 requires the KHU and its required overhead emergency power path to be restored to operable status within 45 days of discovery of an initial

inoperability when Condition C is entered due to an inoperable KHU if not used for that KHU in the previous 3 years.

Duke evaluated the risk significance of exceeding the current Technical Specification Completion Times for the Keowee maintenance activity described above. The evaluation concluded that, with compensatory measures, extending the Completion Times is not risk significant for this one comprehensive evolution for each KHU.

The revised Technical Specification pages are included in Attachment 1. Attachment 2 contains the markup of the current Technical Specification pages. The Technical Justification for the amendment request is included in Attachment 3. Attachments 4 and 5 contain the No Significant Hazards Consideration Evaluation and the Environmental Impact Analysis, respectively.

Duke requests approval of the proposed LAR by May 16, 2003, to allow the planned maintenance described above to be performed during 2003 and 2004.

Implementation of these changes will not result in an undue risk to the health and safety of the public.

The Oconee Updated Final Safety Analysis Report has been reviewed and no changes are necessary to support this LAR.

This proposed change to the Technical Specifications has been reviewed and approved by the Plant Operations Review Committee and Nuclear Safety Review Board.

Pursuant to 10 CFR 50.91, a copy of this proposed amendment is being sent to the South Carolina Department of Health and Environmental Control for review, and as deemed necessary and appropriate, subsequent consultation with the NRC staff.

If there are any additional questions, please contact Boyd Shingleton at (864) 885-4716.

Very truly yours,

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

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W. R. McCollum, Jr., being duly sworn, states that he is Vice President, Oconee Nuclear Site, Duke Energy Corporation, that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this revision to Facility Operating License Nos. DPR-38, DPR-47, DPR-55; and that all the statements and matters set forth herein are true and correct to the best of his knowledge.

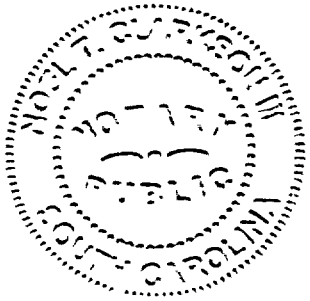
W. R. McCollum, Jr., Vice President
Oconee Nuclear Site

Subscribed and sworn to before me this 22nd day of August, 2002

Notary Public

My Commission Expires:

9-20-2009



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Attachment 1

ATTACHMENT 1

TECHNICAL SPECIFICATION

Remove Page	Insert Page
3.8.1-5	3.8.1-5
3.8.1-8	3.8.1-8
B 3.8.1-10 thru 15	B 3.8.1-10 thru 15

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.2.5 Restore KHU and its required overhead emergency power path to OPERABLE status.	28 days when Condition due to an inoperable Keowee main step-up transformer AND ----------NOTE---------- An additional 17 days is allowed when Condition entered to perform Keowee Refurbishment Upgrades prior to April 30, 2005 ---------- 45 days from discovery of initial inoperability when Condition due to an inoperable KHU if not used for that KHU in the previous 3 years

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. ----------NOTE---------- Condition may be entered only when both required offsite sources are verified by administrative means to be OPERABLE and the requirements of LCO 3.8.3, "DC Sources-Operating;" LCO 3.8.6, "Vital Inverters-Operating;" LCO 3.8.8, "Distribution Systems-Operating;" LCO 3.3.17, "EPSL Automatic Transfer Function;" LCO 3.3.18, "EPSL Voltage Sensing Circuits;" LCO 3.3.19, "EPSL 230 kV Switchyard DGVP," are verified by administrative means to be met. ---------- Both KHUs or their required emergency power paths inoperable for planned maintenance or test with both standby buses energized from LCT via isolated power path.	H.1 Energize both standby buses from LCT via isolated power path. AND H.2 Restore one KHU and its required emergency power path to OPERABLE status.	1 hour from discovery of deenergized standby bus ----------NOTE---------- An additional 84 hours is allowed when Condition entered to perform Keowee Refurbishment Upgrades prior to April 30, 2005 ---------- 60 hours

(continued)

BASES

ACTIONS

C.1, C.2.1, C.2.2.1, C.2.2.2, C.2.2.3, C.2.2.4, and C.2.2.5 (continued)

repairs which are estimated to be necessary every six to eight years. Also, generator thrust and guide bearing replacements are necessary. Other items which manifest as failures are expected to be rare and may be performed during the permitted maintenance periods. As such, the 45 day restoration time of Required Action C.2.2.5 is allowed only once in a three year period for each KHU. This Completion Time is 45 days from discovery of initial inoperability of the KHU. This effectively limits the time the KHU can be inoperable to 45 days from discovery of initial inoperability rather than 45 days from entry into Condition C and precludes any additional time that may be gained as a result of switching an inoperable KHU from the underground to the overhead emergency power path. The 45 day Completion Time is modified by a note indicating that an additional 17 days is allowed when Condition C is entered to perform Keowee Refurbishment Upgrades prior to April 30, 2005. These upgrades include, but are not limited to, hydro turbine runner and discharge ring weld repair, governor, exciter and battery replacement, and an out-of-tolerance logic circuit modification. The additional 17 days is allowed to be used once for each KHU for upgrade work performed prior to April 30, 2005.

Required Actions C.2.2.1, C.2.2.2, C.2.2.3, and C.2.2.4 must be met in order to allow the longer restoration times of Required Action C.2.2.5. Required Action C.2.2.1 requires that both standby buses be energized using an LCT through the 100 kV transmission circuit. With this arrangement (100 kV transmission circuit electrically separated from the system grid and all offsite loads), a high degree of reliability for the emergency power system is provided. In this configuration, the LCT is serving as a second emergency power source, however, since the 100 kV transmission circuit is vulnerable to severe weather a time limit is imposed. The second Completion Time of Required Action C.2.2.1 permits the standby buses to be re-energized by an LCT within 1 hour in the event this source is subsequently lost. Required Action C.2.2.2 requires suspension of KHU generation to the grid except for testing. The restriction reduces the number of possible failures which could cause loss of the underground emergency power path. Required Action C.2.2.3 requires verifying by administrative means that the remaining KHU and its required underground emergency power path and both required offsite sources are OPERABLE. This provides additional assurance that offsite power will be available. In addition, this assures that the KHU and its required underground emergency power path are available. Required Action C.2.2.3 also requires verifying by administrative means that the requirements of the following LCOs are met:

BASES

ACTIONS

C.1, C.2.1, C.2.2.1, C.2.2.2, C.2.2.3, C.2.2.4, and C.2.2.5 (continued)

LCO 3.8.3, "DC Sources – Operating;"

LCO 3.8.6, "Vital Inverters – Operating;"

LCO 3.8.8, "Distribution Systems – Operating;"

LCO 3.3.17, "EPSL Automatic Transfer Function;"

LCO 3.3.18, "EPSL Voltage Sensing Circuits;"

LCO 3.3.19, "EPSL 230 kV Switchyard DGVP;" and

LCO 3.3.21, "EPSL Keowee Emergency Start Function."

This increases the probability, even in the unlikely event of an additional failure, that the DC power system and the 120 VAC Vital Instrumentation power panelboards will function as required to support EPSL, power will not be lost to ES equipment, and EPSL will function as required.

Verifying by administrative means allows a check of logs or other information to determine the OPERABILITY status of required equipment in place of requiring unique performance of Surveillance Requirements. If the AC Source is subsequently determined inoperable, or an LCO stated in Required Action C.2.2.3 is subsequently determined not met, continued operation up to a maximum of four hours is allowed by ACTION L.

Required Action C.2.2.4 requires verifying alternate power source capability by performing SR 3.8.1.16. This confirms that entry into Condition C is due only to an inoperable main step-up transformer or an inoperable KHU, as applicable. If SR 3.8.1.16 is subsequently determined not met, continued operation up to a maximum of four hours is allowed by ACTION L.

D.1, D.2 and D.3

With the KHU or its required underground emergency power path inoperable, sufficient AC power sources remain available to ensure safe shutdown of the unit in the event of a transient or accident. Operation may continue for 72 hours if the remaining KHU and its required overhead emergency power path are tested using SR 3.8.1.4 within one hour if not performed in the previous 12 hours. SR 3.8.1.4 is only required to be performed when the KHU associated with the overhead

BASES

ACTIONS

D.1, D.2 and D.3 (continued)

emergency power path is OPERABLE. This Required Action provides assurance that no undetected failures have occurred in the overhead emergency power path. Since Required Action D.1 only specifies "perform," a failure of SR 3.8.1.4 acceptance criteria does not result in a Required Action not met. However, if the KHU and its required overhead emergency path fails SR 3.8.1.4, both KHUs and their required emergency power paths are inoperable, and Condition I for both KHUs and their emergency power paths inoperable for reasons other than Condition G or H is entered concurrent with Condition D. This demonstration is to assure that the remaining emergency power path is not inoperable due to a common cause or due to an undetected failure. For outages of the KHU and its required underground emergency power path in excess of 24 hours, an LCT (using the 100 kV transmission circuit electrically separated from the grid and offsite loads) must energize a standby bus prior to the outage exceeding 24 hours. This ensures the availability of a power source on the standby buses when the KHU and its required underground emergency power path are out of service in excess of 24 hours. The second Completion Time of Required Action D.2 permits the standby buses to be re-energized by an LCT within 1 hour in the event this source is subsequently lost.

The second Completion Time for Required Action D.3 establishes a limit on the maximum time allowed for a KHU to be inoperable during any single contiguous occurrence of having a KHU inoperable. If Condition D is entered as a result of switching an inoperable KHU from the overhead to the underground emergency power path, it may have been inoperable for up to 72 hours. This could lead to a total of 144 hours since the initial failure of the KHU. The second Completion Time allows for an exception to the normal "time zero" for beginning the allowed time "clock." This will result in establishing the "time zero" at the time the KHU become inoperable, instead of at the time Condition D was entered.

E.1 and E.2

If the Required Action and associated Completion Time for Required Action D.2 are not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours for one Oconee unit and 24 hours for other Oconee unit(s) and to MODE 5 within 84 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

F.1 and F.2

With the zone overlap protection circuitry inoperable when the overhead electrical disconnects for the KHU associated with the underground power path are closed, the zone overlap protection circuitry must be restored to OPERABLE status or the overhead electrical disconnects must be opened within 72 hours. In this Condition, both KHUs and their required emergency power paths are OPERABLE, however a single failure could result in the loss of both KHUs.

G.1

With both emergency power paths inoperable due to an E breaker and S breaker inoperable on the same main feeder bus, one breaker must be restored to OPERABLE status. In this Condition, both emergency power paths can still provide power to the remaining main feeder bus.

H.1 and H.2

With both KHUs or their required emergency power paths inoperable for planned maintenance or test with both standby buses energized from an LCT via an isolated power path, the KHU must be restored to OPERABLE status within 60 hours. The 60 hour Completion Time is modified by a Note indicating that an additional 84 hours is allowed when Condition H is entered to perform Keowee Refurbishment Upgrades prior to April 30, 2005. These upgrades include, but are not limited to, hydro turbine runner and discharge ring weld repair, governor, exciter and battery replacement, and an out-of-tolerance logic circuit modification. Operation with both KHUs and their required power paths inoperable is permitted for 60 hours or 144 hours provided that both standby buses are energized using an LCT through the 100 kV transmission circuit and the requirements of the Note to the Condition are met. The Note to the Condition indicates that it may only be entered when both offsite sources are verified by administrative means to be OPERABLE and the requirements of the following LCOs are verified by administrative means to be met:

LCO 3.8.3, "DC Sources – Operating;"

LCO 3.8.6, "Vital Inverters – Operating;"

LCO 3.8.8, "Distribution Systems – Operating;"

LCO 3.3.17, "EPSL Automatic Transfer Function;"

BASES

ACTIONS

H.1 and H.2 (continued)

LCO 3.3.18, "EPSL Voltage Sensing Circuits;" and

LCO 3.3.19, "EPSL 230 kV Switchyard DGVP."

This increases the probability, even in the unlikely event of an additional failure, that the DC power system and the 120 VAC Vital Instrumentation power panelboards will function as required to support EPSL, power will not be lost to ES equipment, and EPSL will function as required.

Verifying by administrative means allows a check of logs or other information to determine the OPERABILITY status of required equipment in place of requiring unique performance of Surveillance Requirements. If the AC Source is subsequently determined inoperable, or an LCO stated in the Note to Condition H is subsequently determined not met, continued operation up to a maximum of four hours is allowed by ACTION L.

With both standby buses energized from an LCT via an isolated power path (100 kV transmission circuit electrically separated from the system grid and all offsite loads), a high degree of reliability for the emergency power system is provided. In this configuration, the LCT is serving as a second emergency power source, however, since the Oconee Units are vulnerable to a single failure of the 100 kV transmission circuit a time limit of 60 hours is imposed. Required Action H.1 permits the standby buses to be re-energized by an LCT within 1 hour in the event this source is subsequently lost.

If both emergency power paths are restored, unrestricted operation may continue. If only one power path is restored, operation may continue per ACTIONS C or D.

I.1, I.2, and I.3

With both KHUs or their required emergency power paths inoperable for reasons other than Conditions G and H, insufficient standby AC power sources are available to supply the minimum required ES functions. In this Condition, the offsite power system is the only source of AC power available for this level of degradation. The risk associated with continued operation for one hour without an emergency power source is considered acceptable due to the low likelihood of a LOOP during this time period, and because of the potential for grid instability caused by the simultaneous shutdown of all three units. This instability would increase

BASES

ACTIONS

I.1, I.2, and I.3 (continued)

the probability of a total loss of AC power. Operation with both KHUs or their required power paths inoperable is permitted for 12 hours provided that Required Actions I.1 and I.2 are met. Required Action I.1 requires that both standby buses be energized using an LCT via an isolated power path. With this arrangement (100 kV transmission circuit electrically separated from the system grid and all offsite loads), a high degree of reliability for the emergency power system is provided. In this configuration, the LCT is serving as a second emergency power source, however, since the Oconee Units are vulnerable to a single failure of the 100 kV transmission circuit a time limit of 12 hours is imposed. The second Completion Time of Required Action I.1 permits the standby buses to be re-energized by an LCT within 1 hour in the event this source is subsequently lost. Required Action I.2 requires that the OPERABILITY status of both offsite sources be determined by administrative means and that the OPERABILITY status of equipment required by the following LCOs be determined by administrative means:

LCO 3.8.3, "DC Sources – Operating;"

LCO 3.8.6, "Vital Inverters – Operating;"

LCO 3.8.8, "Distribution Systems – Operating;"

LCO 3.3.17, "EPSL Automatic Transfer Function;"

LCO 3.3.18, "EPSL Voltage Sensing Circuits;" and

LCO 3.3.19, "EPSL 230 kV Switchyard DGVP."

This increases the probability, even in the unlikely event of an additional failure, that the DC power system and the 120 VAC Vital Instrumentation power panelboards will function as required to support EPSL, power will not be lost to ES equipment, and EPSL will function as required.

Determining by administrative means allows a check of logs or other information to determine the OPERABILITY status of required equipment in place of requiring unique performance of Surveillance Requirements. If the AC Source is initially or subsequently determined inoperable, or an LCO stated in Required Action I.2 is initially or subsequently determined not met, continued operation up to a maximum of four hours is allowed by ACTION L.

If both emergency power paths are restored, unrestricted operation may continue. If only one power path is restored, operation may continue per ACTIONS C or D.

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Attachment 2

ATTACHMENT 2

MARKUP OF TECHNICAL SPECIFICATION

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.2.5 Restore KHU and its required overhead emergency power path to OPERABLE status.	28 days when Condition due to an inoperable Keowee main step-up transformer AND 45 days from discovery of initial inoperability when Condition due to an inoperable KHU if not used for that KHU in the previous 3 years

(continued)

----------NOTE----------
An additional 17 days is allowed when Condition entered to perform Keowee Refurbishment Upgrades prior to April 30, 2005

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. ----------NOTE---------- Condition may be entered only when both required offsite sources are verified by administrative means to be OPERABLE and the requirements of LCO 3.8.3, "DC Sources-Operating;" LCO 3.8.6, "Vital Inverters-Operating;" LCO 3.8.8, "Distribution Systems-Operating;" LCO 3.3.17, "EPSL Automatic Transfer Function;" LCO 3.3.18, "EPSL Voltage Sensing Circuits;" LCO 3.3.19, "EPSL 230 kV Switchyard DGVP," are verified by administrative means to be met. ---------- Both KHUs or their required emergency power paths inoperable for planned maintenance or test with both standby buses energized from LCT via isolated power path.	H.1 Energize both standby buses from LCT via isolated power path. AND H.2 Restore one KHU and its required emergency power path to OPERABLE status. ----------NOTE---------- An additional 84 hours is allowed when Condition entered to perform Keowee Refurbishment Upgrades prior to April 30, 2005 ----------	1 hour from discovery of deenergized standby bus 60 hours

(continued)

The 45 day Completion Time is modified by a note indicating that an additional 17 days is allowed when Condition C is entered to perform Keowee Refurbishment Upgrades prior to April 30, 2005. These upgrades include, but are not limited to, hydro turbine runner and discharge ring weld repair, governor, exciter and battery replacement, and an out-of-tolerance logic circuit modification. The additional 17 days is allowed to be used once for each KHU for upgrade work performed prior to April 30, 2005.

BASES

ACTIONS

C.1, C.2.1, C.2.2.1, C.2.2.2, C.2.2.3, C.2.2.4, and C.2.2.5 (continued)

repairs which are estimated to be necessary every six to eight years. Also, generator thrust and guide bearing replacements are necessary. Other items which manifest as failures are expected to be rare and may be performed during the permitted maintenance periods. As such, the 45 day restoration time of Required Action C.2.2.5 is allowed only once in a three year period for each KHU. This Completion Time is 45 days from discovery of initial inoperability of the KHU. This effectively limits the time the KHU can be inoperable to 45 days from discovery of initial inoperability rather than 45 days from entry into Condition C and precludes any additional time that may be gained as a result of switching an inoperable KHU from the underground to the overhead emergency power path.

Required Actions C.2.2.1, C.2.2.2, C.2.2.3, and C.2.2.4 must be met in order to allow the longer restoration times of Required Action C.2.2.5. Required Action C.2.2.1 requires that both standby buses be energized using an LCT through the 100 kV transmission circuit. With this arrangement (100 kV transmission circuit electrically separated from the system grid and all offsite loads), a high degree of reliability for the emergency power system is provided. In this configuration, the LCT is serving as a second emergency power source, however, since the 100 kV transmission circuit is vulnerable to severe weather a time limit is imposed. The second Completion Time of Required Action C.2.2.1 permits the standby buses to be re-energized by an LCT within 1 hour in the event this source is subsequently lost. Required Action C.2.2.2 requires suspension of KHU generation to the grid except for testing. The restriction reduces the number of possible failures which could cause loss of the underground emergency power path. Required Action C.2.2.3 requires verifying by administrative means that the remaining KHU and its required underground emergency power path and both required offsite sources are OPERABLE. This provides additional assurance that offsite power will be available. In addition, this assures that the KHU and its required underground emergency power path are available. Required Action C.2.2.3 also requires verifying by administrative means that the requirements of the following LCOs are met:

LCO 3.8.3, "DC Sources – Operating;"

LCO 3.8.6, "Vital Inverters – Operating;"

LCO 3.8.8, "Distribution Systems – Operating;"

BASES

ACTIONS (continued)

F.1 and F.2

With the zone overlap protection circuitry inoperable when the overhead electrical disconnects for the KHU associated with the underground power path are closed, the zone overlap protection circuitry must be restored to OPERABLE status or the overhead electrical disconnects must be opened within 72 hours. In this Condition, both KHUs and their required emergency power paths are OPERABLE, however a single failure could result in the loss of both KHUs.

G.1

With both emergency power paths inoperable due to an E breaker and S breaker inoperable on the same main feeder bus, one breaker must be restored to OPERABLE status. In this Condition, both emergency power paths can still provide power to the remaining main feeder bus.

H.1 and H.2

The 60 hour Completion Time is modified by a Note indicating that an additional 84 hours is allowed when Condition H is entered to perform Keowee Refurbishment Upgrades prior to April 30, 2005. These upgrades include, but are not limited to, hydro turbine runner and discharge ring weld repair, governor, exciter and battery replacement, and an out-of-tolerance logic circuit modification.

With both KHUs or their required emergency power paths inoperable for planned maintenance or test with both standby buses energized from an LCT via an isolated power path, the KHU must be restored to OPERABLE status within 60 hours. Operation with both KHUs and their required power paths inoperable is permitted for 60 hours provided that both standby buses are energized using an LCT through the 100 kV transmission circuit and the requirements of the Note to the Condition are met. The Note to the Condition indicates that it may only be entered when both offsite sources are verified by administrative means to be OPERABLE and the requirements of the following LCOs are verified by administrative means to be met:

or 144 hours

LCO 3.8.3, "DC Sources – Operating;"

LCO 3.8.6, "Vital Inverters – Operating;"

LCO 3.8.8, "Distribution Systems – Operating;"

LCO 3.3.17, "EPSL Automatic Transfer Function;"

LCO 3.3.18, "EPSL Voltage Sensing Circuits;" and

LCO 3.3.19, "EPSL 230 kV Switchyard DGVP."

Attachment 3

Technical Justification

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Attachment 3

Attachment 3

Technical Justification

Background

The Oconee Nuclear Station (ONS) AC Power System consists of the offsite power sources (preferred power) and the onsite standby power sources, Keowee Hydro Units (KHU). This system is designed to supply the required Engineered Safeguards (ES) loads of one unit and safe shutdown loads of the other two units and is so arranged that no single failure can disable enough loads to jeopardize plant safety. The design of the AC Power System provides independence and redundancy to ensure an available source of power to the ES systems.

The Keowee Hydro Station contains two units rated 87,500 kVA each, which generate at 13.8 kV. The KHU turbine generators are powered through a common intake by water taken from Lake Keowee. Upon loss of power from the Oconee generating unit and 230 kV switchyard, power is supplied from both KHUs through two separate and independent routes. The underground emergency power path is from one KHU through the underground feeder circuit, transformer CT-4, the CT-4 incoming breakers (SK breakers), standby bus and the standby breakers (S breakers). The overhead emergency power path is from the other KHU through the startup transformer and the startup incoming breakers (E breakers).

The standby buses can also receive power from any one of three combustion turbine generators at the Lee Steam Station through a dedicated 100 kV transmission line, transformer CT-5, and both SL breakers. The 100 kV transmission line can be supplied from a Lee combustion turbine (LCT) and electrically separated from the system grid and offsite loads. The minimum capacity available from any of the multiple sources of AC power is 22.4 MVA (limited by either CT-4 or CT-5 transformer capacities).

The Oconee Nuclear Station Electrical Power System is unique in that emergency power is provided by hydroelectric units rather than the typical diesel generators used at other nuclear stations. The NRC performed a formal, comprehensive review of the Emergency Electrical Distribution System to assess the overall reliability of the emergency power system as it currently exists and determine whether any additional

staff actions might be required to address unacceptable vulnerabilities or risks that may exist in the design and operation of the system, including the Lee Combustion Turbines (LCTs) and the Standby Shutdown Facility (SSF). The report associated with this review, issued via an NRC letter dated January 19,1999, did not identify any vulnerabilities in the design or operation of the Oconee emergency power system or SSF that would require immediate corrective actions to be taken.

Duke plans to implement significant upgrades to the KHUs in 2003 and 2004. Each KHU will receive new batteries, a new digital governor, and a new exciter. An out of tolerance (OOT) logic modification will be implemented. The OOT logic modification in combination with the installation of the digital governor will resolve the KHU frequency and voltage overshoot characteristic. Turbine weld repair and draft tube concrete repair work (T/G overhaul) will also be performed and is critical path. To allow the repairs and prior to starting this work, the unit that is to receive the upgrades must be isolated from the common intake. A six-day, dual unit outage will be required to isolate the unit for repair and restore the remaining unit to OPERABLE status. After the upgrades are completed during the single unit outage, another four-day, dual unit outage will be required to un-isolate the repaired unit. Technical Specification (TS) 3.8.1 only allows 60 hours for a planned dual unit outage. Therefore, an additional 84 hours is needed to allow the Keowee upgrade to proceed. Also, an additional 17 days is requested for the single unit KHU outage as a contingency to allow resolution of problems that may arise in any one of the repairs or modifications being performed.

Description of the Technical Specification Change and Technical Justification

Duke proposes to add a Note to the Completion Time (CT) for TS 3.8.1 Required Action (RA) H.2 that will allow an additional 84 hours (144 hours total) to restore one KHU to operable status for Keowee refurbishment upgrades performed prior to April 30, 2005. Duke also proposes to add a Note to the 45 day CT for TS 3.8.1 RA C.2.2.5 that will allow an additional 17 days (62 days total) to restore the KHU

associated with the overhead emergency power path for Keowee refurbishment upgrades performed prior to April 30, 2005.

The existing TS compensatory measures are as follows: an LCT must be energizing both standby buses and other electrical TS Limiting Conditions for Operation (LCOs) (3.8.3, 3.8.6, 3.8.8) and instrumentation TS LCOs (3.3.17, 3.3.18 and 3.3.19) must be fully met prior to entering the LCO Condition for two inoperable KHUs or prior to exceeding 72 hours when taking the extended single KHU outage allowed by TS 3.8.1, RA C.2.2.5.

During the KHU single and dual unit outages, an LCT will be aligned and energizing both standby buses via the 100 kV line. With both standby buses energized from an LCT via an isolated power path, a high degree of reliability for the emergency power system is provided. In this configuration, the LCT is serving as an emergency power source. Two Offsite power sources will also be available to the 230 kV switchyard.

Oconee has three LCTs available as backups to the KHUs. One of the LCTs is sufficient to supply the required Engineered Safeguards (ES) loads of one Oconee unit and safe shutdown loads of the other two Oconee units. Duke is committed to ensuring that the three LCTs remain available for the duration of the KHU out of service window to effectively reduce the associated risks. One of the LCTs will be energizing the standby buses, as required by TSs, and the other two will be on standby should the required LCT become inoperable.

The SSF Electrical Power System includes 4160VAC, 600VAC, 208VAC, 120VAC, and 125VDC power. This system supplies power necessary to maintain MODE 3 with an average reactor coolant temperature $\geq$ 525°F for the reactor of each unit, in the event of loss of power from all other power systems. It consists of switchgear, load center, motor control centers, panelboards, batteries, battery chargers, inverters, a diesel-electric generator unit, relays, control devices, and interconnecting cable supplying the appropriate loads. The 120VAC power system in conjunction with the 125VDC instrumentation and control power system supplies continuous control power to all loads that are required for achieving

MODE 3 with an average reactor coolant temperature ≥ 525°F of each reactor.

The SSF is designed as a standby system and is capable of placing all three Oconee units in a safe shutdown condition. The system provides additional "defense in-depth" protection for the health and safety of the public by serving as a backup to existing safety systems. The SSF is provided as an alternate means to achieve and maintain MODE 3 with an average Reactor Coolant temperature ≥ 525°F (RCS cold leg temperature ≤ 555°F and RCS pressure ~ 2155 psig) following postulated fire, sabotage, or flooding events, and is designed in accordance with criteria associated with these events. Loss of all other station power does not impact the SSF's capability to mitigate each event. The SSF is also credited as the alternate AC (AAC) power source and the source of decay heat removal required to demonstrate safe shutdown during the required station blackout coping duration. In that the SSF is a backup to existing safety systems, the single failure criterion is not required. However, failures in the SSF systems will not cause failures or inadvertent operation of existing plant systems.

Prior to entering TS 3.8.1, Condition H, for the dual KHU outage, Duke will verify the SSF, EFW System, and the remaining LCTs are operable. Work on these systems, the ONS 230 kV switchyard and transformer yards, and other ORAM-sentinel risk significant systems associated with AC power availability and loss of offsite power will be restricted during the single and dual unit outages. Compensatory measures credited in the Probabilistic Risk Assessment (PRA) performed to support this change are described in the discussion below.

PROBABILISTIC RISK ASSESSMENT

Duke performed a probabilistic risk assessment (PRA) to assess the impact of the proposed temporary change using measures defined in Reference 1. The risk impacts of the proposed changes to extend the Required Action Completion Times related to single KHU and dual KHU inoperabilities are calculated and compared against the acceptance guidelines as stated in Reference 1.

Duke evaluated the risk significance of remaining at power in excess of the current TS Completion Times (CT) for an extended outage to upgrade the KHUs. This involved extensions of the current CT for TS LCO 3.8.1, (AC Sources-Operating), Required Action C.2.2.5 (one inoperable KHU) from 45 days to 62 days (Case 1) and TS 3.8.1 (AC Sources-Operating) Required Action H.2 (Both KHUs inoperable) from 60 hours to 144 hours (Case 2). Duke performed the evaluation using an Internal and External Events Probabilistic Risk Assessment (PRA) with average maintenance unavailabilites.

The quantitative analysis for both Case 1 and 2 included the following specific conditions.

- No discretionary maintenance or testing will be performed on the Standby Shutdown Facility.
- No discretionary maintenance or testing will be performed on the Emergency Feedwater System.
- No discretionary maintenance or testing will be performed on the AC power system.

Duke has elected to perform the needed upgrades during periods when the expected frequency of Loss of Offsite Power (LOOP) events as a result of severe weather is less than the annual average. To account for this, the initiating event frequencies have been reduced by factors ranging from 2 to 4 from the base case values.

By limiting the performance of discretionary maintenance or testing there is improved defense-in-depth. This results in a reduction in risk with one KHU out of service.

Given the above conditions, the quantified results of Case 1 for one KHU inoperable, indicated a decrease in Core Damage Frequency (CDF) of 1.97E-09/reactor hour from the base case and a decrease in Core Damage Probability (CDP) of 8.04E-07 for the 17 day extension period.

Given the above conditions, the quantified results of Case 2 for two KHUs inoperable, indicated an increase in CDF of 3.38E-08/reactor hour over the base case and a CDP of 2.84E-06 for the 84 hour extension period.

A qualitative assessment of the risks that were not considered in the quantitative analysis resulted in the development of compensatory measures. These will be implemented during the period of non-compliance with the TS LCO as indicated below. To the extent practical, maintenance and testing in the switchyard is to be scheduled outside the time period of the upgrade. Additionally, operability of required offsite circuits will be maintained at all times. Limiting the performance of maintenance or testing on the offsite power system and maintaining offsite circuits operable reduces the likelihood of losing off site power and represents a reduction in risk.

Additional qualitative considerations that were not considered previously resulted in the following observations.

- Should one or more of the Oconee units require shutdown or transition via MODE changes during the planned maintenance evolution, the compensatory actions in place (previously described) are expected to keep the overall transition and shutdown risk impact neutral over the risk of remaining at power.

- The impact of a station blackout is deemed to be the same at shutdown conditions as it is for at power conditions therefore the risk is neutral for remaining at power.

- The PRA model includes a reactor coolant pump seal package that has been replaced with a new enhanced design. The impact of this new seal package, when it is modeled in the next revision of the PRA, would be to reduce the ΔCDF and CDP values determined in this calculation, and would represent a reduction in risk over that determined by the existing model.

For Case 1, one KHU out of service, the TS extension from 45 to 62 days is non-risk significant since it represents a decrease in CDF over the base case. Therefore as a stand alone change, the results of Case 1, following the assumptions and compensatory actions stated above, justify an extension of the TS completion time from 45 days to 62 days.

For Case 2, both KHUs out of service, following the assumptions and compensatory actions stated above which

included an assessment of additional non-quantifiable factors results in an acceptable level of risk. Therefore, as a stand alone change, the results of Case 2 justify an extension of the TS completion time from 60 hours to 144 hours.

Cumulative Risk Impact

The planned maintenance activity to upgrade each KHU can be considered a configuration. Even though one KHU is being upgraded at a time, the tasks of isolating and un-isolating the unit being upgraded makes both KHUs inoperable. During the time period when both KHUs are inoperable, both TS 3.8.1 Required Actions C.2.2.5 and H.2 will be entered.

The proposed maintenance time line for activities is shown below:

Activity	Components	Expected Duration
Isolate	2 units inoperable	6 days
Overhaul	1 unit inoperable	45 days*
Un-isolate	2 units inoperable	4 days
Testing	1 unit inoperable	7 days*
Total Duration		**62 days**
	1 unit inoperable by itself	**52 days**
	2 units inoperable	**10 days**

* Includes a total of 17 days contingency.

Applying the ΔCDF results from Case 1 and 2 over the maintenance time line duration provides the cumulative risk impact. Case 1 ΔCDF = -1.97E-09/reactor hour (reduction in risk). Case 2 ΔCDF = 3.38E-08/reactor hour (risk increase).

The total CDP or cumulative risk may be calculated as the sum of the CDP changes for each segment of the maintenance activity or:

Cumulative CDP = $\sum$ (ΔCDF x duration of maintenance activity) for each KHU inoperable during a specific maintenance activity.

The table below shows the integrated risk over the entire maintenance duration.

Maintenance Activity Time Period, days	Number of KHUs inoperable	Time Period (in excess of nominal TS), hours	Maintenance Activity Time Period CDP	Cumulative CDP
1- 6	2	84	2.84E-06	2.84E-06
7-51	1	144	-2.84E-07	2.56E-06
52-55	2	36	1.22E-06	3.78E-06
56-62	1	168	-3.31E-07	**3.45E-06**

The cumulative CDP for the proposed 62 day maintenance upgrade outage period is 3.5E-06. Therefore, based on the previously mentioned specific conditions of the analysis and the additional qualitative assessment of non-quantifiable factors, the requested TS changes are deemed to be acceptable, justifiable, and non-risk significant.

Large Early Release Frequency (LERF)

The Oconee estimated LERF, which is dominated by the interfacing systems loss of coolant accident (ISLOCA), would not be significantly impacted by the proposed maintenance activity. In general, tornadoes and other station blackout sequences are not important contributors to LERF. Although the frequency of station blackout sequences is impacted by the unavailability of the underground path (when both KHUs are inoperable), core damage sequences of this nature are typically associated with containment failure due to a long-term over-pressurization. Therefore, the offsite consequence results and LERF would not be significantly changed from those presented in the Oconee PRA report.

REFERENCES

1. "PSA Applications Guide," EPRI TR-105396, Prepared for EPRI by ERIN Engineering & Research, Inc., August 1995.

ATTACHMENT 4

NO SIGNIFICANT HAZARDS CONSIDERATION

Attachment 4
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:

No. The change involves an extension of the Completion Times for TS 3.8.1 Required Action C.2.2.5 and Required Action H.2. During the time that one KHU is inoperable for > 72 hours or both KHUs are inoperable, a LCT will be energizing both standby buses, two available offsite power sources will be maintained available, and maintenance on electrical distribution systems will not be performed unless necessary. Extending the Completion Times will decrease the likelihood of an unplanned forced shutdown of all three Oconee Units and the potential safety consequences and operational risks associated with that action. Avoiding this risk offsets the risks associated with having a design basis event during the additional completion time for having one or both KHUs inoperable.

Extending the Completion Time does not involve: 1) a physical alteration to the Oconee Units; 2) the installation of new or different equipment; 3) operating any installed equipment in a new or different manner; or 4) a change to any set points for parameters which initiate protective or mitigation action.

There is no adverse impact 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.

The consequences of an event occurring during the extended Completion Time are the same as those that would occur during the existing Completion Time. A risk

assessment shows that the additional time coupled with compensatory measures results in an acceptable level of risk.

Therefore, the probability or consequences of an accident previously evaluated is not significantly increased.

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

No. This change involves an extension of the Completion Times for TS 3.8.1 Required Actions C.2.2.5 and H.2 associated with restoring compliance with TS LCO 3.8.1.C. During the time period that both KHUs are inoperable, the safety function for the emergency power source will be fulfilled by the LCTs. Compensatory measures previously specified will be in place.

Extending the Completion Times does not involve a physical effect on the unit, nor is there any increased risk of a unit trip or reactivity excursion. No new failure modes or credible accident scenarios are postulated from this activity.

Therefore, the possibility of a new or different kind of accident from any kind of accident previously evaluated is not created.

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

No. This change involves an extension of the Completion Times for TS 3.8.1 Required Actions C.2.2.5 and H.2 associated with restoring compliance with TS LCO 3.8.1.C. During the time period that both KHUs are inoperable, the safety function for the emergency power source will be fulfilled by the LCTs. Compensatory measures previously specified will be in place to minimize electrical power system vulnerabilities.

Extending the Completion Time does not involve: 1) a physical alteration of the Oconee Units; 2) the installation of new or different equipment; 3) operating any installed equipment in a new or different manner; 4)

a change to any set points for parameters which initiate protective or mitigation action; or 5) any impact on the fission product barriers or safety limits.

Therefore, this request does not involve a significant reduction in a margin of safety.

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

ATTACHMENT 5

ENVIRONMENTAL ASSESSMENT

ATTACHMENT 5

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.

   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.