

10 CFR 50.90

June 1, 2001

Docket Nos. 50-352  
50-353License Nos. NPF-39  
NPF-85U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555Subject: Limerick Generating Station, Units 1 and 2  
License Amendment Request No. LG 99-01766

Dear Sir/Madam:

Exelon Generation Company, LLC, is submitting License Amendment Request No. 99-01766, in accordance with 10 CFR 50.90, requesting an amendment to the Technical Specifications (TS), Appendix A of Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2. This proposed License Amendment Request will revise the Limiting Condition for Operation 3.6.1.7 concerning Drywell average air temperature. Information supporting this License Amendment Request is contained in Attachment 1 to this letter, and the proposed marked up TS pages and final TS pages are contained in Attachments 2 and 3, respectively. This information is being submitted under affirmation, and the required affidavit is enclosed.

We request your approval of this change on or before December 1, 2001. Additionally, there are no commitments contained within this letter.

We request that if approved, the change become effective within 30 days of issuance.

A copy of this License Amendment Request, including the reasoned analysis about a no significant hazards consideration, is being provided to the appropriate Pennsylvania State official in accordance with the requirements of 10 CFR 50.91(b)(1).

If you have any questions, please do not hesitate to contact us.

Very truly yours,

James A. Hutton  
Director - Licensing

Attachments; Affidavit

cc: H. J. Miller, Administrator, Region 1, USNRC  
A. L. Burritt, USNRC Senior Resident Inspector, LGS  
R. R. Janati, PA Bureau of Radiological Protection

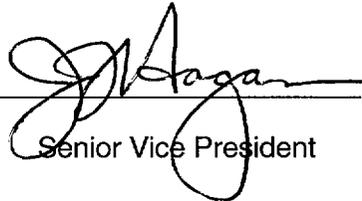
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COMMONWEALTH OF PENNSYLVANIA :  
: SS.  
COUNTY OF CHESTER :

J. J. Hagan, being first duly sworn, deposes and says:

That he is Senior Vice President of Exelon Generation Company, LLC, the Applicant herein; that he has read the attached License Amendment Request LG 99-01766, for Limerick Generating Station Facility Operating Licenses NPF-39 and NPF-85 involving Drywell average air temperature, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.



  
Senior Vice President

Subscribed and sworn to  
before me this 1<sup>st</sup> day  
of June 2001.



Notary Public

Notarial Seal  
Vivia V. Gallimore, Notary Public  
Tredyffrin Twp., Chester County  
My Commission Expires Oct. 6, 2003  
Member, Pennsylvania Association of Notaries

June 1, 2001  
License Amendment Request No. LG 99-01766

Docket Nos. 50-352  
50-353  
License Nos. NPF-39  
NPF-85

ATTACHMENT 1

LIMERICK GENERATING STATION  
UNITS 1 and 2

DOCKET NOS. 50-352  
50-353  
LICENSE NOS. NPF-39  
NPF-85

LICENSE AMENDMENT REQUEST NO.  
LG 99-01766

DRYWELL AVERAGE AIR TEMPERATURE

Supporting Information for Change - 4 Pages

### Introduction

Exelon Generation Company, LLC, Licensee under Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, requests that the Technical Specifications (TS) contained in Appendix A to the Operating Licenses be amended to revise the Limiting Condition for Operation 3.6.1.7 concerning Drywell average air temperature. The proposed marked up TS pages and final TS pages are contained in Attachments 2 and 3, respectively.

This License Amendment Request provides a discussion and description of the proposed TS changes, a safety assessment of the proposed TS changes, information supporting a finding of No Significant Hazards Consideration, and information supporting an Environmental Assessment.

### Discussion and Description of the Proposed Changes

This License Amendment Request revises the Limiting Condition for Operation 3.6.1.7 concerning Drywell average air temperature.

The TS Limiting Condition for Operation 3.6.1.7 currently states:

3.6.1.7 Drywell average air temperature shall not exceed 135°F.

The proposed Limiting Condition for Operation states the following:

3.6.1.7 Drywell average air temperature shall not exceed 145°F.

The following summarizes the different Drywell temperature parameters discussed in this Licensing Amendment Request:

Current TS Drywell average air temperature:	≤ 135 degrees Fahrenheit
Proposed TS Drywell average air temperature:	≤ 145 degrees Fahrenheit
Analyzed Drywell air temperature:	150 degrees Fahrenheit
Drywell design temperature:	340 degrees Fahrenheit
Annual Average temperature for Equipment Qualified Life	145 degrees Fahrenheit

The actual equipment heat loads experienced in the Drywell have proven to be higher than was originally predicted in the Heating, Ventilation, and Air Conditioning (HVAC) system design calculations, and therefore, the Limerick Generating Station Units 1 and 2 have been operating near the Technical Specification limit for the Drywell average air temperature. This concern is even more severe during the summer months, when ambient temperatures are at their highest. This TS action limit is 135 degrees Fahrenheit, which was selected to ensure that the containment peak air temperature does not exceed the Drywell design temperature of 340 degrees Fahrenheit during postulated accident conditions. This Drywell average air temperature limit ensures that containment integrity, and all Structures/Systems/Components (SSC) required to mitigate the consequences of the Design Basis Accidents (DBA) are capable of performing their design functions following accident conditions.

Normal operation of the plant has been challenging the Drywell average air temperature TS limit, which becomes more severe during the summer months. The HVAC systems were designed to maintain the Drywell at 135 degrees Fahrenheit; however, due to the higher than expected heat loads, the operating margin with this limit has been minimal, even with the operation of both Drywell Chilled Water circulation pumps. This change would reduce operator challenges associated with the Drywell HVAC system. For example, should one of the two Drywell Chilled Water circulation pumps fail or need to be removed from

service for maintenance activities, the Drywell average air temperature would likely rise above 135 degrees Fahrenheit, which would exceed the Technical Specifications Limiting Condition for Operation thereby resulting in the Technical Specification Action Statement being entered (i.e., reduce the average air temperature to within the limit within 8 hours or be in at least Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours).

### Safety Assessment

The Drywell average air temperature is an assumed initial condition used for calculations related to the integrity of Primary Containment, and the equipment contained within the primary containment during normal operating conditions and following transient events. This License Amendment Request is requesting a Technical Specifications change to permit operation up to a limit of 145 degrees Fahrenheit, thereby allowing a margin of five degrees Fahrenheit between the operating and analyzed values. The Drywell design temperature shall remain at 340 degrees Fahrenheit and is not affected by this proposed increase in the Drywell average air temperature. The current containment analysis per UFSAR Table 6.2-4A is already based on 150 degrees Fahrenheit for Drywell air temperature. Higher Drywell air temperature can also affect heat loading in rooms adjacent to the Drywell. Based on engineering evaluations, it has been demonstrated that changing the Drywell average air temperature limit will not compromise the ability of Safety Related systems to perform their design functions.

This TS change does not involve any physical changes to the plant, which would cause an actual increase in the operating temperature in the drywell; rather, it provides the ability to perform on-line maintenance to the Drywell Chilled Water system with less concern of impacting power generation.

The LGS UFSAR Section 9.4.5.2 discusses the Drywell Air Cooling system. The Drywell Air Cooling System serves to remove heat from the Drywell during normal plant operations and to maintain air circulation in the Drywell under accident conditions. This latter function is safety-related.

UFSAR Table 3.8-3 specifies that the design Temperature Criteria for Category I Structures have an initial Drywell air temperature at the beginning of an accident of 135 degrees Fahrenheit. Engineering evaluation has demonstrated that changing this initial temperature to 150 degrees Fahrenheit does not adversely affect the ability of any Category I structure from performing its design function.

UFSAR Section 3.11 discusses the environmental design of electrical equipment. All safety-related equipment must be capable of performing its safety function and/or remaining in a safe mode under all conditions postulated to occur during its installed life. The calculation of qualified life of equipment in the Drywell is based on operation at an average annual temperature of 145 degrees Fahrenheit with maximum temperatures of 150 degrees Fahrenheit. Refurbishment and/or replacement will continue to be evaluated for aging effects as part of the Preventive Maintenance/Surveillance Program. This TS change will not have an adverse affect on the qualified life calculations for Drywell equipment. The effect of ambient temperature on Drywell equipment is evaluated periodically to validate the qualified life calculations based on actual temperature history.

UFSAR Table 6.2-4A provides the initial Reactor Coolant System and containment conditions used in the accident response evaluations. These evaluations have used 150 degrees Fahrenheit as the initial Drywell temperature for the containment accident response evaluations.

UFSAR Section 8.3.1.1.7.a states that the power and control cables in the Drywell are designed so that when carrying the allowable current capacity of the cable in a surrounding air temperature of 65 degrees Celsius (which is equivalent to 149 degrees Fahrenheit) the insulation temperature will not exceed 90 degrees Celsius. As a result of this statement it can be concluded that increasing the operating limit for

the Drywell average air temperature to 145 degrees Fahrenheit will not adversely affect the cabling in the drywell.

The proposed increase in the normal operating Drywell average air temperature does not adversely effect calibration of reactor instrumentation systems contained within the drywell.

The proposed change will not impact the required periodic testing of any SSC associated with the Drywell air temperature effects.

The containment structures, transient and accident analysis, piping, supports, penetrations, systems, electrical equipment, room heat loading, coatings, and other plant interfaces are not adversely impacted by this proposed TS change, and all SSC will continue to be capable of performing their safety functions. Therefore, this proposed change can be implemented with no adverse impact on safety.

#### Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed change to the Limerick Generating Station (LGS), Units 1 and 2 Technical Specifications (TS), does not involve a Significant Hazards Consideration. In support of this determination, an evaluation of each of the three (3) standards set forth in 10 CFR 50.92 is provided below.

1. The proposed TS change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The increase in the allowable Drywell average air temperature does not make any physical changes to the plant. It only permits the plant to operate at a higher Drywell average air temperature, and therefore, does not increase the probability of an accident previously evaluated. This increase in the Drywell average air temperature has been evaluated to ensure that the change does not adversely affect the ability of the primary containment to perform its safety related function during accident conditions.

The LGS Mark II containment design was evaluated during Power Rerate using an initial temperature of 150 degrees Fahrenheit for the Loss-of-Coolant Accident (LOCA) due to an instantaneous double-ended rupture of a recirculation suction line. The results of this evaluation showed that the Drywell air temperature does not exceed the limit of 340 degrees Fahrenheit post-accident and that the peak Drywell pressure does not exceed the design limit of 55 psig. In addition, the containment analysis performed for Power Rerate also bounds the small break LOCA.

Evaluation of equipment in the Drywell has determined that the proposed increase in the Drywell average air temperature does not adversely affect the equipment's capability to perform their safety function. The expected lives of qualified components located in the Drywell will remain unaffected for operation at an average annual temperature of 145 degrees Fahrenheit. If the Drywell operating temperature were to approach 150 degrees Fahrenheit, all Structures/Systems/Components (SSC) will remain within allowable limits; however, for analytical purposes, if the average annual temperature of 145 degrees Fahrenheit were to be exceeded, the programmatic review would assess the impact on the replacement frequency for certain qualified components. The increased temperature of the Drywell atmosphere does not degrade or compromise any coolant boundaries nor does it degrade or compromise any primary containment boundaries from performing their design functions during or following an accident condition. This proposed change does not result in or require any systems or components to be operated outside of their design limits.

This proposed change does not increase the consequences of an accident previously evaluated in the SAR. This proposed change does not adversely affect mitigating systems, structures or components, and

does not adversely affect the initial conditions of any accidents. Redundancy and diversity of mitigating systems are unchanged as a result of this proposed change. This proposed change does not affect onsite or offsite radiological consequences of any accident previously evaluated in the SAR.

Therefore, this proposed TS change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed TS change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The increase in the Drywell average air temperature proposed by this TS change does not change any SSC of the plant. This TS change does not create new operating or failure modes. The normal operating Drywell average air temperature is maintained to prevent the peak temperature/pressure of the primary containment from exceeding the design limit, and to ensure the SSC perform their safety functions before, during and after accident conditions. Engineering evaluation has shown that the limits for the Drywell design temperature/pressure are not exceeded by this change.

Therefore, this proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed TS change does not involve a significant reduction in the margin of safety.

This proposed change will allow the plant to operate at a higher Drywell average temperature during normal operation. This change does not create additional heat loads or change the way any of the equipment is operated. Engineering evaluation has demonstrated that the Drywell design pressure, design temperature and code requirements are maintained. Therefore, a change to the TS Drywell average air temperature limit to allow the plant to operate up to 145 degrees Fahrenheit does not have any adverse effect on the ability of safety related equipment to perform their design functions. This equipment is designed to function following a LOCA where Drywell temperature can peak to 340 degrees Fahrenheit. The equipment will remain within the limitations of the Equipment Qualification (EQ) program, which is qualified/maintained based on operation at an average annual temperature of 145 degrees Fahrenheit.

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

#### Information Supporting an Environmental Assessment

An Environmental Assessment is not required for the change proposed by this License Amendment Request because the requested change to the Limerick Generating Station (LGS), Units 1 and 2, TS conform to the criteria for "actions eligible for categorical exclusion" as specified in 10 CFR 51.22 (c)(9). The requested change will have no impact on the environment. The proposed change does not involve a Significant Hazards Consideration as discussed in the preceding section. The proposed change does not involve a significant change in the types, or a significant increase in the amounts, of any effluents that may be released offsite. In addition, the proposed change does not involve a significant increase in individual or cumulative occupational radiation exposure.

#### Conclusion

We have concluded that the proposed change to the LGS, Units 1 and 2, TS does not involve a Significant Hazards Consideration.

ATTACHMENT 2

LIMERICK GENERATING STATION  
UNITS 1 and 2

DOCKET NOS. 50-352  
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NPF-85

LICENSE AMENDMENT REQUEST NO.  
LG 99-01766

DRYWELL AVERAGE AIR TEMPERATURE

MARKED UP TECHNICAL SPECIFICATION PAGES

UNIT 1

3/4 6-10

UNIT 2

3/4 6-10

CONTAINMENT SYSTEMS

Revise Per This License Amendment

Request

DRYWELL AVERAGE AIR TEMPERATURE

145 ° F



LIMITING CONDITION FOR OPERATION

3.6.1.7 Drywell average air temperature shall not exceed 135°F.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the drywell average air temperature greater than 135°F, reduce the average air temperature to within the limit within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.7 The drywell average air temperature shall be the volumetric average of the temperatures at the following locations and shall be determined to be within the limit at least once per 24 hours:

	<u>Approximate Elevation</u>	<u>Number of Installed Sensors*</u>
a.	330'	3
b.	320'	3
c.	260'	3
d.	248'	6

\* At least one reading from each elevation is required for a volumetric average calculation.

CONTAINMENT SYSTEMS

Revise Per This License Amendment

Request

DRYWELL AVERAGE AIR TEMPERATURE

145 ° F

LIMITING CONDITION FOR OPERATION

3.6.1.7 Drywell average air temperature shall not exceed ~~135°F~~.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the drywell average air temperature greater than ~~135°F~~, reduce the average air temperature to within the limit within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.7 The drywell average air temperature shall be the volumetric average of the temperatures at the following locations and shall be determined to be within the limit at least once per 24 hours:

	<u>Approximate Elevation</u>	<u>Number of Installed Sensors*</u>
a.	330'	3
b.	320'	3
c.	260'	3
d.	248'	6

\* At least one reading from each elevation is required for a volumetric average calculation.

ATTACHMENT 3

LIMERICK GENERATING STATION  
UNITS 1 and 2

DOCKET NOS. 50-352  
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LICENSE AMENDMENT REQUEST NO.  
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DRYWELL AVERAGE AIR TEMPERATURE

FINAL TECHNICAL SPECIFICATION PAGES

UNIT 1

3/4 6-10

UNIT 2

3/4 6-10

CONTAINMENT SYSTEMS

DRYWELL AVERAGE AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

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3.6.1.7 Drywell average air temperature shall not exceed 145°F. |

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the drywell average air temperature greater than 145°F, reduce the average air temperature to within the limit within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. |

SURVEILLANCE REQUIREMENTS

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a.	330'	3
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CONTAINMENT SYSTEMS

DRYWELL AVERAGE AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

---

3.6.1.7 Drywell average air temperature shall not exceed 145°F.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the drywell average air temperature greater than 145°F, reduce the average air temperature to within the limit within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

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4.6.1.7 The drywell average air temperature shall be the volumetric average of the temperatures at the following locations and shall be determined to be within the limit at least once per 24 hours:

	<u>Approximate Elevation</u>	<u>Number of Installed Sensors*</u>
a.	330'	3
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d.	248'	6

\*At least one reading from each elevation is required for a volumetric average calculation.