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An Exelon/British Energy Company

RS-02-012

January 11, 2002

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Clinton Power Station, Unit 1  
Facility Operating License No. NPF-62  
NRC Docket No. 50-461

Subject: Revised Technical Specification Pages for the License Amendment Request  
Associated With DC Electrical Power

Reference: Letter from J. M. Heffley (AmerGen Energy Company, LLC) to  
U.S. NRC, "Request for Amendment to Technical Specifications Associated With DC  
Electrical Power," dated August 21, 2001

In the above reference, AmerGen Energy Company (AmerGen), LLC submitted a request for changes to Appendix A, Technical Specifications (TS), of Facility Operating License No. NPF-62 for Clinton Power Station (CPS). The proposed changes would revise TS Sections 3.8.4, "DC Sources – Operating," 3.8.5, "DC Sources – Shutdown," and 3.8.6, "Battery Cell Parameters" in accordance with Technical Specifications Task Force (TSTF) Traveler TSTF-360, Revision 1, "DC Electrical Rewrite."

AmerGen is submitting a revision to our referenced submittal, that revises TS Section 3.8.6 Required Action E. This proposed revision will remove ambiguity related to number of batteries per division. CPS has only one battery per division. In addition, CPS is proposing changes to the TS bases for TS Section 3.8.6, Required Actions A, B, C, D, E, and F. These changes remove reference to one or more batteries per division, and clearly reference only one battery per division. These changes are considered editorial, since they provide clarity and remove ambiguity. These changes do not impact the conclusion of the No Significant Hazards Determination discussion provided in the reference submittal.

The attachment to this letter provides the proposed TS change and the changes to the TS Bases. The changes to the TS Bases are provided for information only. These changes will be implemented upon approval of the proposed TS changes, in accordance with the CPS TS Bases Control Program.

A001

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Should you have any questions related to this information, please contact Mr. Robert R. Brady at (630) 657-2822.

Respectfully,

A handwritten signature in cursive script, reading "K. R. Jury".

K. R. Jury  
Director – Licensing  
Mid-West Regional Operating Group

Attachments:

Affidavit  
Attachment: Marked-up Pages for Proposed Changes

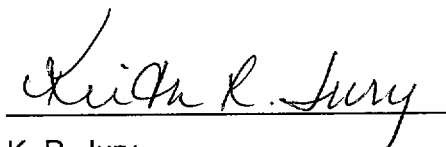
cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector – Clinton Power Station  
Office of Nuclear Facility Safety – Illinois Department of Nuclear Safety

STATE OF ILLINOIS )  
COUNTY OF DUPAGE )  
IN THE MATTER OF )  
AMERGEN ENERGY COMPANY, LLC ) Docket Number  
CLINTON POWER STATION, UNIT 1 ) 50-461

SUBJECT: Additional Information Supporting the Request for Amendment to  
Technical Specifications Associated With DC Electrical Power

**AFFIDAVIT**

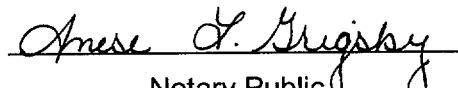
I affirm that the content of this transmittal is true and correct to the best of my  
knowledge, information and belief.

  
K. R. Jury  
Director – Licensing  
Mid-West Regional Operating Group

Subscribed and sworn to before me, a Notary Public in and

for the State above named, this 11<sup>th</sup> day of

January, 2002.

  
Notary Public



**ATTACHMENT**

**Marked-up Pages for Proposed Changes**

**REVISED TS PAGES**

3.8-31

**REVISED BASES PAGES  
(PROVIDED FOR INFORMATION ONLY)**

B3.8-63

B3.8-64

B3.8-65

B3.8-66

B3.8-67

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One battery on one division with float current > 2 amps	B.1 Perform SR 3.8.4.1. AND B.2 Restore battery float current to $\leq$ 2 amps.	2 hours  12 hours
----- NOTE ----- Required Action C.2 shall be completed if electrolyte level was below the top of plates. -----	----- NOTE ----- Required Actions C.1 and C.2 are only applicable if the electrolyte level was below the top of plates. -----	
C. One battery on one division with one or more cells electrolyte level less than minimum established design limits.	C.1 Restore electrolyte level to above top of plates. AND C.2 Verify no evidence of leakage. AND C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	8 hours  12 hours  31 days
D. One battery on one division with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. Batteries in redundant divisions with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one division to within limits.	2 hours
FB. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. (continued)	FB.1 Declare associated battery inoperable.	Immediately

**BASES (continued)**

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APPLICABLE SAFETY ANALYSES (continued)	b. A worst case single failure.  Since battery <del>cell</del> parameters support the operation of the DC power sources, they satisfy Criterion 3 of the NRC Policy Statement.
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LCO	Battery <del>cell</del> parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. <b>Battery parameter Electrolyte</b> limits are conservatively established, allowing continued DC electrical system function even with limits not met.
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Additional preventive maintenance, testing, and monitoring is performed in accordance with the "Battery Maintenance and Monitoring Program" as specified in Specification 5.5.14.

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APPLICABILITY	The battery <del>cell</del> parameters are required solely for the support of the associated DC electrical power subsystem. Therefore, battery <b>parameter limits are electrolyte</b> is only required when the DC power source is required to be OPERABLE. Refer to the Applicability discussion in Bases for LCO 3.8.4 and LCO 3.8.5.
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ACTIONS	<u>A.1, A.2, and A.3</u>  With parameters of one or more cells in a battery in one division < 2.07 V, the battery cell is degraded. Within 2 hours, verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage (SR 3.8.4.1) and of the overall battery state of charge by monitoring the battery float charge current (SR 3.8.6.1). this assures that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in one or more batteries < 2.07 V, and continued operation is permitted for a limited period up to 24 hours.
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Since the Required Actions only specify "perform," a failure of SR 3.8.4.1 or SR 3.8.6.1 acceptance criteria does not result in this Required Action not met. However, if one of the SRs is failed, the appropriate Condition(s), depending on the cause of the failures, is entered. If SR 3.8.6.1 is failed, then there is not assurance that there is still sufficient battery capacity to perform the intended function and the battery must be declared inoperable immediately.

(continued)

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BASES (continued)

~~not within limits (i.e., Category A limits not met, Category B limits not met, or Category A and B limits not met) but within the Category C limits specified in Table 3.8.6-1, the battery is degraded but there is still sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of Category A or B limits not met, and continued operation is permitted for a limited period.~~

~~The pilot cell electrolyte level and float voltage are required to be verified to meet Category C limits within 1 hour (Required Action A.1). This check provides a quick indication of the status of the remainder of the battery cells. One hour provides time to inspect the electrolyte level and to confirm the float voltage of the pilot cell. One hour is considered a reasonable amount of time to perform the required verification.~~

~~Verification that the Category C limits are met (Required Action A.2) provides assurance that, during the time needed to restore the parameters to the Category A and B limits, the battery is still capable of performing its intended function. A period of 24 hours is allowed to complete the initial verification because specific gravity measurements must be obtained for each connected cell. Taking into consideration both the time required to perform the required verification and the assurance that the battery cell parameters are not severely degraded, this time is considered reasonable. The verification is repeated at 7 day intervals until the parameters are restored to Category A and B limits. This periodic verification is consistent with the normal Frequency of pilot cell surveillances.~~

~~Continued operation is only permitted for 31 days before battery cell parameters must be restored to within Category A and B limits. Taking into consideration that while battery capacity is degraded, sufficient capacity exists to perform the intended function and to allow time to fully restore the battery cell parameters to normal limits, this time is acceptable for operation prior to declaring the DC batteries inoperable.~~

B.1 and B.2

A battery in one division with float current > 2 amps indicates that a partial discharge of the battery capacity has occurred. This may be due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within 2 hours, verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage. If the terminal voltage is found to be less than the minimum established float voltage, there are two possibilities: the battery charger is

(continued)

BASES (continued)

ACTIONS

inoperable, or is operating in the current limit mode. Condition A addressed charger inoperability. If the charger is operating in the current limit mode after 2 hours, that is an indication that the battery has been substantially discharged and likely cannot perform its required design functions. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within 12 hours (Required Action B.2). The battery must therefore be declared inoperable.

If the float voltage is found to be satisfactory but there are one or more battery cells with float voltage less than 2.07 V, the associated "OR" statement in Condition F is applicable and the battery must be declared inoperable immediately. If float voltage is satisfactory and there are no cells less than 2.07 V, there is good assurance that, within 12 hours, the battery will be restored to its fully charged condition (Required Action B.2) from any discharge that might have occurred due to a temporary loss of the battery charger. A discharged battery with float voltage (the charger setpoint) across its terminals, indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus, there is good assurance of fully recharging the battery within 12 hours, avoiding a premature shutdown with its own attendant risk.

If the condition is due to one or more cells in a low voltage condition but is still greater than 2.07 V, and float voltage is found to be satisfactory, this is not indication of a substantially discharged battery and 12 hours is a reasonable time prior to declaring the battery inoperable.

Since Required Action B.1 only specifies "perform," a failure of SR 3.8.4.1 acceptance criteria does not result in the Required Action not met. However, if SR 3.8.4.1 is failed, the appropriate Condition(s), depending on the cause of the failure, is entered.

C.1, C.2 and C.3

With a battery in one division with one or more cells electrolyte level above the top of the plates, but below the minimum established design limits, the battery  
(continued)



BASES (continued)

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still retains sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level not met. Within 31 days, the minimum established design limits for electrolyte level must be re-established.

With electrolyte level below the top of the plates, there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential (as well as provisions in Specification 5.5.14, Battery Monitoring and Maintenance Program). They are modified by a note that indicates they are only applicable if electrolyte level is below the top of the plates. Within 8 hours, level is required to be restored to above the top of the plates. The Required Action C.2 requirement to verify that there is no leakage by visual inspection and the Specification 5.5.14, Item b, to initiate action to equalize and test in accordance with manufacturer's recommendation are taken from Annex D of IEEE Standard 450-1995. They are performed following the restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing, the battery may have to be declared inoperable and the affected cell(s) replaced.

D.1

With a battery in one division with pilot cell temperature less than the minimum established design limits, 12 hours is allowed to restore the temperature to within limits. A low electrolyte temperature limits the current and power available. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform the intended function and the affected battery is not required to be considered inoperable solely as a result of the pilot cell temperature not met.

E.1

Batteries in redundant trains with battery parameters not within limits, there is not sufficient assurance that battery capacity has not been affected to the degree that the batteries can still perform their required function, given that redundant batteries are involved. With redundant batteries involved, this potential could result in a total loss of function on multiple systems that rely upon the batteries. The longer completion times specified for battery parameters on non-redundant batteries not within limits are therefore not appropriate, and the parameters must be restored to within limits on at least one train within 2 hours.

(continued)

BASES (continued)

BF.1

When any battery parameter is outside the allowances of the Required Actions for condition A, B, C, D, or E, ~~Category C limit for any connected cell, sufficient capacity to supply the maximum expected load requirement is not assured and the corresponding battery DC electrical power subsystem must be declared inoperable. Additionally, discovering a battery in one train with one or more battery cells float voltage less than 2.07 V and float current greater than 2 amps indicates that the battery capacity may not be sufficient to perform the intended functions. The battery must therefore be declared inoperable immediately. other potentially extreme conditions, such as not completing the Required Actions of Condition A within the required Completion Time or average electrolyte temperature of representative cells falling below 65°F, also are cause for immediately declaring the associated DC electrical power subsystem inoperable.~~

SURVEILLANCE  
REQUIREMENTS

SR 3.8.6.1

Verifying battery float current while on float charge is used to determine the state of charge of the battery. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a charged state. The float current requirements are based on the float current indicative of a charged battery. Use of float current to determine the state of charge of the battery is consistent with IEEE Standard 450-1995 (Ref. 3). The 7 day frequency is consistent with IEEE Standard 450-1995.

This SR is modified by a Note that states the float current requirement is not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. When this float voltage is not maintained, the Required Actions of LCO 3.8.4, ACTION A, are being taken, which provide the necessary and appropriate verifications of the battery condition. Furthermore, the float current limit of 2 amps is established based on the nominal float voltage value and is not directly applicable when this voltage is not maintained. ~~The SR verifies that Category A battery cell parameters are consistent with IEEE 450 (Ref. 3), which recommends regular battery inspections including float voltage, specific gravity, and electrolyte level of pilot cells. The 7 day Frequency ensures that these inspections are performed within the frequency recommended by IEEE 450 (Ref. 3).~~

~~With regard to battery cell parameter values obtained pursuant to this SR, as read from plant indication instrumentation, the specified limit is considered to be a~~