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U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Stop OP1-17  
Washington, DC 20555

**SUSQUEHANNA STEAM ELECTRIC STATION  
PROPOSED AMENDMENT NO. 286 TO LICENSE NPF-14 AND  
PROPOSED AMENDMENT NO. 254 TO LICENSE NPF-22:  
REVISION TO TECHNICAL SPECIFICATION  
SURVEILLANCE REQUIREMENTS 3.8.4.7 & SR 3.8.4.8  
PLA-6014**

**Docket No. 50-387  
and 50-388**

In accordance with the provisions of 10 CFR 50.90, PPL Susquehanna, LLC is submitting a request for an amendment to the Technical Specifications for Susquehanna SSES Unit 1 and Unit 2. The proposed changes to the Technical Specification Surveillance Requirements 3.8.4.7 and 3.8.4.8 clarify that Diesel Generator "E" (DG E) electrical power subsystem testing does not require a mode restriction when the DG E diesel is not required to be OPERABLE.

These proposed changes have been reviewed by the Plant Operations Review Committee and by the Susquehanna Review Committee.

The enclosure to this letter provides a description of the proposed change. Attachment 1 provides the existing Technical Specification pages marked up to show the proposed change. Attachment 2 provides the corresponding TS Bases "mark-up" pages. No new regulatory commitments are made herein.

We request approval of the proposed License Amendment by May 1, 2006, with the amendment to be implemented within 30 days following approval. These changes are requested to be approved by May 1, 2006, in order to support performance of SR 3.8.4.7 on the DG E subsystem around currently scheduled emergency diesel generator overhaul work on two of the station diesels and prior to expiration of the SR 3.0.2 allowed surveillance interval on July 24, 2006.

A001

In accordance with 10 CFR 50.91(b), PPL Susquehanna, LLC is providing the Commonwealth of Pennsylvania with a copy of this proposed License Amendment request.

If you have any questions regarding this submittal, please contact Mr. M. H. Crowthers at (610) 774-7766.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 2/28/06

  
R. A. Saccone

Enclosure:

PPL Susquehanna Evaluation of the Proposed Changes

Attachments:

Attachment 1 – Proposed Technical Specification Changes  
(Mark-ups)

Attachment 2 – Proposed Technical Specification Bases Changes  
(Mark-ups provided for information)

cc: NRC Region I  
Mr. A. J. Blamey, NRC Sr. Resident Inspector  
Mr. R. V. Guzman, NRC Project Manager  
Mr. R. Janati, DEP/BRP

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## **Enclosure to PLA-6014**

### **PPL Susquehanna, LLC Evaluation for Proposed Change to Technical Specification Surveillance Requirements 3.8.4.7 and 3.8.4.8**

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1. DESCRIPTION
2. PROPOSED CHANGE
3. BACKGROUND
4. TECHNICAL ANALYSIS
5. REGULATORY SAFETY ANALYSIS
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  - 5.2 Applicable Regulatory Requirements/Criteria
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## PPL EVALUATION

### 1.0 DESCRIPTION

In accordance with the provisions of 10 CFR 50.90, PPL Susquehanna, LLC is submitting a request for an amendment to the Technical Specifications (TSs) for Susquehanna SSES Unit 1 and Unit 2.

This amendment request proposes changes to two Technical Specification Surveillance Requirements (SRs) contained in LCO 3.8.4 "DC Sources Operating". Both of these SRs contain a Note that states "This Surveillance shall not be Performed in Mode 1, 2, or 3."

The proposed changes to the Technical Specification Surveillance Requirements 3.8.4.7 and 3.8.4.8 clarify that Diesel Generator "E" (DG E) electrical power subsystem testing does not require a mode restriction when the DG E diesel is not required to be OPERABLE.

We request approval of the proposed License Amendment by May 1, 2006, with the amendment to be implemented within 30 days following approval. These changes are requested to be approved by May 1, 2006, in order to support performance of SR 3.8.4.7 on the DG E subsystem around currently scheduled emergency diesel generator overhaul work on two of the station diesels and prior to expiration of the SR 3.0.2 allowed surveillance interval on July 24, 2006.

### 2.0 PROPOSED CHANGE

Currently the Note states:

"This Surveillance shall not be performed in Mode 1, 2, or 3."

The Note is changed to state the following, with the underlined text proposed to be added:

"This Surveillance shall not be performed in Mode 1, 2, or 3 except for the DG E subsystem. This Surveillance can be performed on the DG E subsystem when the DG E is not an LCO 3.8.1 required OPERABLE DG."

Mark-ups of the TS pages are provided in Attachment 1.

Associated TS Bases changes that reflect the intent of the TS changes are provided for information in Attachment 2.

### **3.0 BACKGROUND**

The 250 VDC and the 125 VDC electrical power subsystems are required to be operable to ensure required power is available to shutdown the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated design basis accident (DBA). Loss of any single DC electrical power subsystem does not prevent the minimum safety function from being performed.

The SSES 250 VDC and 125 VDC electrical power systems are described in detail in SSES FSAR Section 8.3.2. A summary description of each follows:

#### **250 VDC System Description:**

Each unit has a 250 VDC electrical power system which consists of two separate and independent Class 1E 250 VDC subsystems designated as Division I and Division II. Each 250 VDC division contains a battery bank, a load center, motor control centers to distribute power to connected Class 1E and non-Class 1E loads, and battery charger(s).

The 250 VDC electrical power subsystems on each unit supply the power required for larger DC loads such as motor driven pumps and valves, inverters for plant computer, and vital 120V AC power supplies. Table 8.3-7A through Table 8.3-7D represent the "Worst Possible Loading" on each Class 1E 250 VDC battery for four hours after loss of AC power.

During normal operation, the 250 VDC loads receive power from the 250 VDC battery chargers with the batteries floating on the system. A loss of the AC power supply to the battery chargers results in the 250 VDC loads receiving power directly from the Class 1E 250 VDC batteries. No operator action is required for this transfer because the battery banks are connected in parallel to the charger, and they automatically assume the loads.

Each 250 VDC battery has adequate storage capacity to supply power to the required loads continuously for at least four hours as discussed in the FSAR, Section 8.3.2, "DC Power Systems."

#### **125 VDC System Description:**

Each unit has a 125 VDC electrical power system which consists of four separate and independent Class 1E subsystems designated as subsystems A, B, C, and D. Each of these 125 VDC electrical power subsystems contains a battery bank, a battery charger, a load center, and distribution panels to distribute power to connected Class 1E and non-Class 1E loads. Each 125 VDC electrical power subsystem provides the control power for its associated Class 1E AC power load

group (designated as A, B, C, D) consisting of 4.16 kV switchgear, 480V load centers, and a standby diesel generator as discussed in FSAR Section 8.3.1. These 125 VDC subsystems also provide DC power to the Engineered Safety Feature (ESF) valve actuation, diesel generator auxiliaries and controls, and plant alarm and indication circuits. The 125 VDC loads are shown in SSES FSAR Tables 8.3-6A, 8.3-6B, 8.3-6C, 8.3-6D, 8.3-6E, 8.3-6F, 8.3-6G, and 8.3-6H.

The "A" and "C" 125 VDC load group subsystems together are considered to be the 125 VDC Division I subsystem. Similarly, the "B" and "D" 125 VDC load group subsystems together are considered to be the 125 VDC Division II subsystem.

During normal operation, the Unit 1 and common 125 VDC loads receive power from the Unit 1 125 VDC battery chargers with the batteries floating on the system. The Unit 2 125 VDC loads are powered from the Unit 2 125 VDC battery chargers with the batteries floating on the system. The common 125 VDC loads, normally powered from the Unit 1 125 VDC electric power subsystems, can be transferred to the Unit 2 125 VDC electric power subsystems when necessary. A loss of the AC power supply to the battery chargers results in the 125 VDC loads receiving power directly from the Class 1E 125 VDC batteries. No operator action is required for this transfer because the battery banks are connected in parallel to the charger, and they automatically assume the loads.

Additionally, a Class 1E 125 VDC battery is installed as a dedicated DC power supply for only the D/G E Class 1E DC loads and the four motor-operated valves used to align Emergency Service Water (ESW) to D/G E. The D/G E 125 VDC electrical power subsystem consists of a separate and independent Class 1E subsystem. This 125 VDC electrical power subsystem contains a battery bank, a battery charger, a motor control center, and a distribution panel to distribute power to connected Class 1E loads. The 125 VDC D/G E loads are shown in SSES FSAR Table 8.3-6I.

Each 125 VDC battery has adequate storage capacity to supply power to the required loads continuously for at least four hours as discussed in the FSAR, Section 8.3.2, "DC Power Systems."

#### **4.0 TECHNICAL ANALYSIS**

The two SRs affected by this proposed change (SR 3.8.4.7 and SR 3.8.4.8) test the battery capacity.

SR 3.8.4.7 requires verification of battery capacity to be adequate to supply and maintain in operable status the required emergency loads for the design duty cycle by performance of a battery service test every 24 months. Two Notes are provided. The first allows performance of the modified performance discharge test in SR 3.8.4.8 in lieu of the service test in SR 3.8.4.7 once per 60 months. The second is the Note proposed herein to be revised.

SR 3.8.4.8 requires verification that battery capacity is greater than or equal to 80% of the manufacturer's rating when the battery is subjected to a performance discharge test or a modified performance discharge test. This test must be conducted every 60 months and every 12 months when the battery shows degradation or has reached 85% of expected service life with capacity less than 100% of the manufacturer's rating, and every 24 months when the battery has reached 85% or the expected service life with capacity greater than or equal to 100% of the manufacturer's rating. One Note is provided (the Note proposed herein to be revised).

The proposed revised Note currently precludes performance of the SRs when in Mode 1, 2 or 3. The TS Bases identify the reason for the Note is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the Electrical Distribution System, and challenge safety systems.

For the subsystems other than the DG E subsystem identified in TS Table 3.8.4-1, the SRs are performed when the respective subsystem's unit is in Mode 4 or 5. This is done to comply with the SR Note for the reasons described in the SR 3.8.4.7 and the SR 3.4.8.8 TS Bases.

Because the DG E subsystem does not support loads other than the DG E required loads as described previously (no unit common or unit specific loads are supplied by the subsystem), the Mode Restriction Note need not be applied to the DG E subsystem unless it is substituted for one of the LCO 3.8.1 required DGs. When the DG E is not substituted, it is not one of the four LCO 3.8.1 required DGs.

However, the Note does have applicability to the DG E and the associated subsystem when the DG E is substituted for one of the other DGs. When the DG E is substituted for one of the four LCO 3.8.1 required DGs, the DG E subsystem is required to support operability of the DG E. Thus, when in this configuration, the note needs to be applicable, since as stated in the TS bases, performing the surveillance would remove the DG E DC electrical power subsystem from service when it is required.

The proposed change to the Note is therefore justified since the proposed revision allows performance of the SR only when the DG E is not a LCO 3.8.1 required OPERABLE DG.

## 5.0 REGULATORY SAFETY ANALYSIS

### 5.1 No Significant Hazards Consideration

This “No Significant Hazards Consideration” evaluates the following changes to the Technical Specifications:

This amendment request proposes changes to two Technical Specification Surveillance Requirements (SRs) contained in LCO 3.8.4 “DC Sources Operating.” Both of these SR's contain a Note that states, “This Surveillance shall not be Performed in Mode 1, 2, or 3.”

The proposed changes to the Technical Specification Surveillance Requirements 3.8.4.7 and 3.8.4.8 clarify that Diesel Generator “E” (DG E) electrical power subsystem testing does not require a mode restriction when the DG E diesel is not required to be OPERABLE.

PPL Susquehanna, LLC (PPL) has evaluated whether or not a Significant Hazards Consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, “Issuance of amendment,” as discussed below:

**1. Does the proposed change involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated?**

Response: No.

Performance of TS required SRs are not initiators to any accident sequences analyzed in the Final Safety Analysis Report (FSAR). The changes do not involve any physical change to structures, systems, or components, (SSCs) and does not alter the method of operation or control of SSCs. The current assumptions in the safety analysis regarding accident initiators and mitigation of accidents are unaffected by these changes. No additional failure modes or mechanisms are being introduced and the likelihood of previously analyzed failures remains unchanged.

Operation in accordance with the proposed Technical Specification (TS) ensures that the DC distribution system and supported equipment functions remain capable of performing the function as described in the FSAR. Therefore, the mitigative functions supported by the system will continue to provide the protection assumed by the analysis.

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



**2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No.

The proposed change does not involve a physical alteration of the plant. No new equipment is being introduced, and installed equipment is not being operated in a new or different manner. There are no setpoints, at which protective or mitigative actions are initiated, affected by this change. This change will not alter the manner in which equipment operation is initiated, nor will the function demands on credited equipment be changed. No alterations in the procedures that ensure the plant remains within analyzed limits are being proposed, and no changes are being made to the procedures relied upon to respond to an off-normal event as described in the FSAR. As such, no new failure modes are being introduced. The change does not alter assumptions made in the safety analysis and licensing basis.

**3. Does the proposed change involve a significant reduction in a margin of safety?**

Response: No.

The margin of safety is established through equipment design, operating parameters, and the setpoints at which automatic actions are initiated. The proposed change is acceptable because performance of SRs on equipment not require to be OPERABLE and isolated from the OPERABLE plant equipment cannot affect any margin of safety. Therefore, the plant response to analyzed events will continue to provide the margin of safety assumed by the analysis.

**5.2 Applicable Regulatory Requirements/Criteria**

SSS FSAR Sections 3.1 and 3.13 provide detailed discussion of SSS compliance with the applicable regulatory requirements and guidance. The proposed TS amendment:

- (a) Does not alter the design or function of any system;
- (b) Does not result in any change in the qualifications of any component; and
- (c) Does not result in the reclassification of any component's status in the areas of shared, safety related, independent, redundant, and physically or electrically separated.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 6.0 ENVIRONMENTAL CONSIDERATIONS

10 CFR 51.22(c)(9) identifies certain licensing and regulatory actions, which are eligible for categorical exclusion from the requirement to perform an environmental assessment. A proposed amendment to an operating license for a facility does not require an environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a Significant Hazards Consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; or (3) result in a significant increase in individual or cumulative occupational radiation exposure. PPL Susquehanna, LLC has evaluated the proposed change and has determined that the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Accordingly, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with issuance of the amendment. The basis for this determination, using the above criteria, follows:

### Basis

As demonstrated in the “No Significant Hazards Consideration Evaluation,” the proposed amendment does not involve a Significant Hazards Consideration.

There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite. The proposed change does not involve any physical alteration of the plant (no new or different type of equipment will be installed) or change in methods governing normal plant operation.

There is no significant increase in individual or cumulative occupational radiation exposure. The proposed change does not involve any physical alteration of the plant (no new or different type of equipment will be installed) or change in methods governing normal plant operation.

## 7.0 REFERENCES

1. FSAR, Section 8.3.1, “AC Power Systems”
2. FSAR, Section 8.3.2, “DC Power Systems”

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**Attachment 1 to PLA-6014**  
**Proposed Technical Specification Changes**  
**(Mark-ups)**

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**SURVEILLANCE REQUIREMENTS (continued)**

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.6 Verify each required battery charger supplies its associated batteries at the following rates for <math>\geq 4</math> hours:</p> <ul style="list-style-type: none"> <li>a. <math>\geq 100</math> amps for the 125V Battery at <math>\geq 127.8V</math></li> <li>b. <math>\geq 300</math> amps for the 250V Battery at <math>\geq 255.6V</math></li> <li>c. <math>\geq 200</math> amps for the 125V Diesel Generator E Battery at <math>\geq 127.8V</math></li> </ul>	24 months
<p>SR 3.8.4.7 <u>NOTES</u></p> <ol style="list-style-type: none"> <li>1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7 once per 60 months.</li> <li>2. This Surveillance shall not be Performed in Mode 1, 2, or 3.</li> </ol> <p>Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.</p>	24 months

(continued)

except for the DG E subsystem. This Surveillance can be performed on the DG E subsystem when the DG E is not an LCO 3.8.1 required OPERABLE DG.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.7 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7 once per 60 months.</li> <li>2. This Surveillance shall not be Performed in MODE 1, 2 or 3.</li> </ol> <p>Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.</p>	<p>24 months</p>

(continued)

except for the DG E subsystem. This Surveillance can be performed on the DG E subsystem when the DG E is not an LCO 3.8.1 required OPERABLE DG.

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**Attachment 2 to PLA-6014**  
**Technical Specification Bases Changes**  
**(Mark-ups Provided for Information)**

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## BASES

### SURVEILLANCE REQUIREMENTS

#### SR 3.8.4.7 (continued)

When the battery loads after the first minute exceeds the performance test discharge rate, the modified performance discharge test is performed by first conducting the service test, then adjusting the discharge rate to the constant current value normally used for the performance discharge test. This test is terminated when the specified minimum battery terminal voltage is reached.

When the battery loads after the first minute exceeds the performance discharge test rate, the battery capacity is calculated as follows:

% of rated capacity at 25°C (77°F) =

$$K \left[ \frac{\sum (I_n)(t_n)}{\text{Rated Ampere Hours}} \right] \times 100$$

Where:

K = Temperature Correction Factor from IEEE 450-1995

I<sub>n</sub> = Discharge Current in amps for n-th section

T<sub>n</sub> = Duration of n-th section discharge in hour

n = Section number for each portion of the discharge, including both service test and performance test portions

This % of rated capacity equation uses the temperature corrected Ampere-Hours instead of the temperature corrected discharge rates as specified in IEEE 450-1995. It is not possible to temperature correct the discharge rate without impacting the service test.

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the Electrical Distribution System, and challenge safety systems.



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**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

**SR 3.8.4.8 (continued)**

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the Electrical Distribution System, and challenge safety systems. ^

Insert

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**REFERENCES**

1. 10 CFR 50, Appendix A, GDC 17.
  2. Regulatory Guide 1.6.
  3. IEEE Standard 308.
  4. FSAR, Chapter 6.
  5. FSAR, Chapter 15.
  6. Final Policy Statement on Technical Specifications Improvements, July 22, 1993 (58 FR 39132).
  7. Regulatory Guide 1.93.
  8. IEEE Standard 450.
  9. Regulatory Guide 1.32, February 1977.
  10. Regulatory Guide 1.129, April 1977, February 1978.
  11. IEEE Standard 485, 1983.
  12. FSAR, Chapter 8, Section 8.3.2.1.1.6
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BASES

SURVEILLANCE  
REQUIREMENTS

SR 3.8.4.7 (continued)

When the battery loads after the first minute exceeds the performance test discharge rate, the modified performance discharge test is performed by first conducting the service test, then adjusting the discharge rate to the constant current value normally used for the performance discharge test. This test is terminated when the specified minimum battery terminal voltage is reached.

When the battery loads after the first minute exceeds the performance discharge test rate, the battery capacity is calculated as follows:

% of rated capacity at 25°C (77°F) =

$$K \left[ \frac{\sum (I_n)(t_n)}{\text{Rated Ampere Hours}} \right] \times 100$$

Where:

K = Temperature Correction Factor from IEEE 450-1995

I<sub>n</sub> = Discharge Current in amps for n-th section

t<sub>n</sub> = Duration of n-th section discharge in hour

n = Section number for each portion of the discharge, including both service test and performance test portions

This % of rated capacity equation uses the temperature corrected Ampere-Hours instead of the temperature corrected discharge rates as specified in IEEE 450-1995. It is not possible to temperature correct the discharge rate without impacting the service test.

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the Electrical Distribution System, and challenge safety systems.

Insert

(continued)

BASES

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**SURVEILLANCE  
REQUIREMENTS**

SR 3.8.4.8 (continued)

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the Electrical Distribution System, and challenge safety systems.

Insert

SR 3.8.4.9

This Surveillance is provided to direct that Surveillances for the Unit 1 DC sources required to support Unit 2 are governed by the Unit 2 Technical Specifications. When Unit 1 DC Sources are required to be Operable to support Unit 2, the Unit 1 Surveillances must be met. Performance of a Unit 1 Surveillance at the specified Frequency will satisfy Unit 2 requirements.

When Unit 1 is in MODE 4 or 5 or moving irradiated fuel assemblies in the secondary containment, a Note to SR 3.8.5.1 specifies that some SRs are required to be met but do not have to be performed. The Note to Unit 2 SR 3.8.5.1 states that the Note to Unit 1 SR 3.8.2.1 is applicable if Unit 1 is in MODE 4 or 5. This ensures that Unit 2 Technical Specifications do not require a Unit 1 SR to be performed, when the Unit 1 Technical Specifications does not require performance of a Unit 1 SR.

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**REFERENCES**

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6.
3. IEEE Standard 308.
4. FSAR, Chapter 6.
5. FSAR, Chapter 15.
6. Final Policy Statement on Technical Specifications Improvements, July 22, 1993 (58 FR 39132).
7. Regulatory Guide 1.93.

(continued)

### **TS Bases insert**

Since the DG E subsystem does not support loads other than the DG E required loads, the mode restriction note need not be applied to the DG E subsystem unless it is substituted for one of the LCO 3.8.1 required DG's. The note does have applicability to the DG E subsystem when the DG E is substituted for one of the other DG's. When the DG E is substituted for one of the four LCO 3.8.1 required OPERABLE DG's, the DG E subsystem is required to support operability of the DG E. Thus when in this configuration, the note does need to be applicable since performing the Surveillance would remove a required DC electrical power subsystem from service.