Public Service
Electric and Gas
Company

Joseph J. Hagan
Vice President - Nuclear Operations

Public Service Electric and Gas Company P.O. Box 236, Hancocks Bridge, NJ 08038 609-339-1200

JAN 21 1994

NLR-N93196
LCR 93-27

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

REQUEST FOR AMENDMENT
SALEM GENERATING STATION
UNIT NOS. 1 AND 2
FACILITY OPERATING LICENSE NOS. DPR-70 AND DPR-75
DOCKET NOS. 50-272 AND 50-311

In accordance with the requirements of 10CFR50.90, Public Service Electric and Gas Company (PSE&G) hereby transmits an application to amend Appendix A of Facility Operating License Nos. DPR-70 and DPR-75 for Salem Generating Station, Unit Nos. 1 and 2, respectively. Pursuant to the requirements of 10CFR50.91(b)(1), PSE&G has provided a copy of this amendment request to the State of New Jersey.

This amendment request would revise the 125-Volt D.C. Distribution - Operating sections in the Salem Generating Station (SGS) Technical Specifications. The requested changes are consistent with the recommendations of NUREG-1431, Standard Technical Specifications - Westinghouse Plants.

A description of the requested amendment, supporting information and analyses for the change, and the basis for a no significant hazards consideration determination are provided in Attachment 1. Attachment 2 contains the Technical Specification pages revised with pen and ink changes.

PSE&G is requesting a 60 day implementation period after amendment approval.

010147

A001
1/1

JAN 21 1994

Should there be any questions regarding this submittal, please do not hesitate to contact us.

Sincerely,

Attachments (2)

C Mr. J. C. Stone
Licensing Project Manager

Mr. C. Marschall
Senior Resident Inspector

Mr. T. Martin, Administrator
Region I

Mr. Kent Tosch, Manager, VI
New Jersey Department of Environmental Protection
Division of Environmental Quality
Bureau of Nuclear Engineering
CN 415
Trenton, NJ 08625

I. DESCRIPTION OF THE PROPOSED CHANGES

As shown on the marked-up Technical Specifications (TS) pages in Attachment 2, PSE&G requests that TS 3.8.2.3 for both Salem Unit 1 and Salem Unit 2 be revised to include the battery acceptance criteria, corresponding allowed outage times and additional surveillance requirements recommended in NUREG-1431, Standard Technical Specifications - Westinghouse Plants.

TS 3.8.2.4 "125 VOLT D.C. DISTRIBUTION - SHUTDOWN" would also be indirectly affected by this change because it refers to the surveillance requirements of TS 4.8.2.3.2 to demonstrate the battery and chargers OPERABLE.

In addition, Salem Unit 1 TS 3.8.2.3 Limiting Condition for Operation (LCO) is requested to be revised to define the specific battery charger required for each train. Accordingly, Salem Unit 1 TS 3.8.2.3 Action Statement is also requested to be revised to restrict the use of the backup battery charger to a period not to exceed 7 days.

Additionally, the Unit 1 action statement for an inoperable 125 volt DC bus is being modified to add the requirement that the bus also be energized.

II. REASON FOR THE PROPOSED CHANGES

NUREG-1431 (Standard Technical Specifications Westinghouse Plants, September 1992) provides more specific battery cell parameters, which can be used to establish overall battery acceptability. Use of these parameters provides the flexibility needed to address changes in individual battery cell performance over the battery's life, while assuring that overall battery performance meets or exceeds minimum design requirements. NUREG-1431 also provides additional surveillance requirements to allow for improved monitoring of battery capabilities and status.

In addition, differences exist between the Salem Unit 1 TS and Unit 2 TS. Therefore, changes to the Unit 1 TS are required to bring both TS into agreement. The Unit 1 LCO does not specify the primary battery charger for each train, as does the Unit 2 TS. The primary and backup battery chargers are powered from different AC Vital buses, therefore, using the backup charger would result in charging two DC Trains from the same AC Vital bus. The primary battery charger for each train should be listed in the Unit 1 LCO and corresponding restrictions should be included in the action statement addressing an inoperable battery charger. This change would bring the Unit 1 TS and Unit 2 TS into agreement and restrict the use of the Unit 1 backup battery chargers to a period not to exceed 7 days.

In addition, the Unit 1 action statement for an inoperable 125 volt DC bus is being modified to add the requirement that the bus also be energized. This change also brings both Unit's TS into agreement.

III. JUSTIFICATION AND EVALUATION OF THE SAFETY SIGNIFICANCE AND POTENTIAL CONSEQUENCES OF THE REQUEST

The station DC electrical power system provides the AC emergency power system with control power. It also provides both motor and control power to selected safety related equipment. As required by 10CFR50, Appendix A General Design Criteria (GDC) 17, the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The DC electrical power system also conforms to the intent of Regulatory Guide 1.6, "Independence Between Redundant Standby (Onsite) Power Sources and Between Their Distribution Systems" and IEEE-308-1971.

The 125 VDC system consists of three 125 Volt batteries, six 125 volt battery chargers, and associated switchgear. The batteries have 60 cells each and are rated at 2320 ampere hours for an eight-hour discharge rate. The batteries are mounted on corrosion-resistant and seismically qualified steel racks in separately ventilated and isolated areas. The batteries are connected to the 125 VDC busses through two 1200 amp high-capacity fuses. The batteries are designated 1A, 1B, and 1C (2A, 2B, and 2C for Unit 2) and feed their respective busses.

There are six battery chargers designated 1A1, 1A2, 1B1, 1B2, 1C1, and 1C2 (2A1, 2A2, 2B1, 2B2, 2C1 and 2C2 for Unit 2) with two chargers capable of supplying each bus. Each charger has 100% capacity and is able to supply the DC loads and perform the required equalizing charge when necessary. The battery chargers are supplied from the 230 volt AC vital busses. The battery charger supply breakers are administratively controlled so that only one charger supplies each bus at any one time, to prevent interconnecting the 230 volt AC vital busses. If the battery chargers are lost, the batteries can supply all the DC loads for two hours, as described in the Updated Final Safety Analysis Report (UFSAR), Chapter 8. Upon a loss of offsite power, the chargers are supplied by the emergency diesel generator via the 230 volt vital busses.

The 125 VDC system has seven distribution cabinets associated with it. Each cabinet can be supplied power from two different 125 VDC busses through mechanically interlocked (break before make) infeeder circuit breakers located in the cabinets. The infeeds are designated regular and emergency. The cabinets can be manually transferred from regular to emergency.

All batteries are sized to produce the required capacity corresponding to the end-of-life design cycles and 100% design demand. Battery sizing is based on IEEE-485-1983 recommendations

with appropriate design margins; this corresponds to approximately 145% battery capacity. The voltage design limit is 2.13 volts per cell, which corresponds to a total output of approximately 128 VDC per battery (60 cells).

Each battery charger has ample power output capacity for the steady-state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger has sufficient capacity to restore the battery bank from the design minimum charge to its fully charged state within 24 hours, while supplying normal steady-state loads.

During normal operation, the 125 VDC loads are powered from the battery chargers with the batteries floating on the system. In case of loss of normal power to the battery charger, the DC loads are automatically fed from the station battery power.

The initial condition of Design Basis Accident (DBA) and transient analysis in the FSAR, Chapter 15, assume that Engineered Safety Feature (ESF) systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the Diesel Generators (DG), emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC sources is consistent with the initial assumptions of the accident analyses, which are based upon: (1) maintaining the required DC power sources and associated distribution systems OPERABLE during accident conditions, (2) an assumed loss of offsite power, and (3) an additional single failure.

The 125 VDC power sources are required to be OPERABLE to ensure availability of the required power to shutdown the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Loss of any one of the DC power subsystems does not prevent the minimum safety function from being performed. Each DC electrical power source train is considered OPERABLE if the 125 volt station service battery and battery charger are operating, connected to the associated DC buses and the surveillance requirements of LCO 3.8.2.3 are met.

The 125 VDC power sources are required to be OPERABLE in MODES 1, 2, 3 and 4 to provide power for instrumentation and controls to ensure safe plant operation and to ensure that:

1. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of anticipated operational occurrences or abnormal transients, and

2. Adequate core cooling is provided, and containment integrity and other vital functions are maintained in the event of a postulated DBA.

125 VDC requirements for MODES 5 and 6 are addressed in the bases for LCO 3.8.2.4, 125 VDC Sources Shutdown.

Battery cell 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. These specific battery cell parameters are included in Table 4.8.2.3-1 of the proposed TS. Electrolyte limits are conservatively established, allowing continued DC electrical system function even when Category A and B limits of Table 4.8.2.3-1 of the proposed TS are not met. The battery cell parameters are required solely for the support of the associated DC electrical power subsystems.

CHANGES TO LCO 3.8.2.3

The LCO is being revised to bring the Unit 1 LCO in line with the Unit 2 LCO, by specifying the primary charger to be used with each train. This is being done to restrict the use of the backup charger since the backup charger is powered from a different AC Vital bus than that of the primary charger. The corresponding Action Statement for an inoperable battery charger is also being revised to limit the use of the backup battery charger to 7 days. This brings the Unit 1 TS into agreement with the existing Unit 2 TS and restricts the amount of time that one AC vital bus can be used to power the bus chargers for two DC Trains.

ACTION STATEMENT CHANGES

Action statement 3.8.2.3.a for Unit 1 is being changed to bring it into agreement with the corresponding action statement for Unit 2. This change will add, to the present requirement that the bus be operable, the requirement that the 125 volt DC bus be energized . In addition, the change will add, to the present requirement that the bus be restored to OPERABLE status, the required action to restore the bus to energized status.

Action Statements 3.8.2.3.c through 3.8.2.3.f are being added to provide additional guidance to determine the operability of the battery based on the battery cell parameters as listed in Table 4.8.2.3-1 of the proposed TS.

Action Statement 3.8.2.3.c specifies that with one or more cells in one or more batteries not within the limits of Category A and B specified in Table 4.8.2.3-1, but within the Allowable Limits (Category C limits are met), operation is permitted for a limited time since sufficient capacity exists for the battery to perform its intended function.

The Action Statement requires that pilot cell electrolyte level and float voltage be verified to meet the Category C Allowable Limits within 1 hour. This check will provide 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 cells. One hour is considered a reasonable amount of time to perform the required verification.

The Action Statement further requires verification that the Category C Allowable Limits are met. This 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 required 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.

Continued operation is only permitted for 31 days before battery cell parameters must be restored to within Category A and B limits. With the 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 prior to declaring the battery inoperable.

If any of the requirements of Action Statement 3.8.2.3.c cannot be met then the requirements of Action Statement 3.8.2.3.f must be met. Action Statement 3.8.2.3.f requires that the battery be restored to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

Action Statement 3.8.2.3.d specifies that with one or more batteries with one or more cell parameters outside the Category C Allowable Limits for any connected cell, then the requirements of Action Statement 3.8.2.3.f must be met. Action Statement 3.8.2.3.f requires that the battery be restored to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

Action Statement 3.8.2.3.e specifies that with average temperature of representative cells less than 65 °F, then the requirements of Action Statement 3.8.2.3.f must be met. Action Statement 3.8.2.3.f requires that the battery be restored to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours. With battery temperatures below 65 °F, capacity to supply the maximum expected load requirement is not assured and the corresponding DC electrical power subsystem must be declared inoperable.

SURVEILLANCE REQUIREMENT CHANGES

SURVEILLANCE REQUIREMENT 4.8.2.3.2.a

Surveillance requirement 4.8.2.3.2.a.1 is being modified to require battery cell parameters meet the specifications of Table 4.8.2.3-1. This surveillance requirement verifies that Category A battery cell parameters meet the intent of IEEE-450-1987, which recommends regular battery inspections including voltage and specific gravity.

The requirement to verify terminal voltage has been modified to specify that the verification will be done while on float charge. Verifying the battery terminal voltage while on float charge helps ensure the effectiveness of the charging system and the ability of the battery to perform its intended function. Float charge is the condition where the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or battery cell) in a fully charged state.

SURVEILLANCE REQUIREMENT 4.8.2.3.2.b

Surveillance requirement 4.8.2.3.2.b is being modified to require battery cell parameters meet the specifications of Table 4.8.2.3-1. This surveillance requirement, the quarterly inspection of specific gravity and voltage, is consistent with IEEE-450-1987. In addition, requirements were added that within 24 hours of a battery discharge < 110 V or a battery overcharge > 150 V, the battery must be demonstrated to meet Category B limits. This inspection is also consistent with IEEE-450-1987, which recommends special inspections following a severe discharge or overcharge, to ensure that no significant degradation of the battery occurs as a consequence of such discharge or overcharge. Other requirements of the quarterly surveillance, which are not specifically required following battery discharge or overcharge conditions, have been split out into a new separate 92 day surveillance requirement, 4.8.2.3.2.c (new surveillance number).

A new requirement, 4.8.2.3.2.c.1, is being added to the new quarterly surveillance requiring visual inspection to detect corrosion of the battery cells and connections, or measurement of the resistance of each inter-cell, inter-rack, inter-tier, and terminal connection. This provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The resistance limits established for this surveillance requirement are based on not exceeding the ceiling value established by the manufacturer for any individual connection, while also ensuring that the total battery connection resistance does not exceed an established maximum value. The value for the maximum total battery connection resistance is restricted to assure that the required loads will have adequate terminal

voltage under blackout, blackout plus accident, and station blackout (SBO) conditions. The total battery connection resistance is defined as the resistance of all inter-cell connections (including bus bars), all inter-rack connections (including cable resistances), all inter-tier connections (including cable resistances) and all field cable terminal connections at the battery.

This surveillance, which can detect conditions that can cause power losses due to resistive heating, is to be conducted quarterly, a frequency which is considered acceptable based on operating experience related to detecting corrosion trends.

Another new surveillance requirement, 4.8.2.3.2.c.2, added to the quarterly surveillance, requires verification that the average temperature of representative cells is > 65 °F. This is consistent with a recommendation of IEEE-450-1987, which states that the temperature of electrolytes in representative cells should be determined on a quarterly basis.

Lower than normal temperatures act to inhibit or reduce battery capacity. This Surveillance requirement ensures that the operating temperatures remain within an acceptable operating range. This limit is based on the minimum temperature assumed in Salem's Station Blackout (SBO) coping time calculations and is more conservative than manufacturer's recommendations.

SURVEILLANCE REQUIREMENT 4.8.2.3.2.c

Surveillance requirement 4.8.2.3.2.c has been split into two separate surveillances because three of the original four requirements in this surveillance have had their frequency modified from 18 months to 12 months. This change in frequency is consistent with the guidance of IEEE-450-1987, which recommends these inspections be performed on a yearly basis. The new numbers for the surveillance requirements will be 4.8.2.3.2.d and 4.8.2.3.2.e.

Surveillance requirement 4.8.2.3.2.c.1, which is an 18 months inspection of the cells and racks for physical damage or abnormal deterioration, will now be performed at a 12 month interval. The new surveillance number will be 4.8.2.3.2.d.1.

Surveillance requirement of 4.8.2.3.2.c.2, which is an 18 month verification that the cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material, has been modified to remove the requirement to verify that terminal connections are clean and tight. The requirement to verify that terminal connections are clean and tight applies only to nickel cadmium batteries as per IEEE Standard P1106, "IEEE Recommended Practices for Installation, Maintenance, Testing and Replacement of Vented Nickel - Cadmium Batteries for Stationary Applications." Since the cleanliness and tightness is verified by meeting the required resistance requirements and removing any

corrosion, the requirement to verify the connections are clean and tight may be removed for lead acid batteries. In addition this surveillance will be performed at a 12 month frequency and the new surveillance number will be 4.8.2.3.2.d.2.

Surveillance requirement 4.8.2.3.2.c.3, the 18 month resistance measurements, has been modified to provide more specific readings and more conservative setpoints. The surveillance requires a measurement of the resistance of each inter-cell, inter-rack, inter-tier, and terminal connection. This provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The resistance limits established for this surveillance requirement are based on not exceeding the ceiling value established by the manufacturer for any individual connection while also ensuring that the total battery connection resistance does not exceed an established maximum value. The value for the maximum total battery connection resistance is restricted to assure that the required loads will have adequate terminal voltage under blackout, blackout plus accident, and station blackout (SBO) conditions. The total battery connection resistance is defined as the resistance of all inter-cell connections (including bus bars), all inter rack connections (including cable resistances), all inter-tier connections (including cable resistances) and all field cable terminal connections at the battery.

The resistance measurement surveillance will also be performed at a 12 month interval and the new surveillance number will be 4.8.2.3.2.d.3.

Surveillance requirement 4.8.2.3.2.c.4 will be not be modified other than a new surveillance number of 4.8.2.3.2.e.

SURVEILLANCE REQUIREMENT 4.8.2.3.2.d.

Surveillance requirement 4.8.2.3.2.d will not be modified other than a new surveillance number of 4.8.2.3.2.f.

SURVEILLANCE REQUIREMENT 4.8.2.3.2.e

Surveillance Requirement 4.8.2.3.2.e, the 60 month battery performance discharge test has not been changed other than its surveillance number, which will now be 4.8.2.3.2.g. However, two additional surveillances have been added which will require the battery performance test to be performed at an increased frequency based on the condition of the battery.

A new surveillance requirement, 4.8.2.3.2.h, will be added which will require that the battery performance test be conducted at a 12 month interval if the battery shows degradation or has reached 85% of its expected life with a capacity less than 100% of manufacturer's rating. Degradation is indicated, according to

IEEE-450-1987, when the battery capacity drops more than 10% of rated capacity from its capacity on the previous performance test, or is below 90% of the manufacturer's rating. However, if the battery shows no degradation but has reached 85% of its expected life and still retains at least 100% capacity, then the frequency will be reduced to 24 months. This condition will be covered under new surveillance requirement 4.8.2.3.2.i. The addition of these more frequent surveillance requirements is consistent with the recommendations of IEEE-450-1987. These increased surveillance frequencies provide improved monitoring of battery performance and are sufficient to identify trends in battery degradation.

TABLE 4.8.2.3-1

Table 4.8.2.3-1 is added to this TS and delineates the limits on electrolyte level, float voltage, and specific gravity for three different categories. The meaning of each category is discussed below.

Category A defines the normal parameter limit for each designated pilot cell in each battery. The cells selected as pilot cells are those whose temperature, voltage, and electrolyte specific gravity represent the state of charge of the entire battery.

The Category A limits specified for electrolyte level are based on manufacturer recommendations and are consistent with the guidance in IEEE-450-1987, with the extra 1/4 inch allowance above the high electrolyte level indication for operating margin to account for temperatures and charge effects. In addition to this allowance, footnote (a) to Table 4.8.2.3-1 permits the electrolyte level to be above the specified maximum level during equalizing charge, provided it is not overflowing. These limits ensure that the plates suffer no physical damage, and that adequate electron transfer capability is maintained in the event of transient conditions.

The Category A limit specified for float voltage is $\geq$ 2.13 V per cell. This value is based on the recommendation of IEEE-450-1987, which states that prolonged operation of cells < 2.13 V can reduce the life expectancy of cells.

The Category A limit for specific gravity for each pilot cell is _ 1.195 (0.020 below the manufacturer fully charged nominal specific gravity or a battery charging current that had stabilized at a low value). This value is characteristic of a charged cell with adequate capacity.

The specific gravity readings are corrected for actual electrolyte temperature and level, in accordance with IEEE-450-1987. For each 3 °F (1.67 °C) above 77 °F (25 °C), 1 point (0.001) is added to the reading; 1 point is subtracted for each 3 °F below 77 °F. The specific gravity of the electrolyte in a cell increases with a loss of water due to electrolysis or

evaporation. Footnote (b) to Table 4.8.2.3-1 requires the above mentioned correction for electrolyte level and temperature, with the exception that level correction is not required when battery charging is < 3 amps on float charge. This current is based on manufacturer's recommendations, and in general, provides an indication of overall battery charge.

Because of specific gravity gradients that are produced during the recharging process, delays of several days may occur while waiting for the specific gravity to stabilize. IEEE-450-1987 recommends that electrolyte level readings should be made only after the battery has been at float charge for at least 72 hours. A stabilized charger current is an acceptable alternative to specific gravity measurement for determining the state of charge of the designated pilot cell. This phenomenon is discussed in IEEE-450-1987. Footnote (c) to Table 4.8.2.3-1 allows the float charge current to be used as an alternate to specific gravity for up to 7 days following a battery equalizing recharge.

Category B defines the normal parameter limits for each connected cell. The term "connected cell" excludes any cell that may be bypassed.

The Category B limits specified for electrolyte level and float voltage are the same as those specified in Category A and have been discussed above. The Category B limit specified for specific gravity for each connected cell is ≥ 1.190 (0.025 below the manufacturer fully charge, nominal specific gravity) with the average of all connected cells > 1.200 (0.015 below the manufacturer fully charged nominal specific gravity). These values are based on manufacturer's recommendations. The minimum specific gravity value required for each cell ensures that the effects of a highly charged or newly installed cell will not mask overall degradation of the battery. Footnote (b) to Table 4.8.2.3-1 requires correction of specific gravity for electrolyte temperature and level. This level correction is not required when battery charging current is < 3 amps on float charge.

Category C defines the Allowable Limits for each connected cell. These values, although reduced, provide assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety. When any battery parameter is outside the Category C Allowable Limit, the assurance of sufficient capacity described above no longer exists, and the battery must be declared inoperable.

The Category C Allowable Limit specified for electrolyte level (above the top of the plates and not overflowing) ensure that the plates suffer no physical damage and maintain adequate electron transfer capability. The Category C Allowable Limit for float voltage is based on IEEE-450-1987, which specifies that a cell voltage of 2.07 V or below, under float conditions and not caused by elevated temperature of the cell, indicates internal cell problems and requires cell attention.

The Category C Allowable Limit of average specific gravity $\geq$ 1.190 is based on manufacturer recommendations (0.025 below the manufacturer recommended fully charged, nominal specific gravity). In addition to that limit, it is required that the specific gravity for each connected cell must not be more than 0.020 below the average of all connected cells. This limit ensures that the effect of a highly charged or new cell does not mask overall degradation applicable to Category A, B and C specific gravity.

IV. DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

In accordance with 10CFR50.92, PSE&G has reviewed the proposed changes and concludes that the proposed changes do not involve a significant hazard consideration because the change would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes do not alter plant configuration or operation. The proposed changes do not invalidate any of the parameters assumed in the plants UFSAR Design Basis Accident or Transient Analyses. The proposed changes provide additional guidance to be used to ensure operability of the safety related batteries. New surveillance requirements and specific battery cell parameters offer improved monitoring of the battery status. The new guidance and surveillance requirements are consistent with the recommendations of NUREG-1431, Standard Technical Specifications - Westinghouse Plants, and current industry recommendations.

The changes to the Unit 1 LCO and corresponding Action Statement restrict the use of the backup battery charger, thereby limiting the amount of time that one AC Vital bus is allowed to power the chargers of more than one DC train. This change brings the TS for both Units into agreement and results in a more conservative Unit 1 TS.

Therefore, the probability or consequences of an accident previously evaluated are not increased by the proposed change.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes do not introduce any design or physical configuration changes to the facility or change the method by which any safety-related system performs its function. The proposed changes are consistent with the recommendations of NUREG-1431, Standard Technical Specifications - Westinghouse Plants. Therefore, the proposed changes will not increase the possibility of a new or different kind of accident from any accident previously identified.

3. Does not involve a significant reduction in a margin of safety.

The proposed changes do not alter the manner in which safety limits or limiting safety system setpoints are determined. The new cell parameter table and additional surveillance requirements provide improved means to monitor and evaluate overall battery performance. Therefore, the proposed changes do not involve a significant reduction in any margin of safety.

V. CONCLUSIONS

Based on the information presented above, PSE&G has concluded there is no significant hazards consideration.

JAN 21 1994

REF: NLR-N93196

STATE OF NEW JERSEY)
) SS.
COUNTY OF SALEM)

J. J. Hagan, being duly sworn according to law deposes and says:

I am Vice President - Nuclear Operations of Public Service Electric and Gas Company, and as such, I find the matters set forth in the above referenced letter, concerning the Salem Generating Station, Unit Nos. 1 and 2, are true to the best of my knowledge, information and belief.

J J Hagan

Subscribed and Sworn to before me
this 31st day of January, 1993

Kimberly Jo Brown
Notary Public of New Jersey

My Commission expires on KIMBERLY JO BROWN
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires April 21, 1998

ATTACHMENT 2

INSERT A

battery charger 1A1.

INSERT B

battery charger 1B1.

INSERT C

battery charger 1C1.

INSERT D

a. With one 125-volt D.C. bus inoperable **OR** not energized, restore the inoperable bus to operable **AND** energized status within 2 hours **OR** be in at least HOT STANDBY within the next 6 hours **AND** in COLD SHUTDOWN within the following 30 hours.

b. With one 125-volt D.C. battery charger inoperable, restore the inoperable charger to OPERABLE status within 2 hours **OR** connect the backup charger for no more than 7 days **OR** be in at least HOT STANDBY within the next 6 hours **AND** in COLD SHUTDOWN within the following 30 hours.

INSERT E

c. With one or more 125-volt D.C. batteries with one or more battery cell parameters not within the Category A or B limits of Table 4.8.2.3-1:

   1. Verify within 1 hour, that the electrolyte level and float voltage for the pilot cell meets Table 4.8.2.3-1 Category C limits, **AND**

   2. Verify within 24 hours, that battery cell parameters of all connected cells meet Table 4.8.2.3-1 Category C limits, **AND**

   3. Restore battery cell parameters to Category A and B limits of Table 4.8.2.3-1 within 31 days, **AND**

   4. If any of the above listed requirements cannot be met, comply with the requirements of action f.

d. With one or more 125-volt D.C. batteries with one or more battery cell parameters not within Table 4.8.2.3-1 Category C values, comply with the requirements of action f.

e. With average electrolyte temperature of representative cells less than 65 °F, comply with the requirements of action f.

f. Restore the battery to OPERABLE status within 2 hours **OR** be in at least HOT STANDBY within the next 6 hours **AND** COLD SHUTDOWN within the following 30 hours.

INSERT F

1. The parameters in Table 4.8.2.3-1 meet Category A limits.

2. The overall battery voltage is greater than or equal to 125 volts on float charge.

INSERT G

At least once per 92 days AND once within 24 hours after a battery discharge < 110 V AND once within 24 hours after a battery overcharge > 150 V by verifying that the parameters in Table 4.8.2.3-1 meet the Category B limits.

INSERT H

c. At least once per 92 days by verifying that:

   1. There is no visible corrosion at terminals or connectors **OR** the connection resistance is:
      ≤ 150 micro ohms for inter-cell connections,
      ≤ 350 micro ohms for inter-rack connections,
      ≤ 350 micro ohms for inter-tier connections,
      ≤ 70 micro ohms for field cable terminal connections, and
      ≤ 2500 micro ohms for the total battery connection resistance which includes all inter-cell connections (including bus bars), all inter-rack connections (including cable resistance) all inter-tier connections (including cable resistance) and all field terminal connections at the battery.

   2. The average electrolyte temperature of the representative cells is above 65 °F.

INSERT I

d. At least once per 12 months by verifying that:

   1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration.

   2. Remove visible terminal corrosion and verify cell-to-cell and terminal connections are coated with anti-corrosion material.

INSERT I (continued)

3. The connection resistance is:
   ≤ 150 micro ohms for inter-cell connections,
   ≤ 350 micro ohms for inter-rack connections,
   ≤ 350 micro ohms for inter-tier connections,
   ≤ 70 micro ohms for field cable terminal connections, and
   ≤ 2500 micro ohms for the total battery connection resistance which includes all inter-cell connections (including bus bars), all inter-rack connections (including cable resistance) all inter-tier connections (including cable resistance) and all field terminal connections at the battery.

INSERT J

g. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Satisfactory completion of this performance discharge test shall also satisfy the requirements of Specification 4.8.2.3.2.f if the performance discharge test is conducted during a shutdown where that test and the battery service test would both be required.

h. At least once per 12 months, during shutdown, if the battery shows signs of degradation OR has reached 85% of the service life with a capacity less than 100% of manufacturers rating, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its capacity on the previous performance test, or is below 90% of the manufacturer's rating.

i. At least once per 24 months, during shutdown, if the battery has reached 85% of the service life with capacity greater than or equal to 100% of manufacturers rating, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test.

INSERT K

Table 4.8.2.3-1
Battery Cell Parameters Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMIT FOR EACH CONNECTED CELL
Electrolyte level	> Minimum level indication mark, and ≤ 1/4 inch above maximum level indication mark (a)	> Minimum level indication mark, and ≤ 1/4 inch above maximum level indication mark (a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	≥ 2.07 V
Specific Gravity (b) (c)	≥ 1.195	≥ 1.190 AND Average of all connected cells ≥ 1.200	Not more than 0.020 below average of all connected cells AND Average of all connected cells ≥ 1.190

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during equalizing charge provided it is not overflowing.
(b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < 3 amps when on float charge.
(c) Or battery charging current is < 3 amps when on float charge. This is acceptable only during a maximum of 7 days following a battery recharge.