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RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Responds to Generic Ltr 91-06, "Resolution of Generic Issue A-30 Adequacy of Safety-Related DC Power Supplies." NRC requested licensees to provide written responses to questions in Encl 1 of generic ltr within 180 days of ltr.

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P.O. Box 14000, Juno Beach, FL 33408-0420

October 28, 1991

L-91-291
10 CFR 50.54(f)

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

RE: St. Lucie Unit Nos. 1 and 2
Docket Nos. 50-335 and 50-389
Generic Letter 91-06 Response

Attachments 1 and 2 are the Florida Power and Light Company response to Generic Letter 91-06 "Resolution of Generic Issue A-30 *Adequacy of Safety-Related DC Power Supplies*" for St. Lucie Units 1 and 2 respectively.

On April 29, 1991, the NRC issued Generic Letter 91-06 which provided the results of its evaluation of Generic Issue A-30. The evaluation determined that certain maintenance, surveillance, and monitoring provisions are appropriate for safety-related dc systems. In order to determine whether any site specific staff action would be required, the NRC requested licensees to provide written responses to the questions in Enclosure 1 of the Generic Letter within 180 days of the date of the letter.

The attached responses for St. Lucie Unit 1 and 2 are provided pursuant to Section 182 of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f).

Please contact us if there are any questions about this submittal.

Very truly yours,

W. H. Bohlke
Vice President
Nuclear Engineering and Licensing

WHB/GRM/kw

cc: Stewart D. Ebneter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, St. Lucie Plant

DAS/PSL #547-91

St. Lucie Unit Nos. 1 and 2
Docket Nos. 50-335 and 50-389
Generic Letter 91-06 Response

STATE OF FLORIDA)
) ss.
COUNTY OF PALM BEACH)

W. H. Bohlke being first duly sworn, deposes and says:

That he is Vice President, Nuclear Engineering and Licensing for the Nuclear Division of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information and belief, and that he is authorized to execute the document on behalf of said Licensee.

W. H. Bohlke

Subscribed and sworn to before me this
28th day of October, 19 91.

Susan M. Fey

NOTARY PUBLIC, in and for the County of Palm Beach, State of Florida

My Commission expires Notary Public, State of Florida My Comm. Exp. Feb. 18, 1995 Bonded thru PICHARD Ins. Agency

ATTACHMENT 1
ST. LUCIE UNIT 1

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
Q-1	Unit _____	R-1. St. Lucie Unit 1 Docket No. 50-335
Q-2.a	The number of independent redundant divisions of class 1E or safety-related DC power for this plant. (Include any separate Class 1E or Safety-related DC, such as any DC dedicated to the diesel generators.)	R-2.a. St. Lucie Unit 1 has two (2) independent redundant divisions of class 1E or safety-related DC Power designated 1A and 1B. Each subsystem consists of a 125 volt DC Bus designated 1A (1B), a 125 volt safety-related battery designated 1A (1B), and 2 safety-related 125 volt battery chargers designated 1A and 1AA (1B and 1BB). In addition, a swing bus designated 1AB with a single 125 volt DC battery charger designated 1AB can be aligned to either the 1A bus or the 1B bus.
Q-2.b	The number of functional safety-related divisions of DC power necessary to attain safe shutdown for this unit.	R-2.b. St. Lucie Unit 1 requires one (1) of the functional safety-related divisions of DC power, either A or B, to attain safe shutdown.
Q-3.a	Does the control room at this unit have the following separate, independently annunciated alarms for each division of DC power? 1. Battery disconnect or circuit breaker open?	R-3.a. St. Lucie Unit 1 has the following annunciated alarms in the control room: 1. Yes, an open battery disconnect or circuit breaker is alarmed by ANNUNCIATORS A-30 or B30. A-30 (B-30) "125V DC BUS 1B (1A) UNDERVOLTAGE/MAIN BATTERY BREAKER."
	2. Battery charger disconnect or circuit breaker open (both input AC & output DC)?	2. Yes, an open battery charger disconnect or circuit breaker (either input AC or output DC) is alarmed by ANNUNCIATORS A-20, B-20, Z-9, & Z-10. A-20 (B-20) "125V DC BUS 1B (1A) BATT. CHGR./BATT. RM FAN TROUBLE" Z-9 (Z-10) "BATTERY CHARGER 1AA (1BB) TROUBLE"
	3. DC system ground?	3. Yes, a DC system ground is alarmed by ANNUNCIATORS A-10 & B-10. A-10 (B-10) "125V DC BUS 1B (1A) GROUND"
	4. DC bus under voltage?	4. Yes, a DC bus undervoltage is alarmed by ANNUNCIATORS A-30 & B-30 A-30 (B-30) Same annunciator as response R-3.a.1
	5. DC bus over voltage?	5. Yes, a DC bus overvoltage is alarmed by ANNUNCIATORS A-20 & B-20. A-20 (B-20) Same annunciator as response R-3.a.2 In addition high voltage causes the battery charger shutdown and trouble alarm.

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
	6. Battery charger failure?	6. Yes, a battery charger failure is alarmed by ANNUNCIATORS A-20 & B-20 A-20 (B-20) Same annunciator as response R-3.a.2
	7. Battery discharge?	7. No, St. Lucie Unit 1 does not have a battery discharge alarm. See the response to Q-5 for justification.
Q-3.b	Does the control room at this unit have the following separate independent indications for each division of DC power? 1. Battery float charge current?	R-3.b. St. Lucie Unit 1 has the following indications in the control room: 1. No, Unit 1 does not have battery float current indication in the control room. See the response to Q-5 for justification.
	2. Battery circuit output current?	2. No, Unit 1 does not have battery circuit output current indication in the control room. See the response to Q-5 for justification.
	3. Battery discharge?	3. No, Unit 1 does not have battery discharge indication in the control room. See the response to Q-5 for justification.
	4. Bus voltage?	4. Yes, DC bus voltage indication is provided in the control room by volt meters VM-1001 & VM-1002 and independent white indicating lights.
Q-3.c	Does the unit have written procedures for response to the alarms (3.a 1-7) and indications (3b. 1-4)?	R-3.c. Yes, written procedures for the response to the alarms (R-3.a.1-7) & Indications (R-3.b.1-4) are listed below: 3.a.1-7 (Alarms) OP 1-0960020 "125V DC SYSTEM NORMAL OPERATION" ONOP 1-0030131 "PLANT ANNUNCIATOR SUMMARY" ONOP 1-0960030 "DC GROUND ISOLATION" 3.b.1-4 (Indications) OP 1-0960020 "125V DC SYSTEM NORMAL OPERATION" ONOP 1-0030136 "LOSS OF A SAFETY RELATED DC BUS"
Q-4	Does this unit have indication of bypassed and inoperable status of circuit breakers or other devices that can be used to disconnect the battery and the battery charger from its DC bus and the battery charger from its AC power source during maintenance or testing?	R-4 Yes, bypass and/or inoperable status of DC output or AC input circuit breakers is provided by the control room annunciators identified in R-3, specifically A-20 (B-20) & A-30 (B-30) provide annunciation of battery charger trouble including AC power failure, and misalignment of battery output breakers. However, there is no specific alarm or indication provided to identify an inoperable circuit breaker. See the response to Q-5 for justification.

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
Q-5	If the answer to any part of question 3 or 4 is no, then provide information justifying the existing design features of the facility's safety-related DC systems. R-3.a.7 R-3.b.1 R-3.b.2 R-3.b.3 R-4 Instead of developing & supplying the justification, FPL may commit to perform the evaluations during the performance of the IPE for severe accident vulnerabilities	R-5 A need has not been identified for an alarm in question 3.a.7 (battery discharge alarm) or the control room indications in questions 3.b.1 (battery float current), 3.b.2 battery circuit output current), or 3.b.3 (battery discharge indicators) nor is any recommended by IEEE 308-1971 for these parameters. For the inoperable status indication of question 4, the control room annunciators A-20 (B-20) and A-30 (B-30) provide annunciation of battery charger trouble including AC power failure and misalignment of the battery output breakers. There is no specific alarm or indication provided to identify an inoperable circuit breaker and none is recommended by IEEE 308-1971. An inoperable circuit breaker that will not close or that will trip prematurely would be detected by one of the alarms listed above. An inoperable circuit breaker that will not open is an undetectable failure via normal annunciators since its normal operating mode is the closed position. This situation will not interfere with battery operation.
Q-6.1	Has FPL conducted a review of maintenance and testing activities to minimize the potential for human error causing more than one (1) DC division to be unavailable?	R-6.1 Yes, St. Lucie Plant has performed a human factors review of the electrical maintenance procedures for DC distribution equipment. The review was part of a maintenance procedure upgrade program but was not performed specifically to prevent human error from causing more than one DC division to become unavailable.
Q-6.2	Do plant procedures prohibit maintenance or testing on redundant DC divisions at the same time?	R-6.2. Plant Administrative Procedure (AP) AP 0010142 "Manipulation of Sensitive Systems" prohibits maintenance on two (2) portions of a sensitive system or on two separate sensitive systems at the same time. The 125v DC electrical system is a designated sensitive system in AP 0010142.
Q-7	If the facility Technical Specifications for this unit have provisions equivalent to those found in the Combustion Engineering Standard Technical Specifications for maintenance and surveillance? Are maintenance, surveillance and test procedures requiring station batteries conducted routinely at this plant?	R-7 The St. Lucie Unit 1 Technical Specifications have provisions similar to the Combustion Engineering Standard Technical Specifications for maintenance and surveillance, however because of the differences a response to question 7 is be provided. Yes, as detailed in the response to questions 7.a Through 7.e below, procedures for maintenance, surveillance, and testing are routinely conducted on the station batteries.
Q-7.a	At least once per 7 days are the following verified to be within acceptable limits: 1. Pilot cell electrolyte level?	R-7.a Maintenance Procedure MP 0960163 provides the weekly tests and inspections. 1. Yes, MP 0960163 verifies pilot cell electrolyte level at weekly intervals.
	2. Specific gravity and/or charging current?	2. Yes, MP 0960163 verifies charging current at the output shunt meter connections of each battery charger using a DVOM and the charging current using the installed metering at weekly intervals. In addition, MP 0960163 tests the specific gravity of each battery pilot cell at weekly intervals to verify that they are within acceptable limits.

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
	3. Float voltage?	3. Yes, MP 0960163 verifies the battery float voltage using installed panel metering at the battery chargers at weekly intervals.
	4. Total bus voltage on float charge?	4. Yes, MP 0960163 verifies battery bus voltage using the installed panel metering at the DC buses at weekly intervals.
	5. Physical condition of all cells?	5. Yes, MP 0960163 visually inspects the individual battery cells for cracks, loose material, dust, dirt, corrosion, and electrolyte leaks.
Q-7.b	At least once per 92 days, or within 7 days after a battery discharge, overcharge, or if pilot cell readings are outside the 7 day surveillance requirements are the following verified to be within acceptable limits: 1. Electrolyte level in each cell?	R-7.b. Maintenance Procedure MP 0960164 provides the monthly inspections and tests that correspond to the quarterly requirements of question 7.b. Note: The parameters of question 7.b are verified if the pilot cell readings are outside the 7-day surveillance requirements for the batteries, per periodic Maintenance Procedure MP 0960163. These parameters are also verified after a discharge test of the batteries per the requirements of Maintenance Procedures MP 1-0960062 & MP 1-0960063 for the 1A & 1B batteries respectively. An overcharge of the station batteries is not anticipated during the lifetime of the batteries, so recovery from an overcharge of the batteries is not procedurally documented. If such an overcharge occurred, recommendations to verify the integrity of the batteries would be considered, and would likely include the parameters verified in the monthly battery maintenance procedure as a minimum. 1. Yes, MP 0960164 verifies the electrolyte level at monthly intervals.
	2. The average specific gravity of all cells?	2. Yes, MP 0960164 measures the specific gravity of all cells and then calculates the average specific gravity of the cells monthly.
	3. The specific gravity of each cell?	3. Yes, MP 0960164 records the specific gravity of each cell monthly.
	4. The average electrolyte temperature of a representative number of cells?	4. Yes, MP 0960164 Calculates the average electrolyte temperature of the battery monthly.
	5. The float voltage of each cell?	5. Yes, MP 0960164 records the battery float voltage monthly.
	6. Visually inspect or measure resistance of terminals and connectors (including the connectors at the DC bus)?	6. Yes, MP 0960164 visually inspects all battery connections monthly. If any visual corrosion is noted, micro-ohm readings of the affected battery connections are performed. However, the connections at the DC bus are not verified by this visual inspection since they are not in a corrosive environment and have not been noted to be corroded in any past periodic maintenance performed on this equipment.

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
Q-7.c	At least every 18 months are the following verified: 1. Low resistance of each connection (by test)	R-7.c Maintenance Procedures MP 1-0960062, MP 1-0960063, MP 0960150, and MP 0960165 provide the 18 month tests and inspections. 1. Yes, MP 0960150 verifies the resistance of all battery inter-cell and terminal connections at 18 month intervals.
	2. Physical condition of the battery?	2. Yes, MP 0960150 includes a physical inspection of all battery cells at 18 month intervals.
	3. Battery charger capability to deliver rated ampere output to the DC bus?	3. Yes, MP 0960165 verifies the capability of the battery chargers to deliver rated output to the DC bus every 18 months.
	4. The capability of the battery to deliver its design duty cycle to the DC bus?	4. Yes, MP 1-0960062 & MP 1-0960063, verify the capability of the batteries 1A & 1B respectively to deliver their design duty cycle to the DC bus at 18 month intervals.
	5. Each individual cell voltage is within acceptable limits during the service test?	5. Yes, MP 1-0960062 & MP 1-0960063 verify the individual cell voltages of the batteries 1A & 1B respectively at 18 month intervals.
Q-7.d	At least every 60 months, is capacity of each battery verified by performance of a discharge test?	R-7.d. Yes, Maintenance Procedures MP 1-0960151 & MP 1-0960152 verify the capacity of the station batteries by performance of a discharge test at 60 month intervals for the 1A & 1B batteries respectively.
Q-7.e	At least annually, is the battery capacity verified by performance discharge test, if the battery shows signs of degradation or has reached 85% of expected life?	R-7.e. Yes, Maintenance Procedures MP 1-0960151 & MP 1-0960152 provide for the annual test and inspections and performance of a battery discharge test if the battery shows signs of degradation or has reached 85 percent of the expected service life.
Q-8.a	Does the unit have operational features such that following loss of one safety-related DC power supply or bus: a. Capability is maintained for ensuring continued and adequate reactor cooling?	R-8.a. Yes UFSAR Section 8.3. discusses how the capability is maintained for ensuring continued and adequate reactor cooling following the loss of one safety-related DC power supply or bus. Load groups A and B are each capable of supplying the minimum DC power requirements to safely shutdown the plant and/or mitigate the consequences of a LOCA.
Q-8.b	Does the unit have operational features such that following loss of one safety-related DC power supply or bus: b. Reactor coolant system integrity and isolation capability are maintained?	R-8.b. Yes, UFSAR Section 8.3 discusses how reactor coolant system integrity (RCS) and isolation capability are maintained following a loss of one safety-related DC power supply. However, in Operational Modes 1 through 4 the loss of one safety- related DC bus will initiate a reactor trip signal in the reactor protection system and will cause the PORV in the opposite train to open. Off-Normal Operating Procedure ONOP 1-0030136 directs the operator to close the associated block valve which restores RCS integrity. See the response to Q-9 for justification.

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
Q-8.c	Does the unit have operational features such that following loss of one safety-related DC power supply or bus: c. Operating procedures, instrumentation (including indicators & annunciators), and control functions are adequate to initiate systems as required to maintain adequate core cooling?	R-8.c Yes, Off Normal Operating Procedure ONOP 1-0440030, "Shutdown Cooling Off-Normal" provides guidance for realignment of the shutdown cooling system should a loss occur. Additionally, alternate means of decay heat removal are provided in accordance with Generic Letter 88-17, within this procedure. Off-Normal Operating Procedure ONOP 1-0030136 "Loss of Safety-Related DC Bus" provides guidance for loss of one safety related DC bus. Unit 1 control room annunciators are powered from the 1AB DC bus, allowing manual realignment if required to an operable 1A or 1B DC bus.
Q-9	If the answer to any part of question 6, 7, or 8 is no then provide the basis for not performing the maintenance, surveillance, and/or test procedures described and/or the bases for not including the operational features cited. R-8.b Instead of developing & supplying the information in response to Question 9, FPL may commit to further evaluate the need for such provisions during the performance of the IPE for severe accident vulnerabilities.	The opening of one PORV at power is bounded by the analysis in section 15.2 of the UFSAR. The Off-Normal Operating Procedure provides the operator with guidance for loss of one safety-related DC bus.

ATTACHMENT 2
ST. LUCIE UNIT 2

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
Q-1	Unit _____	R-1. St. Lucie Unit 2 Docket No. 50-389
Q-2.a	The number of independent redundant divisions of class 1E or safety-related DC power for this plant. (Include any separate Class 1E or Safety-related DC, such as any DC dedicated to the diesel generators.)	R-2.a. St. Lucie Unit 2 has two (2) independent redundant divisions of class 1E or safety-related DC power designated 2A and 2B. Each subsystem consists of a 125 volt DC bus designated 2A (2B), a 125 volt safety-related battery designated 2A (2B), and two (2) safety-related 125 volt battery chargers designated 2A and 2AA (2B and 2BB). In addition, a swing bus designated 2AB with a single 125 volt battery charger designated 2AB can be aligned to either the 2A or the 2B bus.
Q-2.b	The number of functional safety-related divisions of DC power necessary to attain safe shutdown for this unit.	R-2.b. St. Lucie Unit 2 requires one (1) of the functional safety-related divisions of DC power, either 2A or 2B, to attain safe shutdown.
Q-3.a	Does the control room at this unit have the following separate, independently annunciated alarms for each division of DC power? 1. Battery disconnect or circuit breaker open?	R-3.a St Lucie Unit 2 has the following annunciated alarms in the control room: 1. Yes, an open battery disconnect or circuit breaker is alarmed by ANNUNCIATORS A-48 & B-50. A-48 (B-50) "125V DC BATT. 2B (2A) DISCHARGE HI/BKR OPEN"
	2. Battery charger disconnect or circuit breaker open (both input AC & output DC)?	2. Yes, an open battery charger disconnect or circuit breaker (either input AC & output DC)is alarmed by ANNUNCIATORS A-20 & B-20. A-20 (B-20) "125V DC 2B/2BB (2A/2AA) BATT. CHGR. 2B/2BB (2A/2AA) TROUBLE"
	3. DC system ground?	3. Yes, a DC system ground is alarmed by ANNUNCIATORS A-10 & B-10. A-10 (B-10) "125V DC BUS 2B/2BB (2A/2AA) GROUND"
	4. DC bus under voltage?	4. Yes, a DC bus undervoltage alarm is provided by ANNUNCIATORS A-30 & B-30. A-30 (B-30) "125V DC BUS 2B (2A) UNDERVOLTAGE"

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
	5. DC bus over voltage?	5. Yes, a DC bus overvoltage alarm is provided by ANNUNCIATORS A-20 & B-20. A-20 (B-20) same annunciator as response R-3.a.2 In addition, high voltage causes battery charger shutdown & trouble alarm.
	6. Battery charger failure?	6. Yes, a battery charger failure alarm is provided by ANNUNCIATORS A-20 & B-20. A-20 (B-20) same annunciator as response R-3.a.2
	7. Battery discharge?	7. Yes, a battery discharge alarm is provided by ANNUNCIATORS A-48 & B-50. A-48 (B-50) same annunciator as response R-3.a.1
Q-3.b	Does the control room at this unit have the following separate independent indications for each division of DC power? 1. Battery float charge current?	R-3.b. St. Lucie Unit 2 has the following indications for each division of DC power: 1. No, Unit 2 does not have float current indication in the control room. See the response to Q-5 for justification.
	2. Battery circuit output current?	2. Yes, battery circuit output current indication is provided in the control room by AM-1801 & AM-1802.
	3. Battery discharge?	3. Yes, battery discharge indication is provided in the control room by AM-1801 & AM-1802.
	4. Bus voltage?	4. Bus voltage indication is provided in the control room by volt meters VM-1001 & VM-1002 and independent white indicating lights.
Q-3.c	Does the unit have written procedures for response to the alarms (3.a 1-7) and indications (3b. 1-4)?	R-3.c. Yes, written procedures for the response to the alarms (R-3.a.1-7) & indications (R-3.b.1-4) are listed below: R-3.a.1-7 (Alarms) OP 2-0960020 "125V DC SYSTEM NORMAL OPERATION" ONOP 2-0030131 "PLANT ANNUNCIATOR SUMMARY" ONOP 2-0960030 "DC GROUND ISOLATION" R-3.b.1-4 (Indications) OP 2-0960020 "125V DC SYSTEM NORMAL OPERATION" ONOP 2-0030136 "LOSS OF A SAFETY RELATED DC BUS"

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
Q-4	Does this unit have indication of bypassed and inoperable status of circuit breakers or other devices that can be used to disconnect the battery and the battery charger from its DC bus and the battery charger from its AC power source during maintenance or testing?	R-4 Yes, bypassed and/or inoperable status indication is provided by control room annunciators A-48 (B-50) for an open battery discharge breaker. Common trouble alarms A-20 (B-20) annunciate for a loss of AC power to the battery chargers. However, there is no specific alarm or indication provided to identify an inoperable circuit breaker; see the response to Q-5 for justification.
Q-5	If the answer to any part of question 3 or 4 is no, then provide information justifying the existing design features of the facility's safety-related DC systems. R-3.a.7 R-3.b.1 R-3.b.2 R-3.b.3 R-4 Instead of developing & supplying the justification, FPL may commit to perform the evaluations during the performance of the IPE for severe accident vulnerabilities	R-5 A need has not been identified for the indication in question 3.b.1 (battery float current) nor is any recommended by IEEE 308-1971 as modified by R.G. 1.32, Rev 0 for this parameter. For the inoperable status indication of question 4, the control room annunciators A-48 (B-50) provide indication of an open battery output breaker. Common trouble alarms A-20 (B-20) provide annunciation of battery charger trouble including AC power failure. There is no specific alarm or indication provided to identify an inoperable circuit breaker and none is recommended by IEEE 308-1971 as modified by R.G. 1.32, Rev 0. An inoperable circuit breaker that will not close or trip prematurely would be detected by one of the alarms listed above. An inoperable circuit breaker that will not open is an undetectable failure via normal annunciators since its normal operating mode is the closed position. This situation will not interfere with battery operation.
Q-6.1	Has FPL conducted a review of maintenance and testing activities to minimize the potential for human error causing more than one (1) DC division to be unavailable?	R-6.1 Yes, ST. Lucie plant has performed a review of the electrical maintenance procedures regarding DC distribution equipment with respect to human factor concerns. The review was performed as part of a maintenance procedure upgrade program but was not performed specifically to prevent human error from causing more than one DC division to become unavailable.
Q-6.2	Do plant procedures prohibit maintenance or testing on redundant DC divisions at the same time?	R-6-2 Plant Administrative Procedure (AP) AP 0010142 "Manipulation of Sensitive Systems" prohibits maintenance on two (2) portions of same sensitive system or on two separate sensitive systems at the same time. The 125v DC electrical system is a designated sensitive system in AP 0010142.
Q-7	If the facility Technical Specifications for this unit have provisions equivalent to those found in the Combustion Engineering Standard Technical Specifications for maintenance and surveillance? Are maintenance, surveillance and test procedures requiring station batteries conducted routinely at this plant?	R-7 The St. Lucie Unit 2 Technical Specifications have provisions similar to the Combustion Engineering Standard Technical Specifications for maintenance and surveillance, however because of the differences the response to question 7 is be provided. Yes, as detailed in the response to questions 7.a through 7.e below, procedures for maintenance, surveillance, and testing are routinely conducted for the station batteries.

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
Q-7.a	At least once per 7 days are the following verified to be within acceptable limits: 1. Pilot cell electrolyte level?	R-7.a Maintenance Procedure MP 0960163 provides the weekly (7 day surveillances) tests and inspections. 1. Yes, MP 0960163 verifies pilot cell electrolyte level at weekly intervals.
	2. Specific gravity and/or charging current?	2. Yes, MP 0960163 verifies charging current at the output shunt meter connections of each battery charger using a DVOM and the charging current using the installed metering at weekly intervals. In addition, the specific gravity of each battery pilot cell is tested at weekly intervals to verify that they are within acceptable limits.
	3. Float voltage?	3. Yes, MP 0960163 verifies the battery float voltage using installed panel metering at the battery chargers at weekly intervals.
	4. Total bus voltage on float charge?	4. Yes, MP 0960163 verifies battery bus voltage using the installed panel metering at the DC buses at weekly intervals.
	5. Physical condition of all cells?	5. Yes, MP 0960163 visually inspects the individual battery cells for cracks, loose material, dust, dirt, corrosion, and electrolyte leaks.
Q-7.b	At least once per 92 days, or within 7 days after a battery discharge, overcharge, or if pilot cell readings are outside the 7 day surveillance requirements are the following verified to be within acceptable limits: 1. Electrolyte level in each cell?	R-7.b. Maintenance Procedure MP 0960164 provides the monthly inspections and tests that correspond to the quarterly requirements of question 7.b. NOTE: The parameters of question 7.b are verified if the pilot cell readings are outside the 7-day surveillance requirements for the batteries, per periodic Maintenance Procedure MP 0960163. These parameters are also verified after a discharge test of the batteries per the requirements of Maintenance Procedures MP 2-0960062, & MP 2-0960063 for the 2A & 2B batteries respectively. An overcharge of the station batteries is not anticipated during the lifetime of the batteries, so recovery from an overcharge of the batteries is not procedurally documented. If such an overcharge occurred, recommendations to verify the integrity of the batteries would be considered, and would likely include the parameters verified in the monthly battery maintenance procedure as a minimum. 1. Yes, MP 0960164 verifies the electrolyte level at monthly intervals.
	2. The average specific gravity of all cells?	2. Yes, MP 0960164 measures the specific gravity of all cells and then calculates the average specific gravity of the cells monthly.
	3. The specific gravity of each cell?	3. Yes, MP 0960164 records the specific gravity of each cell monthly.
	4. The average electrolyte temperature of a representative number of cells?	4. Yes, MP 0960164 calculates the average electrolyte temperature of the battery monthly.

QUESTION NO.	GENERIC LETTER REQUEST	FPL RESPONSE
	5. The float voltage of each cell?	5. Yes, MP 0960164 records the battery float voltage monthly.
	6. Visually inspect or measure resistance of terminals and connectors (including the connectors at the DC bus)?	6. Yes, MP 0960164 visually inspects all battery connections monthly. If any visual corrosion is noted, micro-ohm readings of the affected battery connections are performed. However, the connections at the DC bus are not verified by this visual inspection since they are not located in a corrosive environment and have not been noted to be corroded in any past periodic maintenance performed on this equipment.
Q-7.c	At least every 18 months are the following verified: 1. Low resistance of each connection (by test)	R-7.c Maintenance Procedures MP 2-0960062, MP 2-0960063, MP 0960150, & MP 0960165 provide the 18 month tests and inspections. 1. Yes, MP 0960150 verifies the resistance of all battery inter-cell and terminal connections at 18 month intervals.
	2. Physical condition of the battery?	2. Yes, MP 0960150 includes a physical inspection of all battery cells at 18 month intervals.
	3. Battery charger capability to deliver rated ampere output to the DC bus?	3. Yes, MP 0960165 verifies the capability of the battery chargers to deliver rated output to the DC bus every 18 months.
	4. The capability of the battery to deliver its design duty cycle to the DC bus?	4. Yes, MP 2-0960062 & MP 2-0960063 verify the capability of the batteries 2A & 2B respectively to deliver their design duty cycle to the DC bus at 18 month intervals.
	5. Each individual cell voltage is within acceptable limits during the service test?	5. Yes, MP 2-0960062 & MP 2-0960063 verify the individual cell voltages of the batteries 2A & 2B respectively at 18 month intervals.
Q-7.d	At least every 60 months, is capacity of each battery verified by performance of a discharge test?	R-7.d. Yes, MP 2-0960151 & MP 2-0960152 verify the capacity of the station batteries by performance of a discharge test at 60 month intervals for the 2A & 2B batteries respectively.
Q-7.e	At least annually, is the battery capacity verified by performance discharge test, if the battery shows signs of degradation or has reached 85% of expected life?	R-7.e. Yes, Maintenance Procedures MP 2-0960151 & MP 2-0960152 provide the annual tests and inspections and provide for the battery discharge test if the battery shows signs of degradation or if the battery has reached 85 percent of the expected service life.
Q-8.a.	Does the unit have operational features such that following loss of one safety-related DC power supply or bus: a. Capability is maintained for ensuring continued and adequate reactor cooling?	R-8.a. Yes, UFSAR Section 8.3. discusses how the capability is maintained for ensuring continued and adequate reactor cooling following the loss of one safety-related DC power supply or bus. Load groups A and B are each capable of supplying the minimum DC power requirements to safely shutdown the plant.

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Q-8.b	Does the unit have operational features such that following loss of one safety-related DC power supply or bus: b. Reactor coolant system integrity and isolation capability are maintained?	R-8.b. Yes, UFSAR Section 8.3 discusses how reactor coolant system integrity (RCS) and isolation capability are maintained following a loss of one safety-related DC power supply. However, in Operational Modes 1 through 4 the loss of one safety- related DC bus will initiate a reactor trip signal in the reactor protection system and will cause the PORV in the opposite train to open. Off-Normal Operating Procedure ONOP 2-0030136 directs the operator to close the associated block valve which restores RCS integrity. See the response to Q-9 for justification.
Q-8.c	Does the unit have operational features such that following loss of one safety-related DC power supply or bus: c. Operating procedures, instrumentation (including indicators & annunciators), and control functions are adequate to initiate systems as required to maintain adequate core cooling?	R-8.c Off Normal Operating Procedure ONOP 2-0440030, "Shutdown Cooling Off-Normal" provides guidance for realignment of the shutdown cooling system should a loss of one safety-related DC bus occur. Additionally, alternate means of decay heat removal are provided in accordance with Generic Letter 88-17, within this procedure. Off-Normal Operating Procedure ONOP 2-0030136 "Loss of Safety-Related DC Bus" provides guidance for loss of one safety-related DC bus. Unit 2 control room annunciators are powered from the vital AC bus.
Q-9	If the answer to any part of question 6, 7, or 8 is no then provide the basis for not performing the maintenance, surveillance, and/or test procedures described and/or the bases for not including the operational features cited. R-8.b Instead of developing & supplying the information in response to Question 9, FPL may commit to further evaluate the need for such provisions during the performance of the IPE for severe accident vulnerabilities.	The opening of one PORV at power is bounded by the analysis in section 15.6 of the UFSAR. The Off-Normal Operating Procedure provides the operator with guidance for loss of one safety-related DC bus.