



Commonwealth Edison  
1400 Opus Place  
Downers Grove, Illinois 60515

September 8, 1991

Dr. Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Attn: Document Control Desk

Subject: Commonwealth Edison Response to  
Generic Letter 91-06 for:

Byron Units 1 and 2,  
NRC Docket Numbers 50-454/455

Braidwood Units 1 and 2,  
NRC Docket Numbers 50-456/457

Zion Units 1 and 2  
NRC Docket Numbers 50-295/304

Dresden Units 2 and 3,  
NRC Docket Numbers 50-237/249

Quad Cities Units 1 and 2,  
NRC Docket Numbers 50-254/265

LaSalle Units 1 and 2,  
NRC Docket Numbers 50-373/374.

Reference: Generic Letter 91-06,  
Resolution of Generic Issue A-30,  
"Adequacy of Safety-Related DC Power Supplies."

Dear Dr. Murley:

Generic Issue A-30 is concerned with the adequacy of the safety-related DC power in operating nuclear power plants, particularly with regard to multiple and common cause failures. Failure of the DC power supplies could represent a significant contribution to the unreliability of shutdown cooling. Because of this concern, Generic Letter 91-06 requested licensees to provide responses to questions so that the staff can determine if any additional actions may be required of operating facilities to ensure DC power reliability.

Attachment 1 contains the Commonwealth Edison responses to the Generic Letter survey. Each of the six Commonwealth Station's responses are provided for the survey questions. There are no differences between units at a given site for any of the questions.

9110170033 910908  
PDR ADDOCK 05000237  
PDR

1207:1

ADD/1

To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respect these statements are not based on my personal knowledge, but on information furnished by other CECO employee, contractor employees, and consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

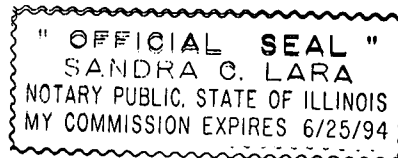
If there are any questions or comments, please contact me at (708) 515-7292.

Sincerely,

David J. Chrzanowski  
Generic Issues Administrator

- cc: A. Bert Davis, Regional Administrator - RIII
- R.M. Pulsifer, Project Manager - NRR
- A.H. Hsia, Project Manager - NRR
- B.L. Siegel, Project Manager - NRR
- L.N. Olshan, Project Manager - NRR
- C.P. Patel, Project Manager - NRR
- J.B. Hickman, Project Manager - NRR
- S. DuPont, Senior Resident Inspector - Braidwood
- W.J. Kropp, Senior Resident Inspector - Byron
- W.G. Rogers, Senior Resident Inspector - Dresden
- T.M. Tongue, Senior Resident Inspector - LaSalle
- T.E. Taylor, Senior Resident Inspector - Quad Cities
- J.D. Smith, Senior Resident Inspector - Zion

City of Ill, County of Cook  
 signed before me on this 8th day  
 of October, 1991 by DJC  
 Notary Public: [Signature]



**ATTACHMENT 1**

**Commonwealth Edison Response to  
Generic Letter 91-06 Survey Questions**

**Survey Question 1.**

**The following information is provided for;**

Dresden Units 2 and 3

Quad Cities Units 1 and 2

LaSalle Units 1 and 2

Zion Units 1 and 2

Byron Units 1 and 2

Braidwood Units 1 and 2

For purposes of this questionnaire, there are no differences between the units at each of the sites.

**ATTACHMENT 1 (continued)**

**Survey Question 2.a.**

**The number of independent redundant divisions of Class 1E or safety-related dc power for this plant is ... (Include any separate Class 1E or safety-related dc, such as any dc dedicated to the diesel generators.)**

Dresden Units 2 and 3

Each Dresden unit has two divisions of safety-related 125 V DC and one division of safety-related 250 V DC power.

Quad Cities Units 1 and 2

Each Quad Cities unit has two divisions of safety-related 125 V DC and one division of safety-related 250 V DC power.

LaSalle Units 1 and 2

LaSalle Stations DC supply configuration is comprised of three safety related 125 volt divisions and one safety related 250 Volt battery.

Zion Units 1 and 2

Each Zion Station Unit consists of three divisions of safety related DC power.

Byron Units 1 and 2

Each Byron unit has two divisions of safety-related DC power.

Braidwood Units 1 and 2

Each Braidwood unit has two divisions of safety-related DC power.

**ATTACHMENT 1 (continued)**

**Survey Question 2.b.**

**The number of functional safety-related divisions of dc power necessary to attain safe shutdown for this unit is**

Dresden Units 2 and 3

One division of 125 V and one division of 250 V are required for safe shutdown of each unit.

Quad Cities Units 1 and 2

One division of 125 V and one division of 250 V are required for safe shutdown of each unit.

LaSalle Units 1 and 2

One safety-related division (either Division 1 or 2) of DC power is necessary to attain and maintain safe shutdown of the unit during all modes of operation. Division 3 controls High Pressure Core Spray (HPCS) which can attain safe shutdown of the unit, but Division 3 does not contain a mode of shutdown cooling. Therefore, Division 3 can't maintain safe shutdown without another Division operable.

Zion Units 1 and 2

For each unit, one division is required for safe-shutdown.

Byron Units 1 and 2

For each unit, one division is required for safe-shutdown.

Braidwood Units 1 and 2

For each unit, one division is required for safe-shutdown.

ATTACHMENT 1 (continued)

Survey Question 3.a.1

**Do the control rooms at these units have a separate, independently annunciated alarms for each division of dc power for Battery disconnect or circuit breaker open?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

The 125 Volt Division 1 and 2 and 250 volt battery are connected directly to the bus. No breaker can isolate the battery from the bus. Opening of the Division 3 breaker would isolate the charger and battery from the bus. An immediate low bus voltage alarm would be received in the control room.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 3.a.2

**Do the control rooms at these units have a separate, independently annunciated alarms for each division of dc power for Battery charger disconnect or circuit breaker open (both input ac and output dc)?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes, for Divisions 1 and 2 and for the 250 V division. Opening of the Division 3 battery charger's DC output breaker would remove the charger from the circuit. The battery high discharge alarm and low bus voltage alarm will actuate. Opening of the Division 3 battery charger's AC input breaker will cause a charger failure alarm. The battery high discharge alarm and low bus voltage alarm will also actuate.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 3.a.3

Do the control rooms at these units have a separate, independently annunciated alarms for each division of dc power for dc system ground?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.



ATTACHMENT 1 (continued)

Survey Question 3.a.4

Do the control rooms at these units have a separate, independently annunciated alarms for each division of dc power for dc bus undervoltage?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 3.a.5

Do the control rooms at these units have a separate, independently annunciated alarms for each division of dc power for dc bus overvoltage?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

No, however the battery chargers have a high voltage protection circuit that trips the AC input breaker of the charger if a maximum voltage is exceeded. The AC breaker trip would cause a bus low voltage alarm and AC failure alarm to actuate. The bus voltage is measured each shift, and station procedures require action to be taken to correct an overvoltage condition.

Zion Units 1 and 2

No, however the overvoltage relay would trip the charger input breaker which would cause a battery charger trouble alarm. Therefore indirect means are available to detect a DC bus overvoltage.

Byron Units 1 and 2

No, when the voltage reaches the overvoltage setpoint, the AC input to the battery charger will trip. This will result in a battery charger trouble alarm in the control room. Therefore indirect means are available to detect a DC bus overvoltage.

Braidwood Units 1 and 2

No, when the voltage reaches the overvoltage setpoint, the AC input to the battery charger will trip. This will result in a battery charger trouble alarm in the control room. Therefore indirect means are available to detect a DC bus overvoltage.

ATTACHMENT 1 (continued)

Survey Question 3.a.6

Do the control rooms at these units have a separate, independently annunciated alarms for each division of dc power for Battery charger failure?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes, defined as low output or AC failure, not low output current.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

## ATTACHMENT 1 (continued)

### Survey Question 3.a.7

**Do the control rooms at these units have a separate, independently annunciated alarms for each division of dc power for Battery discharge?**

#### Dresden Units 2 and 3

Yes.

#### Quad Cities Units 1 and 2

No, battery discharge is not alarmed directly, however if the battery were to supply power to the DC bus, the system voltage would drop sufficiently to trip undervoltage relays within the system. This trip would indicate a battery discharge condition.

#### LaSalle Units 1 and 2

Yes.

#### Zion Units 1 and 2

No, however if the battery becomes discharged to a point that the bus undervoltage drops to 95% of the nominal voltage, the DC bus undervoltage alarm will be actuated. No, however if the battery becomes discharged to a point that the bus voltage reaches 123 VDC, the "DC Bus Voltage Low" alarm actuates. Also, for the battery to discharge the charger would have to fail. If the charger current drops to zero amps a charger trouble alarm actuates in the control room. This provides indirect indication of a battery discharge.

#### Byron Units 1 and 2

No, however if the battery becomes discharged to a point that the bus voltage reaches 123 VDC, the "DC Bus Voltage Low" alarm actuates. Also, for the battery to discharge the charger would have to fail. If the charger current drops to zero amps a charger trouble alarm actuates in the control room. This provides indirect indication of a battery discharge.

#### Braidwood Units 1 and 2

No, however if the battery becomes discharged to a point that the bus voltage reaches 123 VDC, the "DC Bus Voltage Low" alarm actuates. Also, for the battery to discharge the charger would have to fail. If the charger current drops to zero amps a charger trouble alarm actuates in the control room. This provides indirect indication of a battery discharge.

ATTACHMENT 1 (continued)

Survey Question 3.b.1

**Do the control rooms at these units have a separate, independently annunciated indication for each division of dc power for Battery float charge current?**

Dresden Units 2 and 3

No, but indication is available at the local control panel.

Quad Cities Units 1 and 2

No, but indication is available at the local control panel.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

No, but indication is available at the charger.

Byron Units 1 and 2

No, but indication is available at the local control panel. This indication is recorded each shift by an operator trained in safety-related DC power systems.

Braidwood Units 1 and 2

No, but indication is available at the local control panel. This indication is recorded each shift by an operator trained in safety-related DC power systems.

**ATTACHMENT 1 (continued)**

**Survey Question 3.b.2**

**Do the control rooms at these units have a separate, independently annunciated indication for each division of dc power for Battery circuit output current?**

Dresden Units 2 and 3

No, but indication is available at the local control panel.

Quad Cities Units 1 and 2

No, but indication is available at the local control panel.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

No, but indication is available at the charger.

Byron Units 1 and 2

No, but indication is available at the local control panel. This indication is recorded each shift by an operator trained in safety-related DC power systems.

Braidwood Units 1 and 2

No, but indication is available at the local control panel. This indication is recorded each shift by an operator trained in safety-related DC power systems.

**ATTACHMENT 1 (continued)**

**Survey Question 3.b.3**

**Do the control rooms at these units have a separate, independently annunciated indication for each division of dc power for Battery discharge?**

Dresden Units 2 and 3

No, but indication is available at the local control panel.

Quad Cities Units 1 and 2

No, but indication is available at the local control panel.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

No, but indication is available at the charger.

Byron Units 1 and 2

No, but indication is available at the local control panel. This indication is recorded each shift by an operator trained in safety-related DC power systems.

Braidwood Units 1 and 2

No, but indication is available at the local control panel. This indication is recorded each shift by an operator trained in safety-related DC power systems.

ATTACHMENT 1 (continued)

Survey Question 3.b.4

**Do the control rooms at these units have a separate, independently annunciated indication for each division of dc power for Bus voltage?**

Dresden Units 2 and 3

No, but indication is available at the local control panel.

Quad Cities Units 1 and 2

No, but indication is available at the local control panel.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

No, but indication is available at the charger.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.



**ATTACHMENT 1 (continued)**

**Survey Question 3.c**

**Do the units have written procedures for response to the above alarms and indications?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 4.

Do these units have indication of bypassed and Inoperable status of circuit breakers or other devices that can be used to disconnect the battery and battery charger from its dc bus and the battery charger from its ac power source during maintenance or testing?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

No, LaSalle's out of service procedure (LAP-900-4) controls the disconnection of the charger or battery from the bus. If a battery is bypassed (crosstied) then an alarm is annunciated in the control room for the Division 1, 2, and 250 V battery. Division 3 has no such alarm. All class 1E battery chargers have alarms indicating an output breaker trip. The Division 1, 2, and 250 V batteries are hardwired to their respective busses; i.e. there is no breaker installed between the battery and its bus. Division 3 battery, however, does have a breaker between the battery and bus. There is no alarm instrumentation associated with this breaker. If this breaker were opened, several indirect alarms would annunciate (low charger output voltage, DC bus undervoltage, battery charger trouble, etc.) indicating a problem.

Zion Units 1 and 2

No, bypassed or inoperable equipment status is covered by the Station Out of Service card system. If anything on the DC division is out of service, cards are hung on the bus, battery or charger.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

**Survey Question 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.**

Dresden Units 2 and 3

See responses to questions; 3.b.1, 3.b.2, 3.b.3, and 3.b.4.

Quad Cities Units 1 and 2

See responses to questions; 3.a.7, 3.b.1, 3.b.2, 3.b.3, and 3.b.4.

LaSalle Units 1 and 2

See responses to questions; 3.a.5 and 4.

Zion Units 1 and 2

See responses to questions; 3.a.5, 3.a.7, 3.b.1, 3.b.2, 3.b.3, 3.b.4 and 4.

Byron Units 1 and 2

See responses to questions; 3.a.5, 3.a.7, 3.b.1, 3.b.2, and 3.b.3.

Braidwood Units 1 and 2

See responses to questions; 3.a.5, 3.a.7, 3.b.1, 3.b.2, and 3.b.3.

ATTACHMENT 1 (continued)

Survey Question 6(1).

Have you conducted a review of maintenance and testing activities to minimize the potential for human error causing more than one dc division to be unavailable?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

No, however Lasalle's conduct of operation prohibits simultaneous work on redundant DC Divisions. Testing of the DC Divisions is limited to only 1 division at a time. No single error can render two divisions inoperable.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 6(2).

Do plant procedures prohibit maintenance or testing on redundant dc divisions at the same time?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes. LaSalle's conduct of operation procedure (LAP-1600-2) prohibits simultaneous work on redundant DC Divisions.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

**Survey Note**

**If the facility Technical Specifications have provisions equivalent to those found in the Westinghouse Standard Technical Specifications for maintenance and surveillance, then question 7 may be skipped and a statement to that effect may be inserted here.**

Zion Units 1 and 2, Byron Units 1 and 2, and Braidwood Units 1 and 2 are Westinghouse NSSS plants and contain some provisions equivalent to those found in Westinghouse Standard Technical Specifications however responses to Question 7 are provided below.

ATTACHMENT 1 (continued)

Survey Question 7.a.1

**Are maintenance, surveillance and test procedures regarding station batteries conducted routinely at this plant? Specifically: at least once per 7 days is the Pilot cell electrolyte level verified to be within acceptable limits?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.a.2

**Are maintenance, surveillance and test procedures regarding station batteries conducted routinely at this plant? Specifically: at least once per 7 days is the Specific gravity or charging current verified to be within acceptable limits?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.a.3

Are maintenance, surveillance and test procedures regarding station batteries conducted routinely at this plant? Specifically: at least once per 7 days is the Float voltage verified to be within acceptable limits?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.



ATTACHMENT 1 (continued)

Survey Question 7.a.4

**Are maintenance, surveillance and test procedures regarding station batteries conducted routinely at this plant? Specifically: at least once per 7 days is the total bus voltage on float charge verified to be within acceptable limits?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.a.5

**Are maintenance, surveillance and test procedures regarding station batteries conducted routinely at this plant? Specifically: at least once per 7 days is the physical condition of all cells verified to be within acceptable limits?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

No, it is currently performed monthly, but will be changed to once a week. This increase in frequency is being included in a change to Procedure PT-0 Appendix K.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.b.1

At least once per 92 days, or within 7 days after a battery discharge, overcharge, or if the pilot cell readings are outside the 7-day surveillance requirements is the electrolyte level of each cell verified to be within acceptable limits?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.b.2

At least once per 92 days, or within 7 days after a battery discharge, overcharge, or if the pilot cell readings are outside the 7-day surveillance requirements is the average specific gravity of all cells verified to be within acceptable limits?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.b.3

**At least once per 92 days, or within 7 days after a battery discharge, overcharge, or if the pilot cell readings are outside the 7-day surveillance requirements is the specific gravity of each cell verified to be within acceptable limits?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.b.4

**At least once per 92 days, or within 7 days after a battery discharge, overcharge, or if the pilot cell readings are outside the 7-day surveillance requirements is the average electrolyte temperature of a representative number of cells verified to be within acceptable limits?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.b.5

At least once per 92 days, or within 7 days after a battery discharge, overcharge, or if the pilot cell readings are outside the 7-day surveillance requirements is the float voltage of each cell verified to be within acceptable limits?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.b.6

**At least once per 92 days, or within 7 days after a battery discharge, overcharge, or if the pilot cell readings are outside the 7-day surveillance requirements are the terminals or connectors (including the connectors at the dc bus) visually inspected or is the resistance of the terminals and connectors measured?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.



**ATTACHMENT 1 (continued)**

**Survey Question 7.c.1**

**At least every 18 months is the low resistance of each connection verified (by test)?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

**ATTACHMENT 1 (continued)**

**Survey Question 7.c.2**

**At least every 18 months is the physical condition of the battery verified?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

**ATTACHMENT 1 (continued)**

**Survey Question 7.c.3**

**At least every 18 months is the battery charger's capability to deliver rated ampere output to the dc bus verified (by test)?**

Dresden Units 2 and 3

No, however its' capability of providing rated capacity is verified by recharging the batteries after the battery capacity test.

Quad Cities Units 1 and 2

No, however its' capability of providing rated capacity is verified by recharging the batteries after the battery capacity test.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.c.4

At least every 18 months is the capability of the battery to deliver its design duty cycle to the dc bus verified (by test)?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.c.5

At least every 18 months is it verified that each individual cell voltage is within acceptable limits during a service test?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 7.d

At least every 60 months, is capacity of each battery verified by performance of a discharge test?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 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 the expected service life?**

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

No, if the battery shows signs of degradation, steps are taken to correct the situation. The testing requirements do not change if it is degraded.

Byron Units 1 and 2

No, Byron Station Technical Specification 4.8.2.1.2.f requires a battery discharge test at least once per 18 months, during shutdown. Byron Station believes this testing frequency is adequate to assure operability of the batteries.

Braidwood Units 1 and 2

No, Braidwood Station Technical Specification 4.8.2.1.2.f requires a battery discharge test at least once per 18 months, during shutdown. Braidwood Station believes this testing frequency is adequate to assure operability of the batteries.

ATTACHMENT 1 (continued)

Survey Question 8.a

Does this plant have operational features such that following loss of one safety-related dc power supply or bus, capability is maintained for ensuring continued and adequate reactor cooling?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes, Division 1 or Division 2 is capable of maintaining adequate reactor cooling without the other division operable.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.



ATTACHMENT 1 (continued)

Survey Question 8.b

Does this plant have operational features such that following loss of one safety-related dc power supply or bus, reactor coolant system integrity and isolation capability are maintained?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

ATTACHMENT 1 (continued)

Survey Question 8.c

Does this plant have operational features such that following loss of one safety-related dc power supply or bus, operating procedures, instrumentation (including indicators and annunciators), and control functions are adequate to initiate systems as required to maintain adequate core cooling?

Dresden Units 2 and 3

Yes.

Quad Cities Units 1 and 2

Yes.

LaSalle Units 1 and 2

Yes.

Zion Units 1 and 2

Yes.

Byron Units 1 and 2

Yes.

Braidwood Units 1 and 2

Yes.

## ATTACHMENT 1 (continued)

### Survey Question 9

**If the answer to any part of question 6, 7 or 8 is no, then provide your basis for not performing the maintenance, surveillance and test procedures described and/or the bases for not including the operational features cited.**

#### Dresden Units 2 and 3

No, however its' capability of providing rated capacity is verified by recharging the batteries after the battery capacity test.

#### Quad Cities Units 1 and 2

No, however its' capability of providing rated capacity is verified by recharging the batteries after the battery capacity test.

#### LaSalle Units 1 and 2

See response to question 6(1).

#### Zion Units 1 and 2

See response to questions 7.a.5 and 7.e.

#### Byron Units 1 and 2

See response to question 7.e.

#### Braidwood Units 1 and 2

See response to question 7.e.