

NLI

NUCLEAR LOGISTICS INC

Letter #QA-2044

July 11, 2006

Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Subject: 10CFR21 notification

Dear Sirs:

This submittal is made in accordance with 10CFR21. The following information is provided:

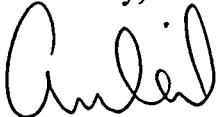
1. This notification is being made by:
Aron Seiken
President
Nuclear Logistics, Inc.
7450 Whitehall Street
Fort Worth, TX 76118
2. The defect is in the firing boards for Power Conversion Products (PCP) battery chargers, p/n 0000913270, manufactured or refurbished between October 2002 and June 2006.
3. The defective components were supplied by Nuclear Logistics, Inc., under license from PCP.
4. The nature of the defect is summarized as follows:
 - Capacitors in the C9 and C10 position are not rated correctly for the ripple current on the board. The unacceptable capacitor is Vishay part number 109D.
 - The capacitors will failure prematurely. The time to failure is shorter when the battery charger is heavily loaded due to the higher ripple current.
 - The failure mechanism of the capacitor is loss of capacitance over time. They will not fail catastrophically.
 - The impact of the capacitor degradation will be that the charger will become unstable and there will be voltage fluctuations.
 - Degradation of the capacitors can be identified visually. The surface of the capacitors will become discolored (yellow or brown/black spots).
5. The defect was identified as a generic issue on June 14, 2006.

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6. The number and locations of the defective circuit boards are identified in Attachment I.
7. The corrective actions being taken are as follows:
 - NLI has identified replacement capacitors that are suitable for the application. NLI design documentation has been revised to identify the replacement capacitors
 - NLI has notified all nuclear facilities with the potentially defective circuit boards. NLI technical bulletin TB-0948431-02 presents the relevant information and directs the facilities to return the circuit boards to NLI or replace the capacitors, which are available from NLI.
 - Circuit boards in NLI stock are being modified to contain the replacement capacitors. These modifications will be completed prior to shipment of the circuit boards.
8. A detailed summary of the issue and advice to the affected nuclear plants has been transmitted to the plants in NLI technical bulletin TB-0948431-02.

If you have any questions or comments on this issue, please contact me.

Sincerely,



Aron Seiken
President
Nuclear Logistics, Inc,

Attachment I: List of Defective Circuit Boards
Attachment II: Technical bulletin TB-094831-02



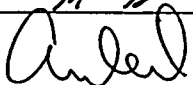
PCP p/n 0000913270
Potentially impacted circuit boards
Attachment to NLI letter #QA-2044

Plant Name	PO / Rev	Serial Number	RMA #
Clinton Power Station	00056607 Rev. 3	047025-CB-01	047-8648
River Bend Station	10081913 Rev. 2	052113-FB-10	052-8643
River Bend Station	10081913 Rev. 3	052113-FB-09 052113-FB-11	052-8643
Seabrook Station	02198186 Rev. 0	064014-FB-15 064014-FB-16	055-8644
Seabrook Station	02204192 Rev. 0	220 013	055-8644
KHNP	K030436531 Rev. 1	064014-FB-03 064014-FB-05 064014-FB-06 064014-FB-07 064014-FB-08	064-8645
KHNP	Y040689541 Rev. 0	9030-24E-23 9030-24E-24 9030-24E-25 064026-FB-01 064026-FB-02	064-8647
KHNP	Y050873021 Rev. 0	20518-001-00001 20518-001-00002 20518-001-00003 20518-001-00004 20518-001-00005 20518-001-00006	064-8647
Nine Mile Point	02-41492-001 Rev. 0	066021-FB-01	066-8649
Nine Mile Point	03-46068-001 Rev. 0 NON-SAFETY	062016-FB-01	066-8649
Nine Mile Point	04-51177-001 Rev. 0	066039-FB-01	066-8649
Nine Mile Point	77003336 Rev. 0 NON-SAFETY	20528-FB-02 20528-FB-03	066-8649
Point Beach	P040500 Rev. 3	139015-FB-01 139015-FB-02	070-8646
Point Beach	P040504 Rev. 1	064014-FB-01 064014-FB-02 064014-FB-04	070-8646
Palo Verde	500283364 Rev. 0	064014-FB-12 064014-FB-13 064014-FB-14 116011-FB-01	116-8642
Palo Verde	500286186 Rev. A	116011-FB-03 116011-FB-04 116011-FB-05	116-8642
Palo Verde	500286774 Rev. 0	116011-FB-02	116-8642
Palo Verde	502288544 Rev. 0	116014-FB-02 116014-FB-03 20528-FB-01	116-8642

Plant Name	PO / Rev	Serial Number	RMA #
Bryon Station	00051888 Rev. 3	139004-FB-04 139004-FB-05 139004-FB-06 139004-FB-07	136-8650
Braidwood	00051439 Rev. 3 (Supplied new) and 00060701 Rev. 0 (Reworked)	139004-FB-01 139004-FB-02 139004-FB-03	139-8651
Braidwood	059472 Rev. 3	137005-FB-08	139-8651
Braidwood	00402266 Rev. 0	116014-FB-01 116014-FB-04	139-8651
Quad Cities	00052856 Rev 002	137005-FB-01	137-8691

Technical Bulletin TB-0948431-02 PCP Firing Board P.C. Assemblies

This technical bulletin has been prepared in accordance with NLI Quality Assurance Program

Prepared by:  date: 7/10/06
Verified by:  date: 7/10/06
Approved by:  date: 7/10/06

REVISION HISTORY

<u>Revision</u>	<u>Description</u>	<u>Date</u>
0	Original Issue.	07/7/2006
1	Additional information	07/10/2006

Issue:

NLI has determined that PCP firing P.C. Assembly, PCP P/N 0000913270, that were manufactured or refurbished by NLI between October of 2002 and June 2006 have capacitors that are not rated properly for the application. Circuit boards outside of this date range are not impacted.

The capacitors are identified as Vishay 109D silver cased wet tantalum electrolytic capacitors. They are used in the C9 and C10 position on the 3 tiers of the printed circuit assembly (6 capacitors total). The circuit boards with the underrated capacitors will fail prematurely. The accelerated degradation of the capacitors is due to the level of the ripple current on the firing board.

The following information is presented on the failure of the capacitors:

- The time to failure based on the loading of the charger. Highly loaded chargers have a higher ripple current on the circuit board and will fail sooner. At lower loading the capacitors will not fail as quickly.
- The failure of the capacitors will be loss of capacitance over time. They will not fail catastrophically.
- Degradation of the capacitors can be identified visually. The surface of the capacitors will become discolored in certain locations. The discoloration will be a yellow color or black/brown burn spots. The discoloration will occur before the capacitors start to lose capacitance, so the discoloration is a good early indication of capacitor degradation.
- The impact of the capacitor degradation will be that the charger will become unstable and there will be voltage fluctuations.

The applicable in-service circuit boards identified above are to be inspected at the C9 and C10 location containing the Vishay 109D capacitors. In-service circuit boards can be visually inspected to determine the extent of the capacitor degradation. The capacitors will be discolored, indicating a degraded condition.

Resolution:

The following actions should be taken for the circuit boards that are installed:

- Examine C9 and C10 on all three tiers of the firing board assembly (6 capacitors total) as follows:
 - Inspect the C9 and C10 capacitors (refer to figures 1 and 2 for location and identification). The capacitors with the shortened life are labeled with 109D. If the capacitors are labeled other than 109D, they are acceptable and the circuit board can be used.
 - While examining the circuit boards, inspect the capacitors for evidence of degradation (yellow color or black/brown burn spots). Discoloration is a

good early indication of capacitor degradation. Discoloration will appear on the capacitors before the capacitance starts to decrease.

- If there is evidence of capacitor degradation, the circuit board should be replaced.
- If there are not burn spots on the capacitors, the capacitor is acceptable for continued use. The capacitors on the circuit boards that are in service should be inspected monthly until the boards can be removed and the capacitors replaced.

Circuit boards that are in the warehouse should be inspected for the deficient capacitors as described above.

Firing board assemblies with capacitors labeled 109D should be returned to NLI for rework and retesting. As an alternative, NLI can supply the replacement capacitors for installation on the circuit board by the plant.



Figure 1

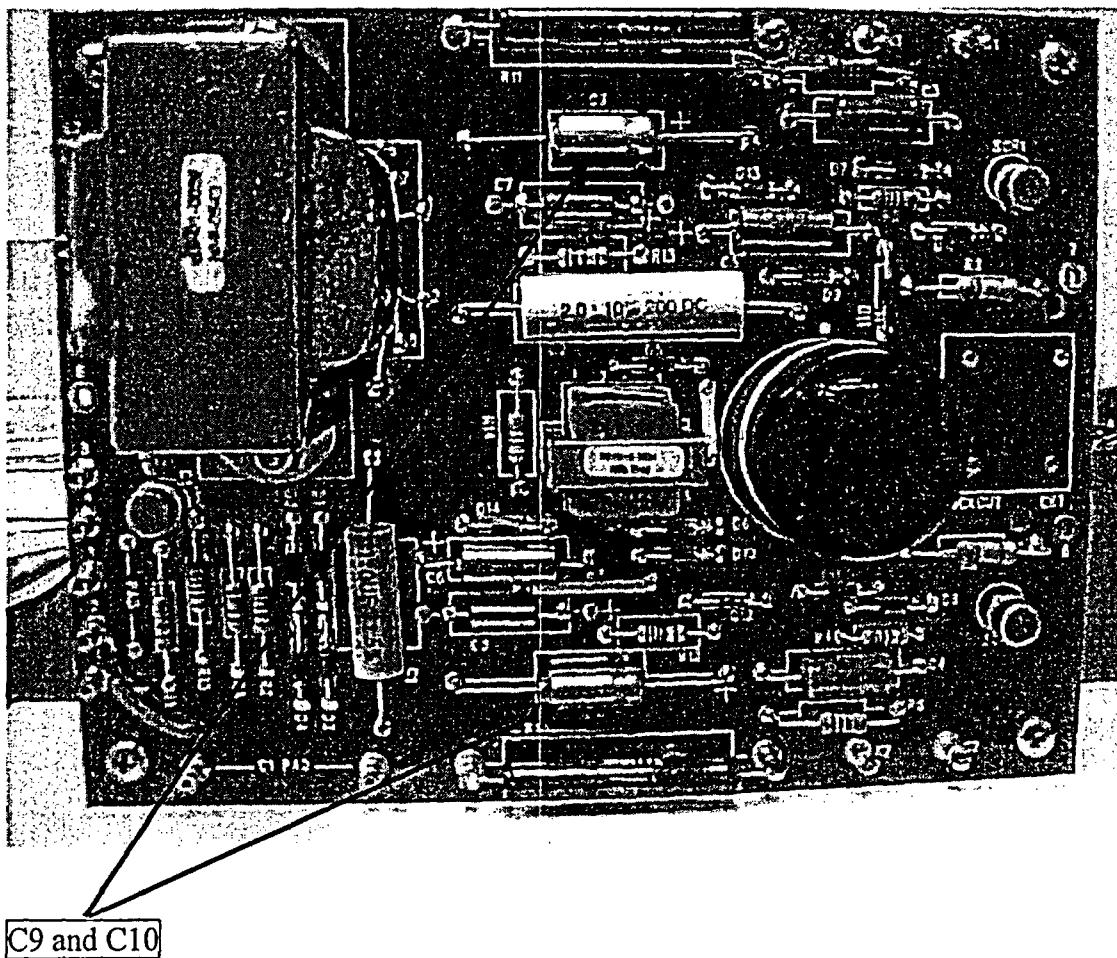
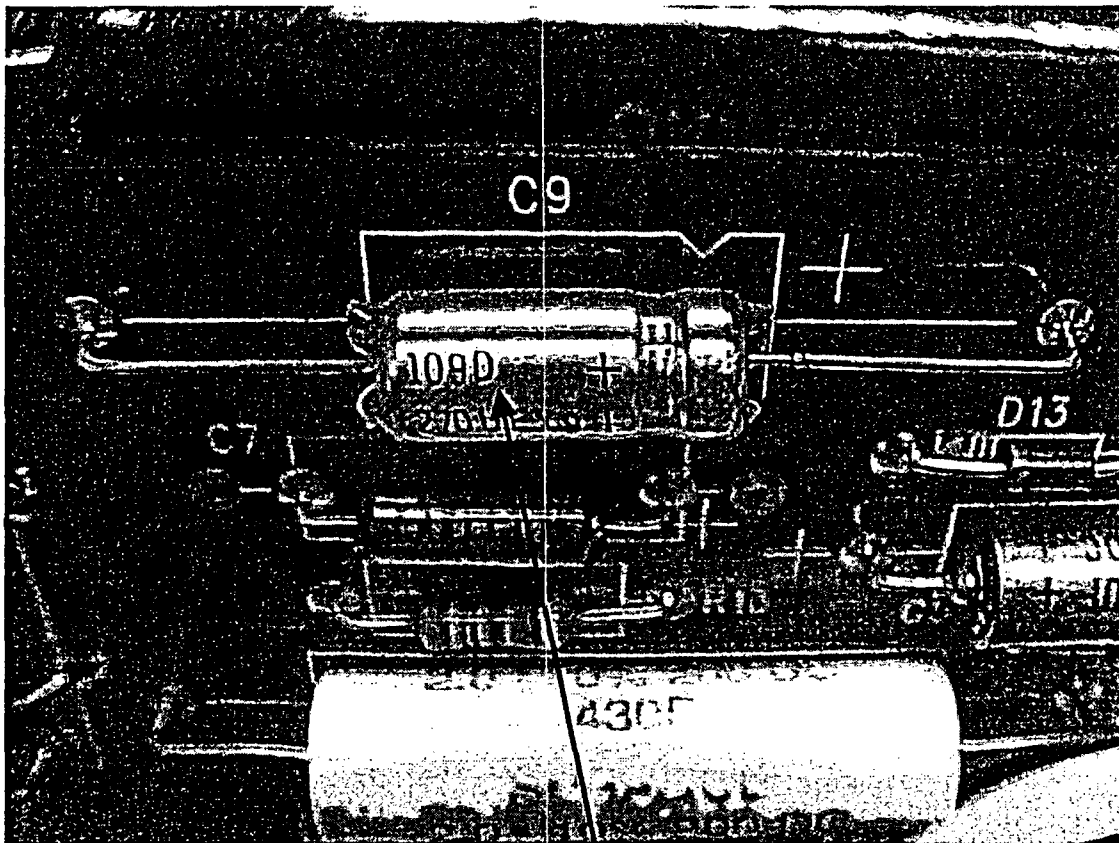


Figure 2



Note case markings