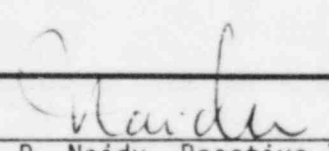



ORGANIZATION: POWER CONVERSION PRODUCTS INC.
CRYSTAL LAKE, ILLINOIS

REPORT NO.: 99900741/85-01	INSPECTION DATE(S): 5/22-23/85	INSPECTION ON-SITE HOURS: 8
CORRESPONDENCE ADDRESS: Power Conversion Products Inc. Forty-two East Street P.O. Box 380 Crystal Lake, Illinois 60014		
ORGANIZATIONAL CONTACT: C. F. Seyer, Vice President TELEPHONE NUMBER: (815) 459-9100		
PRINCIPAL PRODUCT: Battery Chargers NUCLEAR INDUSTRY ACTIVITY: Current Nuclear activity is approximately 5%.		
ASSIGNED INSPECTOR:  K. R. Naidu, Reactive Inspection Section (RIS)		7/1/85 Date
OTHER INSPECTOR(S):		
APPROVED BY:  E. W. Merschoff, Chief, RIS		7/3/85 Date
INSPECTION BASES AND SCOPE: A. <u>BASES</u> : 10 CFR Part 21 and 10 CFR 50 Appendix B. B. Review the corrective action taken on identified 10 CFR Part 21 items, implementation of the QA program in selected areas and observation of work in progress for refurbishing battery chargers for the South Texas Project.		
PLANT SITE APPLICABILITY: LaSalle County Stations 1 & 2 (50-373, 50-374) South Texas Project 1 (50-498).		

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A. Inspection Issues

1. Illinois Power Company, the owner of Clinton Power Station, notified the NRC on October 19, 1984, of a potential defect in the wire-connector crimping in the battery chargers manufactured by Power Conversion Products (PCP).
2. PCP notified the NRC on May 13, 1982, of a potential defect based on information received from LaSalle County nuclear power station. Specifically, the 200 ampere fuses in the battery chargers type 3S-130-200 were failing due to overheating.
3. Brown and Root (B&R), the then Architect Engineer for the South Texas Project, notified the NRC on October 7, 1980, of a potential defect in the battery chargers supplied by PCP. Specifically, B&R stated that some components in the battery chargers were different than those specified.

B. Background Information

PCP manufactures battery chargers for safety-related applications at Nuclear Power Plants. Battery chargers are normally delivered to the nuclear power plant construction sites and are stored in warehouses for extended periods before they are installed and placed in service. As such, they may not be removed from the packing crates and inspected until just before installation, and since battery chargers contain capacitors which have limited shelf life, these capacitors may have to be replaced at this time.

C. Action Taken on 10 CFR Part 21 Reports

1. 10 CFR Part 21 Report on Crimping

Illinois Power Company, the owner of Clinton Nuclear Power Station, reported on October 19, 1984, a potential defect relative to improper crimping in PCP battery chargers. The report stated that during start-up tests on three battery chargers, 27 out of 31 vendor crimped lugs failed. On November 28, 1984, PCP dispatched their Assistant Field Service Manager (AFSM) to investigate the potential defect. The AFSM field report dated November 30, 1984, indicated that only one wire separated from the lug during pull tests.

When heat is applied to the heat shrinkable wire markers they tend to obscure the indentations left by the crimping tool, which may lead to an erroneous conclusion that the lugs have not been properly crimped.

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The NRC inspector interviewed the ASFM and he confirmed that he pulled all the wires and only one wire separated from the lug. These battery chargers were shipped to Clinton Site in 1979. Illinois Power reported that all suspected wires were recrimped reinspected and determined the connections to be acceptable.

2. 10 CFR Part 21 Report on Fuse Failures

The 200 ampere fuse located in the center phase of the BC model 3S-130-200 was failing due to inadequate heat dissipation. Documents indicate that PCP notified all the owners of BC model 3S-130-200 of the problem and recommended two solutions. One was to relocate the fuses to increase the efficiency of heat dissipation, the other was to replace the existing 200 ampere fuses with 300 ampere fuses. All the owners opted to replace the 200 ampere fuses with 300 ampere fuses. Subsequent to the replacement, no failures were reported. PCP has since modified the design and mounts the fuses horizontally to increase heat dissipation.

3. 10 CFR Part 21 Report on Material Used

Brown & Root (B&R) reported that PCP used components inside the battery chargers which were manufactured outside the United States and therefore did not meet their design specification 3E239ES047. PCP stated that these commercial grade components were manufactured outside the U.S. for parent companies such as General Electric. B&R's letter dated November 9, 1981, retracted the 10 CFR Part 21 report on the basis that it was not a generic problem. To resolve this matter, on October 25 and 26, 1983, the PCP QA Manager visited the South Texas Project site to inspect the battery chargers. He identified that the shelf life of the DC electrolytic filters (5 years) expired, that some indicating instruments were damaged and observed some minor workmanship problems. In the interim, the Architect Engineering responsibilities had been transferred to Bechtel Energy Corporation (BEC) from B&R. BEC revised specification 3E239ES0047 to require a DC breaker with auxiliary contacts to remotely indicate a tripped condition of the DC breaker and a 24 hour timer. Arrangements were made to ship the twelve battery chargers for modifications to PCP. The remaining four which are currently in operation will be returned for modification to PCP on receipt of the modified units.

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D. Inspection Findings and Other Comments

1. Shop Tour

The NRC inspector toured the shop. Work was in progress to refurbish the battery chargers for the South Texas Project. The inspector physically verified the integrity of the crimping of the control wires by exerting a nominal pulling pressure and observed no failures. Calibration records were reviewed and determined to be acceptable. Calibration certificates indicate that standards traceable to the National Bureau of Standards were used.

2. Review of QC Inspector Qualification Records

Review of the PCP QC inspector qualification records indicate that QC inspectors were qualified to established procedures. QA inspectors were normally selected from craftsmen who worked on the assembly floor for a specific period and given additional training. Two individuals were interviewed and determined that they were knowledgeable in the circuits and trouble-shooting techniques. Records indicate that training sessions were given to individuals on various occasions on different subjects. Visual acuity test results, health records and qualification records were complete.

3. Review Trouble-Call Records

The inspector reviewed the "trouble call" logs in which the calls received from customers are documented. The substance of the inquiry and the recommended suggestion is recorded. Review of the records for the past one year limited to nuclear power plants indicated that the calls were few and that problems were not concentrated in failure in any particular operation mode.

4. Review of Service Call Records

The inspector reviewed the record of trips made to nuclear power plants to service installed battery chargers. The review indicated no consistent failures in any given area of battery charger operation.

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E. Exit Interview

The inspector met with representatives of PCP mentioned in paragraph F and discussed the scope and the results of the inspection.

F. Persons Contacted

- *C. F. Seyer, Executive Vice President
- *M. F. Behr, Quality Assurance Manager
- M. J. Grant, Quality Control Manager
- D. L. Hunt, Assistant Field Service Manager

*Denotes those who attended the exit interview.