

AUG 20 1984

MEMORANDUM FOR: Eric Weiss
Event Analysis Branch
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

FROM: Ellis W. Merschoff, Section Chief
Reactive Inspection Section
Vendor Program Branch
Division of Quality Assurance,
Safeguards, and Inspection Programs
Office of Inspection and Enforcement

SUBJECT: CRACKED BATTERY CASES ON HPSC DIESEL
GENERATOR AT RIVER BEND STATION
(VITS NO. 84-149)

During a vendor inspection at Allied C & D Power Systems corporate office located in Plymouth Meeting, Pennsylvania, it was found that the cracks in type 3DCU-9 battery cell cases may have resulted from a combination of an undersized rack as manufactured by C & D and overtightening of the rack front horizontal retaining rail against the cases during field installation of the batteries by the utility constructor. The C & D management indicated that this type of cracking was an isolated case and had no generic implications, and since their evaluation identified the cause, they did not think there was sufficient reason to make a 10 CFR Part 21 report to the NRC.

The results of the inspection are documented in the attached VPB Inspection Report No. 99900765/84-01, which is provided for your information.

Should you have any questions concerning this inspection, please contact Mr. R. E. Oller (492-9634).

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Ellis W. Merschoff, Section Chief
Reactive Inspection Section
Vendor Program Branch
Division of Quality Assurance,
Safeguards, and Inspection Programs
Office of Inspection and Enforcement

Enclosure:
Inspection Report No. 99900765/84-01

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 28 1984

Docket No. 99900765/84-01

Allied C & D Power Systems
ATTN: Mr. G. C. Branca
Director, Quality Assurance
3043 Walton Road
Plymouth Meeting, PA 19462

Gentlemen:

This refers to the inspection conducted by Mr. R. E. Oller of this office on July 24-27, 1984, of your facility at Plymouth Meeting, Pennsylvania, and to the discussion of our findings with you and other members of the plant staff at the conclusion of the inspection.

This inspection was made to inspect the implementation of your QA program and to followup on a potential 10 CFR Part 50.55(e) report concerning cracked battery cell cases at River Bend Station. Areas examined during the inspection and our findings are discussed in the enclosed report. Within these areas, the inspection consisted of an examination of procedures and representative records, interviews with personnel, and observations by the inspector.

Within the scope of this inspection, we found no instance where you failed to meet NRC requirements.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you believe to be exempt from disclosure under 10 CFR 9.5(a)(4), it is necessary that you (a) notify this office by telephone within 10 days from the date of this letter of your intention to file a request for withholding; and (b) submit within 25 days from the date of this letter a written application to this office to withhold such information. If your receipt of this letter has been delayed such that less than 7 days are available for your review, please notify this office promptly so that a new due date may be established. Consistent with Section 2.790(b)(1), any such application must be accompanied by an affidavit executed by the owner of the information

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AUG 28 1984

which identifies the document or part sought to be withheld, and which contains a full statement of the reasons on the basis which it is claimed that the information should be withheld from public disclosure. This section further requires the statement to address with specificity the considerations listed in 10 CFR 2.790(b)(4). The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified periods noted above, the report will be placed in the Public Document Room.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

ORIGINAL SIGNED BY:
GARY G. ZECH

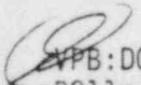
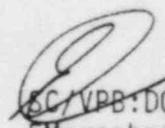
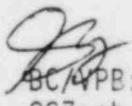
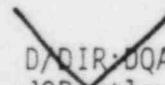
Gary G. Zech, Chief
Vendor Program Branch
Division of Quality Assurance, Safeguards,
and Inspection Programs

Enclosures:

- 1. Appendix A - Inspection Report No. 99900765/84-01
- 2. Appendix B - Inspection Data Sheets (3 pages)

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ORGANIZATION: ALLIED C & D POWER SYSTEMS
PLYMOUTH MEETING, PENNSYLVANIA

REPORT NO.: 99900765/84-01	INSPECTION DATES(S) 7/24-27/84	INSPECTION ON SITE HOURS: 20
CORRESPONDENCE ADDRESS: Allied C & D Power Systems ATTN: Mr. G. C. Branca Director, Quality Assurance 3043 Walton Road Plymouth Meeting, PA 19462		
ORGANIZATIONAL CONTACT: Mr. G. C. Branca, Director, QA TELEPHONE NUMBER: (215) 828-9000		
PRINCIPAL PRODUCT: Batteries, Chargers, and Battery Racks. NUCLEAR INDUSTRY ACTIVITY: Less than 3%		
ASSIGNED INSPECTOR:	<u>R. E. Oller</u> R. E. Oller, Reactive Inspection Section (RIS)	<u>8-13-84</u> Date
OTHER INSPECTOR(S):		
APPROVED BY:	<u>E. W. Merschoff</u> E. W. Merschoff, Chief, RIS	<u>8-21-84</u> Date
INSPECTION BASES AND SCOPE: A. <u>BASES</u> : Appendix B to 10 CFR Part 50 and 10 CFR Part 21. B. <u>SCOPE</u> : This inspection was performed to evaluate the QA program implementation in the areas of: status of previous inspection findings; QA program; 10 CFR Part 21, and battery rack manufacturing process control. In addition, a followup was made of a potential (continued on next page)		
PLANT SITE APPLICABILITY: Battery case cracking - 50-458		

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(continued)

10 CFR Part 50.55(e) report by Gulf States Utilities River Bend Station concerning cracking in plastic cases of Model 3DCU-9 batteries manufactured by C & D Batteries and furnished by GE to River Bend.

A. VIOLATIONS:

None

B. NONCONFORMANCES:

None

C. UNRESOLVED ITEMS:

It could not be verified whether or not the River Bend rack was fabricated to specifications, as C & D was unable to furnish the manufacturing records without their customer's purchase order number. This item remains open pending the obtaining of the required P.O. number.

D. STATUS OF PREVIOUS INSPECTION FINDINGS:

(Closed) Violation (Report No. 82-01): Allied C & D Power Systems (C & D) management had failed to adopt a documented procedure as required by paragraph 21.21 of 10 CFR Part 21. During this inspection the NRC inspector verified that C & D had developed and implemented "Standard Policy and Procedures No. A-14", dated March 15, 1982. This procedure was distributed (with acknowledgement receipt required) to all C & D Officers, Executive Management, Department Heads, Plant Managers, and C & D agents on or before April 2, 1982.

E. OTHER FINDINGS OR COMMENTS:

1. Quality Assurance Program:

The NRC inspector reviewed C & D's Quality System Program Policy Manual to verify that an adequate documented quality assurance program was in effect to control the manufacturing activities with regard to batteries, racks and chargers.

The C & D corporate activities are located in Plymouth Meeting, Pennsylvania, stationary batteries for nuclear service are manufactured

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at the Attica, Indiana and Conyers, Georgia plants, and battery racks are manufactured at the East Greenville, Pennsylvania plant. A review of the procedures available for each plant verified that appropriate general, quality and manufacturing type procedures specific to each plant, were available. The East Greenville procedures were reviewed at that plant.

Within this area, no nonconformances were identified

2. 10 CFR Part 21:

Review verified that C & D reporting procedure No. A-14 was adequate, available, and appropriately distributed through out the company.

Within this area, no violations were identified.

3. Battery Rack Manufacturing Process Control:

On July 26, 1984, the NRC inspector visited the C & D East Greenville, Pennsylvania rack manufacturing plant. This facility is located approximately 40 miles northwest of the corporate office.

The NRC inspector observed the sequence of standard rack fabrication activities including: (a) material receiving and inspection; (b) shearing, punching/drilling and inspection; (c) layout, fitup, tack and seam welding and inspection; (d) identification stamping and epoxy coating; (e) final dimensional inspection, and (f) packaging. At each operation the QC inspectors approved the work by signing/stamping off on a green tag attached to the item. For seismic IE rack fabrication the materials are pulled from accepted stock and assigned an invoice number. All parts of the rack are then fabricated in accordance with a drawing and a bill of material. There were no IE seismic racks in process during this inspection.

A review was made of: nonconforming work reports; a final dimensional inspection procedure; a welding procedure and the related ASME Section IX qualification records; and training and qualification records for 15 fitup and/or welding personnel.

Within this area, no nonconformances were identified.

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<p>4. <u>Cracked Battery Cell Cases at River Bend:</u></p> <p>a. <u>Introduction:</u></p> <p>On March 19, 1984, Gulf States Utilities River Bend Station (GSU) reported a potential 10 CFR 50.55(e) construction deficiency (CDR). Several batteries used for the diesel generator for the high pressure core spray system were found to have cracks in the cell casings. The entire set of 20, Type 3DCU-9 batteries were manufactured by Allied C & D Power Systems (formally C & D Batteries). GSU has not sent a final CDR to the NRC.</p> <p>b. <u>Findings:</u></p> <p>From discussions with C & D management and a review of documents, the NRC inspector learned that General Electric personnel at San Jose and River Bend had talked by telephone in February 1984 with the C & D Contract Administrator concerning the cracked battery cases. GE sent several of the cracked battery cases to C & D for evaluation. The defective cases were not available for examination by the NRC inspector. GE had indicated to C & D that the rack in which the batteries were mounted was dimensionally undersized and this had caused installation difficulties. Additionally, GE did not have the latest C & D installation instructions. GE proposed a field fix to enlarge the rack dimensions by 1/8 inch and submitted a written procedure which C & D approved.</p> <p>C & D further informed the NRC inspector that they had concluded that the battery case defects were due to stress cracking at the front center where the seismic rack front retaining rail presses against the cases and these stress cracks were due to pressure applied by overtightening the rail during field installation. Since C & D had determined the cause of the cracking and decided that it was an isolated occurrence with no generic effects, they did not see the need for a 10 CFR Part 21 report to the NRC. The NRC inspector examined C & D sketches and photographs of the cracked cases. The manufacturing records for the River Bend rack were not available to the NRC inspector. The C & D management indicated they could not find these records without their customer's purchase order number. Consequently, the NRC inspector was unable to verify whether or not the rack was manufactured to specifications.</p> <p>On August 1, 1984, the NRC inspector talked by telephone with responsible GE personnel in San Jose, and learned that the original</p>		

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River Bend HPCS diesel generator batteries had been replaced twice in the original seismic rack. The first set of batteries were improperly charged and the second set were cracked. The third and current set were put in the rack in 1984 after the rack was field expanded 1/8 inch, to relieve pressure on the cases. All three of the field installations had been performed by Stone and Webster for GSU.

On August 2, 1984 the NRC inspector talked by telephone with a responsible GSU representative at River Bend. The Information provided confirmed the facts stated above from C & D and GE.

c. Conclusions:

The cracking of the Type 3CUD-9 battery cases appears to have resulted from a combination of an undersized rack and/or excessive pressure exerted on the cases by overtightening the seismic rack horizontal retaining rail during field installation. No records were available to verify whether or not this type and cause of cracking had occurred at other nuclear power generating stations. The C & D management indicated they considered it an isolated incident as related to battery and rack sets manufactured by them.

The cause of the undersized rack remains an unresolved item pending obtaining the needed P.O. number and further inspection at C & D concerning the rack fabrication.

INSPECTOR R. E. Oller
 SCOPE All Documents

DOCUMENTS EXAMINED

ITB#1 NO.	TYPE OF DOCUMENT	DOCUMENT NO.	REV.	DATE	TITLE / SUBJECT
1	QAM	-	H	12/83	Quality System Program Manual ^{Policy}
2	QCD	-	-	7/84	Index-Quality Procedures ^{for} East Greenville Plant
3	QCD	-	-	7/84	Index-Quality Procedures ^{for} Communication, Control, & Industrial Batteries
4	PRO	LD1-1489	-	3/26/84	General Electric Co. modification procedure for battery rack at Riverbend.
5	DWG	M-6709-3	3	2/16/84	Rack, 2-Step Seismic For 20-30CU-9 Battery
6	DWG	6478-4	4	4/10/83	Two Step Rack Frame, Battery Type DCU8DU
7	IM	207, MS 12-800 10M/382	-	3/82	40 Stationary Battery Installation and Operating Instructions
8	TR	43368-1	-	9/22/76	Wylie Laboratory, Huntsville, AL, Test Report, Seismic Simulation Test Program on a Type AR 130 HK50 Battery Charger and Eight Type 3PCU-9 Batteries Contained in a Type RD 703-3EPS Battery Rack
9	IN	-	-	-	40 Notes and sketches ^{and photographs} of Cracked Battery Case from Riverbend

continued

TYPE OF DOC:
 DWG - DRAWING
 SPEC - SPECIFICATION
 PRO - PROCEDURE
 QAM - QA MANUAL
 QCD - QC DOCUMENT
 P.O. - PURCHASE ORDER

LTR - LETTER
 IM - Instruction Manual
 TR - Test Report
 IN - Internal Notes

INSPECTOR R.E. Oller
 SCOPE All Documents

DOCUMENTS EXAMINED

DOCKET NO. 99900765
 REPORT NO. 84 - 04
 PAGE 2 OF 2

ITEM NO.	TYPE OF DOCUMENT	DOCUMENT NO.	REV.	DATE	TITLE / SUBJECT
10	PD	+	-	1983	Following procurement documents concerning 22 Type 3DCU-9 Batteries furnished to Riverbend Station in 1983: a. General Electric Co. P.O. 205-XN638, Rev. 01 dated 6-16-83 b. GE GE Packaging Data Sheet (PDS 119, Rev. 3) c. Internal CTD Shop Order #2, Invoice No. 01-89606 dated 8-3-83 (to Conyer Plant) for ²² batteries.
11	IR	+	-	1983	CTI Transmittal Acknowledgement Receipts for CTD standard Policy and Procedure A-14.
12	PRO	QP-9017	0	-	Final Inspection, Racks and Rack Parts"
13	QCD	-	-	current	Nonconformance Reports at East Greenville Plant
14	PRO	W-1(13)	4	7-2-84	Welding Specification Section B, MIG Welding of Aluminum and Steel, and ^{Procedure} Specification Qualification Records for WP-1, -2, -3, -4 welding specifications
15	IR	-	-	1984	Personnel Training and Qualifications for 15 welder and/or Layout, Fitup, Assembler and welder.

TYPE OF DOC:

DWG - DRAWING
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 QAM - QA MANUAL
 QCD - QC DOCUMENT
 P.O. - PURCHASE ORDER

LTR - LETTER
 PD - Purchase Documents
 IR - Internal Records

