

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-440/80-04; 50-441/80-04

Docket No. 50-440; 50-441

License No. CPPR-148; CPPR-149

Licensee: The Cleveland Electric Illuminating
Company
Post Office Box 5000
Cleveland, OH 44101

Vendor: B-Line Systems, Inc.
509 West Monroe St.
Highland, IL 62249

Facility Name: Perry Nuclear Power Plant, Units 1 and 2
B-Line Systems, Inc., Highland, IL

Inspection at: Perry Site, Perry, OH
B-Line Systems, Inc., Highland, IL

Inspection conducted: November 19-20, 1979 and February 27, 1980

Inspectors: B. E. Norelius
for J. B. McCarten

4/15/80
(Date)

D. C. Williams for
Jack Hughes

4/16/80
(Date)

D. C. Williams for
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4/16/80
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4/15/80
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D. C. Williams for
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4/16/80
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Investigation Summary

Investigation on November 19-20, 1979 and February 27, 1980 (Report No. 50-440/80-04 and 50-441/80-04)

Areas Investigated: Investigation was initiated after an allegor reported that the vendor had fabricated defective electrical cable tray support fittings for the licensee and, contrary to the provisions of 10 CFR 21, had failed to inform the licensee or the NRC of the alleged defects.

Results: Investigation established that the vendor had fabricated defective electrical cable tray support fittings for the licensee. However, an inquiry into the vendor's activity following discovery and evaluation of the defect showed that the vendor had issued a recall of the suspect defective material and had, within ten days of discovery of the defect, notified the NRC under the provisions of 10 CFR 21. No items of noncompliance were identified during the course of this investigation.

REASON FOR INVESTIGATION

Investigation was conducted after an allegor reported that the vendor had fabricated defective electrical cable tray support fittings for the licensee. In addition the allegor stated the vendor had failed to inform the licensee of these defects and, contrary to the requirements of 10 CFR 21, had failed to report the discovery of these defects to the Nuclear Regulatory Commission.

SUMMARY OF INVESTIGATION

Investigation was initiated on September 20, 1979 after an allegor advised that the vendor had supplied to the licensee, defective electrical cable tray support fittings. The allegor also stated that contrary to 10 CFR 21 the vendor had failed to notify the licensee, or the Nuclear Regulatory Commission of this defect.

On September 27, 1979 the Nuclear Regulatory Commission, and the licensee were notified in writing by the vendor that a potential defect had been discovered in various electrical cable tray support fittings fabricated from suspected defective one-quarter inch carbon steel. On October 22, 1979 the vendor followed up this report with a notice that all the suspected defective fittings had been recalled from the licensee's site. Investigation on November 19-20, 1979 at the vendor's facility established that the one-quarter inch carbon steel purchased by the vendor was of the wrong type which resulted in the formation of cracks at 90° bends in fittings formed from this steel. The vendor stated that the defect was first noted on September 12, 1979 during a routine quality control inspection. The vendor also stated from September 12, 1979 to September 24, 1979 he had taken steps (tests by independent testing laboratories) to evaluate the cause and effect of the defect. The vendor related that following this evaluation, a Notice of Defect and Noncompliance regarding this matter was issued to all concerned.

In addition during the course of this investigation the vendor raised the question that the licensee had formerly ordered safety related materials under 10 CFR 21 Procurement Procedures. He stated these fittings were fabricated in lots and according to more stringent quality control procedures to insure that compliance with 10 CFR 21 was maintained. The vendor stated that recently the licensee had changed it's requirements and advised that material purchased from the vendor would merely have to conform to the specifications outlined in the vendor's catalog. On February 27, 1980 licensee representatives were interviewed and they acknowledged this change in procurement procedures. The licensee decided that, since the vendor's materials were not being installed in safety related systems, these fittings could be ordered as commercial grade items and Part 21 does not apply. In addition the licensee acknowledged the receipt and compliance with the vendor's Notice of Defect and Noncompliance, and advised that all suspected defective fittings had been returned to the vendor. No items of noncompliance were identified during the course of this investigation.

DETAILS

Principal Persons Contacted

At Perry Nuclear Power Station, February 28, 1980

**Stuart Tult, Quality Control Inspector, Cleveland Electric Illuminating Company
Raymond Loving, Ernst-Comstock, Inc.

At B-Line Systems Inc., November 19-20, 1979

*Charles D. Hays, Material Manager, B-Line Systems, Inc.
*Gary Warning, Quality Control Inspector, B-Line Systems, Inc.

*Denotes those present at exit interview on November 20, 1979
**Denotes those present at exit interview on February 27, 1980

Initial Contact with Alleger

On September 20, 1979 an alleger telephonically contacted Region III and advised that the vendor, a manufacturer of electrical cable tray support struts and associated fittings, had fabricated and supplied defective fittings to the licensee. The alleger stated that the vendor was improperly inspecting fittings, which he stated were subject to special quality control inspection in order to comply with NRC regulations. The alleger went on to state that he attributed the cause of the defects to a poor quality steel being used by the vendor in fabricating the fittings.

Interview of Alleger

On October 4, 1979 the alleger was interviewed and stated he is employed by the vendor at the Highland, IL facility, which fabricates metal support brackets and associated fittings which are used in electrical cable tray assemblies. The alleger stated that on September 12-13, 1979, Gary Warning, Quality Assurance Inspector, at the vendor's facility reported to company management that he observed cracks at formed bends in fittings which were formed from one-quarter inch steel plate.

The alleger also stated that all of the suspect fittings were placed on hold as of September 13, 1979, and none had been shipped to any customers since that date. The alleger also stated that 10 CFR Part 21 requires the vendor to report defects when they are discovered. The alleger went on to state that to the best of his knowledge the vendor had not reported this defect to the NRC or to the licensee.

The alleger also stated that based on his understanding of the firm's Quality Assurance Program for controlling material fabricated for nuclear power plants, the orders were stamped "10 CFR 21 Compliance Required" and that these orders were controlled in special lots from

fabrication to final inspection and shipment. The allegor stated that, contrary to this practice, fittings from off-the-shelf stock had been shipped to the Perry site and to Louisiana Power, Inc. These were later found to be defective.

Receipt of Notification by Vendor

On September 27, 1979 the Nuclear Regulatory Commission received a notification from the vendor that on September 24, 1979 potential defects had been discovered in various components fabricated by the vendor from suspected defective one-quarter inch carbon steel plate and bar material. The vendor also advised in this letter that it had requested it's customers, Ernst-Comstock Inc., Perry Nuclear Power Station and the Wolf Creek Nuclear Power Station, Louisiana Power, Inc., to ascertain if the suspected defective material identified in the letter was designated for use in safety related systems. The letter directed that if so, to label the suspected defective parts currently in stock to preclude their use in those systems. A copy of the September 24, 1975 letter is attached to this report as Appendix A.

On October 22, 1979 the Nuclear Regulatory Commission was sent a second notification by the vendor advising that corrective action had been taken to preclude the installation of potentially defective parts in safety related applications by the vendor's customers. This action included a recall of all potentially defective parts from the licensee, and a review of the licensee's files which insured that the fittings in question had not been installed in safety related applications at the licensee's facility. A copy of the letter dated October 22, 1979 is attached to this report as Appendix B.

Interview of Vendor Personnel

On November 19-20, 1979, Charles D. Hays, Materials Manager, B-Line Systems, Inc., was interviewed and stated that on September 10, 1979, Gary Warning, Quality Control Inspector, had discovered a series of small cracks in metal cable tray support fittings being fabricated at the vendor's plant. Hays stated that these cracks appeared at 90° bends in various fittings. He also stated that when subjected to a quality control department test, which consisted of striking the fitting from the rear with a hammer, some of the fittings cracked and broke at the 90° bends.

Hays said that on September 18, 1979 further hydraulic tests by the vendor's Engineering Department led to the discovery of long and deep cracks at 90° bends in the fittings. Hays related that all fittings fabricated from one-quarter inch carbon steel had been placed on hold and a notice of a potential defect in various components was issued to the NRC and the licensee on September 24, 1979. A copy of a memorandum documenting steps taken by the vendor in detection of the defect was obtained and is attached to this report as Appendix C.

Hays also related that on September 18, 1979 independent testing of the suspected components by St. Louis Testing Laboratories, Inc. determined that the fittings fabricated from material supplied the Jones and Laughlin Steel Co. were not defective. Hays said St. Louis Testing also reported on September 24, 1979, that tests of one-quarter inch carbon steel supplied to the vendor on July 17 and July 25, 1979 from Rolled Steel Inc., was "corten," type steel containing detectable amounts of nickel, chromium, and copper. This resulted in the steel being brittle which, in turn, resulted in cracks at the 90° bends in the steel when formed. A copy of this test report is attached to this report as Appendix D. Hays also stated that a review of purchase orders filled after July 17, 1979, disclosed that the licensee had been supplied various components fabricated from this suspected defective steel which were subsequently recalled.

Hays also stated that recently the licensee had informed him that under revised guidelines to NRC regulations concerning Part 21 (Notice of Defect and Noncompliance) the materials (fittings, bolts, etc.) provided by the vendor to the licensee were commercial grade items not subject to the provisions of Part 21. Hays stated that following this notification he had questioned the licensee's decision in this matter. Licensee representatives informed him that the components were not being used in safety related systems and therefore were not subject to the provisions of Part 21. Hays stated that subsequent purchase orders received from the licensee stated that materials ordered must conform to the vendor's catalog specifications. Material traceability and certification was no longer required. Hays related that these orders were now being filled from the vendor's off-the-shelf stock. Hays conjectured that this recent change may have led an employee, who was not familiar with it, to contact the Nuclear Regulatory Commission and advise them that the vendor was not following it's Quality Assurance Program and was not complying with Part 21.

Interview of Quality Control Inspector

On November 19, 1979 Gary Warning, Quality Control Inspector, B-Line Systems, Inc. was interviewed and stated that on September 10, 1979, while conducting a routine inspection he noted visual hairline cracks at 90° bends in various fittings being fabricated from one-quarter inch carbon steel. Warning stated he notified Charles Hays, Materials Manager, of this condition, who then directed a review of all recent purchase orders for one-quarter inch carbon steel. Warning stated Hays also ordered a hold on the shipment of all materials fabricated by the vendor from one-quarter inch carbon steel.

In addition Warning stated, on September 10, 1979 Hays submitted samples of the suspected material to an independent laboratory for a metallurgical examination. Hays then requested that the Quality Control Department supervise a test of all of the suspected fittings in stock, with this test consisting of striking the backside of the fittings at the 90° bend with a hammer to determine if the fitting would break or crack. Warning related that this testing was suspended on September 14, 1979 because the

results were inconclusive and non-quantifiable. Warning also related that on September 14, 1979, the vendor's Engineering Department began an hydraulic pressure test of the suspected fittings and discovered long and deep cracks on the same 90° bends. Following receipt of this information, Warning stated, an immediate stop production order was put into effect for all material fabricated from one-quarter inch carbon steel.

Warning went on to state that formerly orders from nuclear power plants were stamped in red "10 CFR 21 Applicable," and that these orders were fabricated, packed, and shipped in separate lots with accompanying mill certifications for the steel used listed on the document supplied to the customer showing the traceability of the steel used in fabrication of the components. Warning stated, however, that recently orders from the nuclear power plants were not stamped "10 CFR 21 Applicable" but were filled from off-the-shelf stock with no mill certification traceability required. Warning related he was not aware of why or how this change occurred.

Review of Vendor's Procurement/Shipping Orders

On November 20, 1979 the vendor's procurement and shipping orders since July 17, 1979 were compared with vendor production reports which documented which fittings were fabricated from the suspected defective material. This review determined that all fittings fabricated from the questioned defective steel, which had been shipped to customers, had been recalled. In addition the review disclosed that none of the defective fittings had been shipped to Louisiana Power and Light, Inc. located in Taft, Louisiana.

Interviews of Cleveland Electric Illuminating Personnel

On November 19, 1979, Stuart Tult, Quality Control Inspector for the licensee was interviewed and stated that the questioned defective fittings supplied by the vendor had not been installed in safety related systems by the licensee. Tult related that despite this, the fittings listed as defective in the vendor's letter dated September 24, 1979, were recalled, and subsequently returned by the licensee to the vendor. Tult added that in lieu of the vendor's fittings of this type, the licensee fabricates and installs A-36 (carbon steel) angle iron fittings for safety related cable tray assemblies.

In a letter dated October 11, 1979, Ernst-Comstock, the electrical contractor, advised the licensee that through a review of all safety related conduit and cable tray assembly drawings it had been determined none of the suspect defective fittings fabricated by the vendor were used, or were intended for use, in these assemblies. A copy of the Ernst-Comstock Letter is attached to this report as Appendix E.

Exit Meetings

On November 20, 1979, and on February 27, 1980, discussions were held with the individuals indicated. At this time they were advised that no items of noncompliance had been identified during the course of this investigation.

Attachments: Appendices A through E