



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

March 21, 1989

TO: ALL HOLDERS OF OPERATING LICENSES AND CONSTRUCTION PERMITS FOR
NUCLEAR POWER REACTORS

SUBJECT: ACTIONS TO IMPROVE THE DETECTION OF COUNTERFEIT AND FRAUDULENTLY
MARKETED PRODUCTS (GENERIC LETTER 89-02)

Recent instances of counterfeit and fraudulently marketed vendor products have heightened the NRC's concerns for licensees' capability to assure the quality of procured products and to reduce the likelihood of the use of counterfeit or fraudulent products in nuclear power plants. During recent NRC inspections of licensees and vendors, the NRC has observed a wide variety of practices and programs for procurement, receipt inspection, testing and dedication of equipment and material for safety-related applications. The purpose of this generic letter is to share with all licensees some of the elements of programs that appear to be effective in providing the capability to detect counterfeit or fraudulently marketed products and in assuring the quality of vendor products. The staff is aware of and encourages the industry working group efforts to develop guidance in these areas.

Three characteristics of effective procurement and dedication programs have been identified during these NRC inspections. These characteristics are (1) the involvement of engineering staff in the procurement and product acceptance process, (2) effective source inspection, receipt inspection, and testing programs, and (3) thorough, engineering based, programs for review, testing, and dedication of commercial-grade products for suitability for use in safety-related applications. NRC has found that programs that embodied the above three elements were generally effective in providing enhanced capability to detect counterfeit or fraudulently marketed products and in assuring the quality of procured products, both in safety-related and other plant systems.

Licensees may want to consider the applicability of these characteristics to their programs to reduce the likelihood of the introduction of counterfeit or fraudulent products into their plants and to assure the quality of procured vendor products.

It should be noted that the NRC staff conditionally endorses the guidelines contained in EPRI NP-5652, "Guideline for the Utilization of Commercial-Grade Items in Nuclear Safety-Related Applications (NCIG-07)," that was issued by EPRI in June 1988 for evaluating commercial-grade products for suitability for use in safety-related applications.

Background:

Numerous instances have been identified by the NRC during the past 2 years in which the nuclear industry received, accepted, and installed items of hardware

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that were not of the quality purported by the manufacturer or supplier due to apparent misrepresentation. Significant deficiencies have also been identified in the programs for dedicating commercial-grade products for use in safety-related applications.

The use in nuclear facilities of products which are counterfeit or fraudulently marketed increases the likelihood that some plant equipment may not perform as expected. (See the enclosed list of NRC Information Notices and Bulletins regarding this matter.)

Discussion:

Procurement quality assurance (QA) controls for products to be used in safety-related applications are established in Appendix B to 10 CFR Part 50, and in Regulatory Guides 1.28, 1.33, and 1.123. It is recognized that Appendix B provides criteria for QA programs and does not specifically address fraudulent activities; however, an effectively implemented licensee QA program would increase the likelihood of detecting fraudulently marketed vendor products. Although a properly implemented QA program may more readily detect substandard products than will the commercial-grade component upgrade process, a licensee's commercial-grade dedication process, as described in paragraph C., will greatly enhance the effectiveness of current upgrade practices. The actions described in paragraphs A. and B. have also proved useful in detecting substandard, counterfeit or fraudulently marketed products intended for use in systems needed for the safe operation of the facility.

A. Engineering Involvement in the Procurement Process

Appropriate engineering involvement is warranted during the procurement and product acceptance processes, including testing, for products used in nuclear power plants. Inadequate engineering involvement has been a common weakness in licensees' procurement programs, particularly when commercial-grade procurements were involved. Involvement of a licensee's engineering staff in an effective procurement process would normally include (1) development of specifications to be used for the procurement of products to be used in the plant, (2) determination of the critical characteristics of the selected products that are to be verified during product acceptance, (3) determination of specific testing requirements applicable to the selected products, and (4) evaluation of test results. The extent of necessary engineering involvement is dependent on the nature and use of the products involved.

B. Product Acceptance Programs

Experience indicates that reliance on part number verification and certification documentation is insufficient to ensure the quality of procured products. Licensees with effective product acceptance programs have included receipt/source inspection and appropriate testing criteria, effective vendor audits, special tests and inspections and post-installation tests in their programs. These licensees have applied the inspection

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MEMORANDUM FOR: All Project Managers
FROM: Steven A. Varga
Acting Associate Director for Projects
Office of Nuclear Reactor Regulation
SUBJECT: GENERIC LETTER 89-02

Enclosed in Generic Letter 89-02 which describes actions licensees may consider to improve their capability of detecting counterfeit and fraudulently marketed vendor products. The Generic Letter also includes NRC conditional endorsement of EPRI NP-5652, "Guidelines for the Utilization of Commercial-Grade Items in Nuclear Safety-Related Applications (NCIG-07)."

Licensees are not requested to respond to the Generic Letter and no specific actions are requested.

Original Signed by

Steven A. Varga
Acting Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosure:
Generic Letter 89-02

Contact: E. William Brach, VIB:DRIS
492-0961

Distribution:
Central Files
DRIS R/F
VIB R/F
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| OFC | :C:VIB:DRIS:NRR | :D:DRIS:NRR | :A/ADP:NRR | : | : | : |
| NAME | :EWBrach:mgc | :BGrimes | :SAVarga | : | : | : |
| DATE | :03/13/89 | :03/13/89 | :03/14/89 | : | : | : |

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MEMO FOR PROJECT MANAGERS

Requestor's ID:
CRUTCHLE

Author's Name:
Bill Brach

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Requestor's ID:
MCALLIST

Author's Name:
Max Clausen

Document Comments:
GENERIC LETTER FOR ANPR

LIST OF RECENTLY ISSUED GENERIC LETTERS

| Generic Letter No. | Subject | Date of Issuance | Issued To |
|--------------------|--|------------------|---|
| 89-01 | IMPLEMENTATION OF PROGRAMMATIC CONTROLS FOR RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS IN THE ADMINISTRATIVE CONTROLS SECTION OF THE TECHNICAL SPECIFICATIONS AND THE RELOCATION OF PROCEDURAL DETAILS OF RETS TO THE OFFSITE DOSE CALCULATION MANUAL OR TO THE PROCESS CONTROL PROGRAM. | 1/31/89 | ALL LICENSEES HOLDING OPERATING LICENSES AND CONSTRUCTION PERMITS FOR NUCLEAR POWER REACTOR FACILITIES. |
| 88-20 | INDIVIDUAL PLANT EXAMINATION FOR SEVERE ACCIDENT VULNERABILITIES - 10 CFR 50.54(f) | 11/23/88 | ALL LICENSEES HOLDING OPERATING LICENSES AND CONSTRUCTION PERMITS FOR NUCLEAR POWER REACTOR FACILITIES |
| 88-19 | USE OF DEADLY FORCE BY LICENSEE GUARDS TO PREVENT THEFT OF SPECIAL NUCLEAR MATERIAL | 10/28/88 | ALL FUEL CYCLE FACILITY LICENSEES WHO POSSESS, USE, IMPORT, EXPORT, OR TRANSPORT FORMULA QUANTITIES OF STRATEGIC SPECIAL NUCLEAR MATERIAL |
| 88-18 | PLANT RECORD STORAGE ON OPTICAL DISKS | 10/20/88 | ALL LICENSEES OF OPERATING REACTORS AND HOLDERS OF CONSTRUCTION PERMITS |
| 88-17 | LOSS OF DECAY HEAT REMOVAL 10 CFR 50.54(f) | 10/17/88 | ALL HOLDERS OF OPERATING LICENSES OR CONSTRUCTION PERMITS FOR PRESSURIZED WATER REACTORS |
| 88-16 | REMOVAL OF CYCLE-SPECIFIC PARAMETER LIMITS FROM TECHNICAL SPECIFICATIONS | 10/04/88 | ALL POWER REACTOR LICENSEES AND APPLICANTS |
| 88-15 | ELECTRIC POWER SYSTEMS - INADEQUATE CONTROL OVER DESIGN PROCESSES | 09/12/88 | ALL POWER REACTOR LICENSEES AND APPLICANTS |

BULLETINS AND INFORMATION NOTICES CONCERNING NONCONFORMING
MATERIALS AND EQUIPMENT AND INSTANCES OF INADEQUATE
DEDICATION OF EQUIPMENT FOR SAFETY-RELATED APPLICATIONS

| <u>Bulletin No.</u> | <u>Title</u> | <u>Date</u> |
|-------------------------------|---|-------------|
| 87-02* | Fastener Testing to Determine Conformance with Applicable Material Specifications | 11/06/87 |
| 87-02, Supplement 1* | | 04/22/88 |
| 87-02, Supplement 2* | | 06/10/88 |
| 88-05* | Nonconforming Materials Supplied by Piping Supplies, Inc., at Folsum, New Jersey, and West Jersey Manufacturing Company at Williamstown, New Jersey | 05/06/88 |
| 88-05, Supplement 1* | | 06/15/88 |
| 88-05, Supplement 2* | | 08/03/88 |
| 88-10* | Nonconforming Molded-Case Circuit Breakers | 11/22/88 |
| <u>Information Notice No.</u> | | |
| 87-66 | Inappropriate Application of Commercial-Grade Components | 12/31/87 |
| 88-19* | Questionable Certification of Class 1E Components | 04/26/88 |
| 88-35 | Inadequate Licensee Performed Vendor Audits | 06/03/88 |
| 88-46* | Licensee Report of Defective Refurbished Circuit Breakers | 07/08/88 |
| 88-46, Supplement 1* | | 07/21/88 |
| 88-46, Supplement 2* | | 12/30/88 |
| 88-48* | Licensee Report of Defective Refurbished Valves | 07/12/88 |
| 88-48, Supplement 1* | | 08/24/88 |
| 88-97 | Potentially Substandard Valve Replacement Parts | 12/16/88 |

*These items reflect instances in which suppliers and manufacturers of safety-related material may have intentionally eluded QA requirements to misrepresent the quality of their products. In the instances marked by an asterisk, the problem was brought to NRC's attention by either a licensee or a nuclear supplier.

and testing criteria to products procured for use in safety-related systems and for all commercial-grade products being evaluated for suitability for use in safety-related systems. The inspection and testing criteria also have required identification and verification of the products' critical characteristics. In selecting the critical characteristics to be verified, consideration may be given to the safety significance, complexity, and application of the various products. For suppliers with acceptable QA programs, as confirmed by licensee audits, sampling plans are often utilized to perform the required inspections and tests. In addition to these receipt/source inspections and tests, effective licensee programs normally verify the traceability to the original manufacturers of procured materials, equipment, and components in those cases where original manufacturer's certifications are elements of the safety-related procurement or commercial-grade dedication program. Effective audits have included consideration of audit approach, depth of audit, and audit team composition and have included appropriate engineering/technical representatives. Comprehensive multi-licensee audit teams have also been found to be effective.

C. Dedication Programs

It is each licensee's responsibility to provide reasonable assurance that nonconforming products are not introduced into their plants. Dedication programs that ensure the adequacy of critical parameters of products used in safety-related applications can also contribute to the identification of counterfeit or fraudulently marketed vendor products.

The NRC staff believes that licensees who use methods similar to those described in EPRI NP-5652 "Guideline for the Utilization of Commercial-Grade Items in Nuclear Safety-Related Applications (NCIG-07)," to verify the critical characteristics of commercial-grade items intended for safety-related applications have the basis for effective dedication programs.

Properly implemented, the EPRI guidelines, as modified below, establish methods which satisfy existing requirements of Appendix B to 10 CFR Part 50 as they apply to the dedication process of commercial-grade items.

1. Acceptance Method 2, "Commercial-Grade Survey of Supplier," should not be employed as the basis for accepting items from suppliers with undocumented commercial quality control programs or with programs that do not effectively implement their own necessary controls. Likewise, Method 2 should not be employed as the basis for accepting items from distributors unless the survey includes the part manufacturer(s) and the survey confirms adequate controls by both the distributor and the part manufacturer(s).
2. Acceptance Method 4, "Acceptable Supplier/Item Performance Record," should not be employed alone unless:

- a. The established historical record is based on industry-wide performance data that is directly applicable to the item's critical characteristics and the intended safety-related application; and
- b. The manufacturer's measures for the control of design, process, and material changes have been adequately implemented as verified by audit (multi-licensee team audits are acceptable).

The NRC staff believes that if licensees' procurement programs effectively implement the elements discussed in paragraphs, A., B., and C., they will reduce the likelihood of the introduction of counterfeit or fraudulent products into their plants.

Although no response to this letter is required, if you have any questions regarding this matter, please contact the technical contact listed below.

Sincerely,



Steven A. Varga
Acting Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. List of Bulletins and Information Notices
2. List of Recently Issued Generic Letters

CONTACT:

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(301) 492-0961

Multiple Addressees

Distribution:

- DCS
- VIB R/F
- DCrutchfield
- FMiraglia
- CBerlinger
- JRoe
- BGrimes
- AGody
- MClausen
- BBrach
- EBaker
- DBrinkman
- JGoldberg
- SVarga

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| OFC | : VIB:DRIS:NRR | : TECH ED | : VIB:DRIS:NRR | : C:VIB:DRIS:NRR | : TA:DRIS:NRR | : C:POEB:DLPO |
| NAME | : DSBrinkman:mgc | : <i>B. Calore</i> | : ETBaker | : EWBach | : MJClausen | : ATGody/JRoe |
| DATE | : 01/9/89 | : 01/9/89 | : 01/10/89 | : 01/10/89 | : 01/11/89 | : 01/13/89 |
| OFC | : DRP:NRR | : C:OGCB:DOEA | : OGC <i>by J.H. Lewis</i> | : D:DRIS/NRR | : ADT:NRR | : ADP:NRR |
| NAME | : SAVarga | : CBerlinger | : JGoldberg | : BGrimes | : FJMiraglia | : DMCrutchfield |
| DATE | : 01/ /89 | : 01/13/89 | : 01/18/89 | : 01/11/89 | : 01/19/89 | : 01/ /89 |

No legal objection

Paul H. Jones
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Multiple Addressees

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Distribution:

- DCS
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*SEE PREVIOUS CONCURRENCES

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| OFC | :VIB:DRIS:NRR | :TECH ED | :VIB:DRIS:NRR | :C:VIB:DRIS:NRR | :TA:DRIS:NRR | :C:PQEB:DLPO |
| NAME | :DSBrinkman:mgc* | :BCalure* | :ETBaker* | :EWBrach* | :MJClausen* | :ATGody/JRoe* |
| DATE | :01/9/89 | :01/9/89 | :01/10/89 | :01/10/89 | :01/11/89 | :01/13/89 |
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| NAME | : SAVARGH | :CBerlinger* | :SHLewis* | :BKGrimes* | :FJMiraglia* | :DMCrutchfield |
| DATE | : 02/17/89 | :01/13/89 | :01/18/89 | :01/11/89 | :01/19/89 | : 02/10/89 |

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