	NUCLEAR REGULA	May 10, 19	ON 89
MEMORANDUM FOR:	T. Murley J. Sniezek F. Miraglia, ADT J. Partlow, ADP D. Crutchfield, A S. Varga G. Holahan C. Rossi	B. Grimes F. Congel J. Roe C. Grimes DSP B. Boger G. Lainas M. Virgilio L. Rubenstei	P. McKee A. Thadani C. McCracken W. Lanning T. Martin, EDO F. Gillespie W. Bateman
THRU:	L. Shao Walter R. Butler, Project Directora Division of React	B. D. Liaw Director L te 1-2 or Projects 1/1	
FROM:	James C. Stone, Project Manager Project Directorate I-2 Division of Reactor Projects 1/11		
SUBJECT:	FORTHCOMING MEETING WITH NUMARC ON MOLDED CASE CIRCUIT		
DATE & TIME:	May 11, 1989 9:00 AM		
LCCATION:	One White Flint North 11555 Rockville Pike 10 B 13 Rockville, MD		
PURPOSE:	To discuss licensee responses to Bulletin 88-10		
*PARTICIPANTS:	NRC B. Grimes C. E. Brach A. U. Potapovs F. J.	Berlinger Thadani Rosa Stone	Utility A. Marian R. Bell, et. al.
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cc: See next page PDs			OFX2 NU
*Meetings between interested members to attend as obser 43 Federal Registe	NRC technical staff of the public, pet vers pursuant to "C r 28058, 6/28/78.	and applicants itioners, inter pen Meeting Sta	or licensees are open for venors, or other parties tement of MRC Staff Policy,"
RETUR	N TO REGULATOR	Y CENTRAL FI	tes Hlur

Mr. Steven E. Miltenberger , Public Service Electric & Gas Company

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2 . 68 . 8 For: The Commissioners

Victor Stello, Jr. Executive Director for Operations

SUBJECT: ADVANCE NOTICE OF PROPOSED RULEMAKING "ACCEPTANCE OF PRODUCTS PURCHASED FOR USE IN NUCLEAR POWER PLANT STRUCTURES, SYSTEMS AND COMPONENTS"

Purpose:

From:

To obtain approval to publish the subject Advance Notice of Proposed Rulemaking (ANPR) for public comment. The intent is to solicit public comment addressing the appropriate regulatory actions needed to assure that products purchased for use in nuclear power plants will perform the functions necessary to protect the public health and safety. C

Background:

Recent experience has shown that some products purchased for use in nuclear power plant structures, systems and components are substandard, have falsified records or are otherwise misrepresented. The recognition of the potential safety significance of these circumstances has led to the issuance of several NRC bulletins and information notices. This was done to assure that licensees were informed and took actions to prevent inadequate products from being installed in nuclear power plants.

A generic letter is being prepared to inform licensees that an effective receipt inspection and testing program is considered necessary to enhance the probability that any product installed will perform as expected. The generic letter will also endorse processes licensees may use to dedicate commercial grade products for use in safety-related applications. The generic letter will direct licensees to certify to the Commission that they have implemented such a program.

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

Acceptance of Products Purchased for use in Nuclear Power Plant Structures, Systems and Components

AGENCY: Nuclear Regulatory Commission.

ACTION: Advanced notice of proposed rulemaking.

SUMMARY: The Nuclear Regulatory Commission (Commission) is proposing to develop regulations requiring enhanced receipt inspection and testing of products purchased for use in nuclear power plant structures, systems and components. These regulations are believed to be necessary to provide an acceptable level of assurance that products purchased for use in nuclear power plants will perform as expected to protect the public health and safety. Recent experience has shown that some contractors and/or subcontractors have provided products for use in nuclear power plant structures, systems and components that are substandard, have falsified records or are otherwise misrepresented. This experience tends to reduce the confidence of the Commission that current industry practices provide assurance that these structures, systems and components actually satisfy the operational requirements necessary to protect public health and safety. This Advanced Notice of Proposed Rulemaking (ANPR) is intended to solicit comments on the need for additional regulatory requirements and to obtain an improved understanding of alternatives to regulatory requirements that could provide assurance that structures, systems and components procured for use in nuclear power plants will perform as expected to protect public health and safety.

In order to inform the public, industry and other government agencies of this proposal and to solicit timely comments as it proceeds, the Commission is

promulgating this notice and requests comments on the merits and substance of a new rule, or other requirements or alternatives.

DATE: The comment period expires (60 days after publication). Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given to comments received after this date.

ADDRESSES: Mail comments to: The Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch.

Deliver comments to: 11555 Rockville Pike, Rockville, Maryland between 7:30 a.m. and 4:15 p.m. Federal workdays.

Examine copies of comments received at: The NRC Public Document Room, Gelman Building, 2120 L Street, N.W., Washington, D.C.

FOR FURTHER INFORMATION CONTACT: Max J. Clausen, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Telephone (301) 492-0969.

SUPPLEMENTARY INFORMATION:

Background

Appendix B to 10 CFR Part 50, published in 1970 (35 FR 10498), established the

including those based on sole reliance of certifications and stated catalog specifications, have not been sufficient in all cases. (See NRC Compliance Bulletin No. 87-02 and Supplements 1 and 2, NRC Bulletin No. 88-05 and Supplements 1 and 2, NRC Bulletin No. 88-10, and NRC Information Notice Nu 88-19, NRC Information Notice No. 88-35, NRC Information Notice No. 88-46 and Supplement and NRC Information Notice No. 88-48¹).

In many cases, as in part discussed in the above referenced Bulletins and Information Notices, product acceptance practices have failed to detect such counterfeit or substandard products. Therefore, the Commission is considering developing regulations or seeking other methods that will provide an acceptable level of assurance that products purchased for use in nuclear power plant structures, systems and components satisfy requirements and specifications imposed to provide confidence that these items will perform as expected and required to protect the public health and safety.

The Commission's regulations provide two alternative approaches to assure that structures, systems and components satisfy requirements for safety-related applications. A licensee may procure products to the applicable Code or standard for the safety-related structure, system or component. Alternatively, the licensee may purchase a commercial grade product and then using the appropriate procedures and satisfying the Commission's requirements, dedicate the commercial grade product for the safety-related application. Procedures to upgrade commercial

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¹ These documents are available for inspection at the Commission's Public Document Room, Gelman Building, 2120 L Street, N.W., Washington, D.C.

grade items for use in nuclear safety-related structure, system and component applications are discussed in the recently published Electric Power Research Institute (EPRI) Report, EPRI NP-5652, "Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications (NCIG-07),"² which is the subject of Commission Generic Letter No. 88-_.² The experiences that have been discussed in the bulletins and information notices previously referenced apply to products which were obtained using both of the approaches mentioned in this paragraph.

The Commission is concerned about the quality of commercial products that are used throughout the nuclear plant including applications in the "balance of plant" structures, systems and components. This concern stems from a recognition that substandard structures, systems and components may not function as designed and may challenge safety-related systems unnecessarily or complicate the response to off normal events. Recognizing this concern commentors are requested to consider the issues and questions in this ANPR as they may relate to the need or desirability of more prescriptive regulations or alternatively a performance based requirement for safety-related applications and applications throughout the plant.

A broad spectrum of issues need to be considered prior to deciding on the scope and content of any proposed new regulatory requirements addressing the concerns

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² This document is available for inspection at the Commission's Public Document Room, Gelman Building, 2120 L Street, N.W., Washington, D.C.

raised by the experience discussed in the referenced bulletins and information notices. The following questions are posed to raise the issues that the Commission has identified, and are not to be considered to be complete nor intended to bound the scope of public comment on this ANPR. The questions are structured in two categories: 1. Products Procured for Use in Safety-Related Structure, System and Component Applications, and 2. Dedication of Commercial Grade Products for Use in Safety-Related Structure, System and Component Applications. Public comments are invited on each of the questions below. Each comment should identify the question to which it responds.

 Products Procured for Use in Safety-Related Structure, System and Component Applications

The questions in this section are categorized in four subsections: General, Ketallic Products, Nonmetallic Products, and Components.

1.1 General

1.1.1 Should the Commission establish specific requirements or performance based type requirements to ensure that products purchased for use in nuclear power plant structures, systems and components satisfy the operational requirements necessary to protect public health and safety?

- 1.1.2 What should the traceability requirements be for all products to be used in safety-related structures, systems and components including those procured commercial grade for subsequent upgrading to safety-related?
- 1.1.3 Should material traceability through all intermediary contractors, subcontractors and processors be required?
- 1.1.4 Should all critical characteristics e.g., materials, operations, functions, etc. be traceable?
- 1.1.5 Should there be any exceptions to the traceability requirements?
- 1.1.6 What should the requirements be for traceability, e.g., uniquely marking each part whenever possible, bagging, records, etc.?
- 1.1.7 Should product acceptances be restricted to inspections and tests or should product acceptances include, on a sample basis, destructive inspections and tests to verify chemical and physical circracteristics?
- 1.1.8 What types of inspections and tests (appropriate for the various types of products) should be required?
- 1.1.9 Should licensees, contractors and subcontractors be encouraged to perform joint testing?

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- 1.1.10 If destructive inspections and tests are determined to be necessary, what should the sampling basis be (per vendor, per purchase order, per shipment, per lot, per container, etc.)?
- 1.1.11 Should sample plan testing be permitted for testing or should such testing be on a 100 percent basis?
- 1.1.12 What criteria should be used for allowing sample plan testing during product acceptance?
- 1.1.13 Should the shelf life of appropriate types of structures, systems and components be inspected and verified acceptable during product acceptances?
- 1.1.14 To what extent will an effective vendor audit program and maintenance of a qualified vendor list reduce the likelihood of questionable products being used in nuclear power plants?
- 1.1.15 What are the essential elements e.g., team composition, depth of audits, and approach that must be included in an effective vendor audit program?
- 1.1.16 What reinspection or reaudit frequency is appropriate to maintain confidence in those vendors on a qualified vendor list?

- 1.1.17 How do licensees assure that Code Certificate holders and "N" stamp vendors are current?
- 1.1.18 Is there an auditable method to demonstrate that licensees actually purchased the product from a qualified vendor, for example, a Code stamp holder certification?
- 1.1.19 Should negative inspection, testing, and audit results be shared with other parties?
- 1.1.20 Is a federal requirement necessary to permit this?
- 1.1.21 Are there restraint of trade, antitrust concerns or liabilities associated with these actions?
- 1.1.22 Should licensees, contractors and subcontractors be encouraged to make joint procurements and to share inspection/audit results of joint procurements to enhance the effectiveness of inspections/ audits?
- 1.1.23 If joint procurements and inspections/audits are encouraged, should controls be imposed and if so, what and how should these controls be imposed?

- 1.1.24 What audit and testing documentation should be required to provide traceability and confidence to all participants in joint product acceptances?
- 1.1.25 Should the NRC establish and publish a list of approved vendors for various products?
- 1.1.26 If so, how should vendors be selected?
- 1.1.27 If an approved list is established, who should be responsible for maintaining this list?
- 1.1.28 Should licensees be restricted to making procurements from this list?
- 1.1.29 Should the use of a Certificate of Conformance in the procurement process either be prohibited or, if allowed, restricted to issue by the original equipment manufacturer for items that have remained under their direct control?
- 1.1.30 Should the furnishing or original manufacturer's Certified Material Test Reports be made mandatory for procurements made of materials from intermediate Vendors?

- 1.1.38 What is the best way to coordinate any new requirements with the ASME Boiler and Pressure Vessel Code?
- 1.1.39 Should those new requirements that relate to areas covered by the ASME Boiler and Pressure Vessel Code (e.g., SA material specifications) be handled through the Code committee system?

1.1.40 To what extent should each of the above items be required for Other than safety-related components?

- 1.2 Metallic products (e.g., fasteners, piping, pipe fittings, weld rod, castings, forgings, bar stock, plate material, stampings, wire, cable, etc.)
 - 1.2.1 Should chemical analyses of the products be required as part of product acceptances?
 - 1.2.2 Should these analyses be performed by destructive (wet chemistry) or by nondestructive means?
 - 1.2.3 Should tests of mechanical properties (e.g., hardness, tensile, impact, etc.) be required as part of product acceptances?
 - 1.2.4 Should these tests be performed by destructive (lab, bench top) or by nondestructive means?

- 1.2.5 When destructive tests are required, are test coupons (when applicable) an acceptable source of test materials for the chemical and mechanical properties tests or should material samples be removed from actual products?
- 1.3 Nonmetallic products (e.g., lubricants, tape, elastomers, seals, paints, filters, etc.)
 - 1.3.1 Should chemical analyses be required for lubricants, tape, elastomers, etc. during product acceptances?
 - 1.3.2 Should these analyses be performed by destructive (wet chemistry) or by nondestructive means?
 - 1.3.3 Should physical property tests (e.g., viscosity for lubricants, hardness for elastomers, efficiency for filters, etc.) be required during product acceptances?
- 1.4 Components (e.g., pumps, valves, circuit breakers, controllers, electronic parts/assemblies and their replacement parts)
 - 1.4.1 Should components be subjected to functional tests during product acceptance?

- 1.4.2 Should components be disassembled, if necessary during product acceptance, to verify dimensional characteristics?
- 1.4.3 If not, what methods should be utilized to verify these characteristics?
- 1.4.4 Should the chemical and physical properties of component materials be analyzed during product acceptance inspections?

1.4.5 is so, what means should be utilized?

 Dedication of Commercial Grade Products for Use in Safety-Related Structure, System and Component Applications

The questions in this section are categorized in five subsections: General, Metallic Products, Nonmetallic Products, Components, and Others.

2.1 General

- 2.1.2 Should NRC regulations be revised to endorse and incorporate by reference, industry codes, standards, or guidance documents for dedication programs of commercial grade products for use in safety-related structure, system and component applications?
- 2.1.3 What should the traceability requirements be for all commercial products being upgraded for use in safety-related structures, systems and components?
- 2.1.4 Should material traceability through al' intermediary contractors, subcontractors and processors be required?
- 2.1.5 If item traceability is necessary, should there be any provisions for upgrading products whose traceability cannot be established?
- 2.1.6 If so, what should those provisions include?
- 2.1.7 Should the upgrading provisions be any different if the products are heat/lot identified or not?
- 2.1.8 What should the requirements be for traceability, e.g., marking, bagging, records?
- 2.1.9 Should products intended for use in applications where products are normally required to meet a specific standard be inspected to verify that all critical characteristics are met?

- 2.1.10 Should the shelf life of appropriate types of products be inspected and verified acceptable as part of the upgrade inspection process?
- 2.1.11 What types of shelf life controls should be imposed on products which are being upgraded for use in safety-related structures, systems and components?
- 2.1.12 Should all upgrade inspections be restricted to inspections and tests or should they include, on a sample basis, destructive inspections and tests to verify chemical and physical characteristics?
- 2.1.13 What types of inspections and tests (appropriate for the various types of products) should be required?
- 2.1.14 Should inspections verify all critical characteristics (e.g., chemistry, physical properties, dimensions, special processes, etc.)?
- 2.1.15 If destructive inspections and tests are determined to be necessary, how should samples be selected if products are heat/lot identified?
- 2.1.16 How should samples be selected if products are not heat/lot identified?

- 2.1.17 Should sample plan testing be permitted for nondestructive testing or should such testing be on a 100 percent basis?
- 2.1.18 What criteria should be used for allowing sample plan testing during upgrade inspection?
- 2.2 Metallic Products
 - 2.2.1 Should chemical analyses of the products be required as part of upgrade inspections?
 - 2.2.2 Should these analyses be performed by destructive (wet chemistry) or by nondestructive means?
 - 2.2.3 Should tests of mechanical properties (e.g., hardness, tensile, impact, etc.) be required as part of upgrade inspections?
 - 2.2.4 Should these tests be performed by destructive (lab, bench top) or by nondestructive means?
 - 2.2.5 If heat/lot traceable, is sample inspection (destructive and nondestructive) adequate for confirmation of critical characteristics?

- 2.2.6 If not heat/lot traceable, should products be either sample or 100 percent tested (e.g., haroness) to establish uniformity and then destructively analyzed (e.g., chemical analyses, tensile tested, impact tested, etc.) to determine acceptability?
- 2.2.7 Should requirements in addition to these included in industry standards (e.g., additional samples, etc.) be required?
- 2.2.8 When destructive tests are required, are test coupons (when available) an acceptable source of test materials for chemical and mechanical properties tests or should material samples be removed from actual products?
- 2.3 Nonmetallic Products
 - 2.3.1 Should chemical analyses be required for lubricants, tape, elastomers, etc., proposed for upgrading for use in safetyrelated systems?
 - 2.3.2 Should these analyses be performed by destructive (wet chemistry) or by nondestructive means?
 - 2.3.3 Should physical property tests (e.g., viscosity for lubricants, hardness for elastomers, efficiency for filters, etc.) be required?

- 2.3.4 Should critical characteristics be sample inspected or should 100 percent inspection of these characteristics be required?
- 2.4 Components
 - 2.4.1 Should each critical characteristic be inspected before acceptance for use in safety-related systems?
 - 2.4.2 Should the chemical and physical properties of component materials be analyzed during upgrade inspections?
 - 2.4.3 Where critical characteristics cannot be inspected on each piece, should it be acceptable to establish heat/lot traceability, establish uniformity of lot by sample inspection and thereby accept lot?
 - 2.4.4 Should components be subjected to functional tests on a sampling basis or should they be 100 percent functionally tested?
 - 2.4.5 If sample inspected, what should be the basis of performing only sample inspection?
 - 2.4.6 Should components be disassembled, if necessary, to verify critical dimensional characteristics?

- 2.4.7 Should this be done on a sampling basis or should 100 percent inspections be required?
- 2.4.8 What should the basis be for performing only sample inspections?
- 2.4.9 If components are not disassembled to verify dimensions, what methods should be utilized to verify dimensions?
- 2.5 Other Questions
 - 2.5.1 Are there any other agency/organization standards or programs that should be adopted for use in upgrading commercial grade products for use in safety-related systems?
 - 2.5.2 Should these standards or programs be endorsed by NRC regulations?
 - 2.5.3 Are there other alternatives which could provide the necessary assurances?

LIST OF SUBJECTS IN 10 CFR PART 50

Antitrust, Classified information, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, and Reporting and recordkeeping requirements. The authority citation for this document is: Sec. 161, Pub. L. 83-703, 68 Stat. 948, as amended (42 U.S.C. 2201); Sec. 201, Put. L. 93-438, 88 Stat. 1242, as amended (42 U.S.C. 5841).