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NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50 and 70

RIN 3150-AF87

Criticality Accident Requirements

AGENCY: Nuclear Regulatory Commission.

ACTION: Direct final rule with opportunity to comment.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to provide light-water nuclear power reactor licensees with greater flexibility in meeting the requirement that licensees authorized to possess more than a small amount of special nuclear material (SNM) maintain a criticality monitoring system in each area where the material is handled, used, or stored. This action is taken as a result of the experience gained in processing and evaluating a number of exemption requests from power reactor licensees and NRC's safety assessments in response to these requests that concluded that the likelihood of criticality was negligible.

EFFECTIVE DATE: The final rule is effective February 17, 1998, unless significant adverse comments are received by January 2, 1998. If the rule is delayed, timely notice will be published in the Federal Register.

ADDRESSES: Mail comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemaking and Adjudications Staff.

Hand deliver comments to 11555 Rockville Pike, Maryland, between 7:30 am and 4:15 pm on Federal workdays.

Copies of any comments received may be examined at the NRC Public Document Room, 2120 L Street NW, (Lower Level), Washington, DC.

For information on submitting comments electronically, see the discussion under Electronic Access in the Supplementary Information section. **FOR FURTHER INFORMATION CONTACT:** Stan Turel, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6234, e-mail spt@nrc.gov.

SUPPLEMENTARY INFORMATION:

Background

The Nuclear Regulatory Commission (NRC) is amending its regulations to provide persons licensed to construct or operate light-water nuclear power reactors with the option of either meeting the criticality accident requirements of paragraph (a) of 10 CFR 70.24 in handling and storage areas for SNM, or electing to comply with certain requirements that would be incorporated into 10 CFR Part 50. These are generally the requirements that the NRC has used to grant specific exemptions to the requirements of 10 CFR 70.24. In addition, the NRC is revising the current text of the section relating to seeking specific exemptions from regulations in 10 CFR 70.24(d) which provided that a licensee could seek an exemption to all or part of 10 CFR 70.24 for good cause because it is redundant to 10 CFR 70.14(a). A modified 10 CFR 70.24(d) is being added to provide that the requirements in paragraph (a) through (c) of 10 CFR Part 70.24 do not apply to holders of a construction permit or operating license for a nuclear power reactor issued pursuant to 10 CFR Part 50, or combined licenses issued under 10 CFR Part 52, if the holders comply with the requirements of 10 CFR 50.68 (b).

The Commission's regulations in 10 CFR 70.24 require that each licensee authorized to possess more than a small amount of SNM maintain a criticality monitoring system "using gamma- or neutron-sensitive radiation detectors which will energize clearly audible alarm signals if accidental criticality occurs" in each area in which such material is handled, used, or stored. The regulation also specifies sensitivity requirements for these monitors and details the training that licensees must conduct in connection with criticality monitor alarms. The purpose of this section is to ensure that if a criticality were to occur during the handling of

SNM, personnel would be alerted and would take appropriate action.

Most nuclear power plant licensees were granted exemptions from 10 CFR 70.24 during the construction of their plants as part of the 10 CFR Part 70 license issued to permit the receipt of the initial core. Generally, these exemptions were not explicitly renewed when the 10 CFR Part 50 operating license, which now contained the combined Part 50 and Part 70 authority, was issued. The requirements in 10 CFR 70.24 prescribe the attributes required of the monitoring and alarm system. Compliance with these requirements may be unnecessary for commercial power reactors where the conditions which could lead to a criticality event are so unlikely that the probability of occurrence of an inadvertent criticality is negligible. The NRC anticipated that the regulation might be unnecessary for some licensees and included in 10 CFR 70.24(d) an invitation to any licensee to seek an exemption to the entire section or part of the section for good cause. A large number of exemption requests have been submitted by power reactor licensees and approved by the NRC based on safety assessments which concluded that the likelihood of criticality was negligible. Because of the experience gained in processing these exemption requests, the NRC concluded that the regulations should be amended to provide this flexibility without requiring licensees to go through the exemption process.

Discussion

At a commercial nuclear power plant, the reactor core, the fresh fuel delivery area, the fresh fuel storage area, the spent fuel pool, and the transit areas among these, are areas where amounts of SNM sufficient to cause a criticality exist. In addition, SNM may be found in laboratory and storage locations of these plants, but an inadvertent criticality is not considered credible in these areas due to the amount and configuration of the SNM. The SNM that could be assembled into a critical mass at a commercial nuclear power plant is only in the form of nuclear fuel. Nuclear power plant licensees have procedures and the plants have design features to prevent inadvertent criticality. The inadvertent criticality that 10 CFR 70.24 is intended to address could only occur during fuel-handling operations.

In contrast, at fuel fabrication facilities SNM is found and handled routinely in various configurations in addition to fuel. Although the handling of SNM at these facilities is controlled by procedures, the variety of forms of SNM and the frequency with which it is handled provides greater opportunity for an inadvertent criticality than at a nuclear power reactor.

At power reactor facilities with uranium fuel nominally enriched to no greater than five (5.0) percent by weight, the SNM in the fuel assemblies cannot go critical without both a critical configuration and the presence of a moderator. Further, the fresh fuel storage array and the spent fuel pool are in most cases designed to prevent inadvertent criticality, even in the presence of an optimal density of unborated moderator. Inadvertent criticality during fuel handling is precluded by limitations on the number of fuel assemblies permitted out of storage at the same time. In addition, General Design Criterion (GDC) 62 in Appendix A to 10 CFR Part 50 reinforces the prevention of criticality in fuel storage and handling through physical systems, processes, and safe geometrical configuration. Moreover, fuel handling at power reactor facilities occurs only under strict procedural control. Therefore, the NRC considers a fuel-handling accidental criticality at a commercial nuclear power plant to be extremely unlikely. The NRC believes the criticality monitoring requirements of 10 CFR 70.24 are unnecessary as long as design and administrative controls are maintained.

Because the NRC considers an inadvertent criticality to be unlikely at a nuclear power reactor, by this rulemaking it is granting nuclear power reactor licensees a choice—either meet the criticality monitoring requirements of 10 CFR 70.24 or in lieu of those criticality monitoring requirements meet certain criteria related to procedures, plant design, and fuel enrichment. These criteria are incorporated into section 50.68(b) of 10 CFR Part 50 by this direct final rule.

The three changes in the requirements are as follows:

- (1) Section 50.68(a) provides that each holder of a construction permit or operating license for a nuclear power reactor issued under Part 50, or a combined license for a nuclear power reactor issued under Part 52 shall comply with either 10 CFR 70.24 or the seven requirements in section 50.68(b).
- (2) Section 50.68(b) provides that each licensee as described in 50.68(a) shall comply with the seven listed requirements in lieu of maintaining a

monitoring system capable of detecting a criticality as described in 10 CFR 70.24.

(3) The revised section 70.24(d) provides that the requirements in 10 CFR 70.24 (a) through (c) do not apply to holders of a construction permit or operating license for a nuclear power reactor issued pursuant to 10 CFR Part 50, or combined licenses issued under 10 CFR Part 52, if the holders comply with the requirements of paragraph (b) of 10 CFR 50.68.

Procedural Background

Because NRC considers these amendments to its rules to be noncontroversial and routine, public comment on these amendments is unnecessary. The amendments to the rules will become effective on February 17, 1998. However, if the NRC receives significant adverse comments on the companion proposal published concurrently in the proposed rules section of this *Federal Register* by January 2, 1998, then the NRC will publish a document that withdraws this action and will address the comments received in response to the amendments. Such comments will be addressed in a subsequent final rule. The NRC will not initiate a second comment period on this action.

Findings

Upon review of this rulemaking, that the changes and additions addressed by this rulemaking do not significantly affect the environmental cost-benefit balance that otherwise would justify the licensing of a light-water nuclear power reactor. The basis for this finding is that this rule is a codification of practices in place and does not significantly affect the cost-benefit balance for a light-water reactor.

Metric Policy

On October 7, 1992, the Commission published its final Policy Statement on Metrication. According to that policy, after January 7, 1993, all new regulations and major amendments to existing regulations were to be presented in dual units. The new addition and amendment to the regulations contain no units.

Environmental Impact: Categorical Exclusion

The NRC has determined that this proposed regulation is the type of action described in categorical exclusion 10 CFR 51.22(c)(3). Therefore neither an environmental impact statement nor an environmental assessment has been prepared for this proposed regulation.

Electronic Access

You may also provide comments via the NRC's interactive rulemaking web site through the NRC home page (<http://www.nrc.gov>). This site provides the availability to upload comments as files (any format), if your web browser supports that function. For information about the interactive rulemaking site, contact Ms. Carol Gallagher, (301) 415-6215; e-mail CAG@nrc.gov.

Paperwork Reduction Act Statement

This direct final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). Existing requirements were approved by the Office of Management and Budget, approval numbers 3150-0009 and 3150-0011.

Public Protection Notification

If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

Regulatory Analysis

The structure of the current 10 CFR 70.24 is overly broad and places burden on a licensee to identify those areas or operations at its facility where the requirements are unnecessary, and to request an exemption if the licensee has sufficient reason to be relieved from the requirements. This existing structure has the potential to result in a large number of recurring exemption requests.

To relieve the burden on power reactor licensees of applying for, and the burden on the staff of granting recurring exemptions, this amendment permits power reactor facilities with nominal fuel enrichments no greater than 5 weight percent U-235 to be excluded from the scope of 10 CFR 70.24, provided they meet specific requirements being added to 10 CFR Part 50. This amendment is a result of the experience gained in processing and evaluating a number of exemption requests from power reactor licensees and NRC's safety assessments in response to these requests that concluded that the likelihood of criticality was negligible.

The only other viable option to this amendment is for the NRC to do nothing and allow the licensees to continue requesting exemptions. If nothing is done, the licensees will continue to incur the costs of submitting exemptions and NRC will incur the costs of reviewing them. Under this rule, an easing of burden on the part of

licensees results by their not having to request exemptions. Similarly, the NRC will not need to review and evaluate these exemption requests, resulting in an easing of burden for the NRC.

This rule is not a mandatory requirement, but an easing of burden action which results in regulatory efficiency. Also, the rule does not impose any additional costs on licensees, has no negative impact on the public health and safety, but will provide certain licensees savings, and savings to the NRC as well. Hence, the rule is shown to be cost beneficial.

The foregoing constitutes the regulatory analysis for this final rule.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule, if adopted, will not have a significant economic impact on a substantial number of small entities. This rule affects only the licensees of nuclear power plants. These licensees, companies that are dominant in their service areas, do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act, 5 U.S.C. 601, or the size standards adopted by the NRC (10 CFR 2.810).

Backfit Analysis

The Commission has determined that a backfit analysis is not needed. This rule is a codification of practices in place by the NRC and is not a modification of or addition to systems, structures, components, or design of a facility; or the design approval or manufacturing license for a facility; or the procedures of organization required to design, construct or operate a facility; any of which may result from a new or amended provision in the Commission rules or the imposition of a regulatory staff position interpreting the Commission rules that is either new or different from a previously applicable NRC staff position (10 CFR Chapter I).

Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a "major rule" and has verified this determination with the Office of Information and Regulatory Affairs, Office of Management and Budget.

List of Subjects

10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire prevention,

Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 70

Criminal penalties, Hazardous materials transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the National Environmental Policy Act of 1969, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Parts 50 and 70.

PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

1. The authority citation for 10 CFR Part 50 continues to read as follows:

Authority: Secs. 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended 1244, 1246, (42 U.S.C. 5841, 5842, 5846).

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951, as amended by Pub. L. 102-486, sec. 2902, 106 Stat. 3123, (42 U.S.C. 5851). Sections 50.10 also issued under secs. 101, 185, 68 Stat. 936, 955, as amended (42 U.S.C. 2131, 2235); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.13, 50.54(dd), and 50.103 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138). Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102; Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 68 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 938 (42 U.S.C. 2152). Sections 50.80, 50.81 also issued under sec. 164, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F, also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

2. Section 50.68 is added under the center heading "Issuance, Limitations, and Conditions of Licenses and Construction Permits" to read as follows:

§ 50.68 Criticality accident requirements.

(a) Each holder of a construction permit or operating license for a nuclear power reactor issued under this part, or a combined license for a nuclear power reactor issued under part 52 of this chapter shall comply with either 10 CFR 70.24 of this chapter or requirements in paragraph (b).

(b) Each licensee shall comply with the following requirements in lieu of maintaining a monitoring system capable of detecting a criticality as described in 10 CFR 70.24:

(1) Plant procedures may not permit handling and transportation at any one time of more fuel assemblies than have been determined to be safely subcritical under the most adverse moderation conditions feasible by unborated water.

(2) The estimated ratio of neutron production to neutron absorption and leakage (k-effective) of the fresh fuel in the fresh fuel storage racks shall be calculated assuming the racks are loaded with fuel of the maximum permissible U-235 enrichment and flooded with pure water and must not exceed 0.95, at a 95 percent probability, 95 percent confidence level.

(3) If optimum moderation of fresh fuel in the fresh fuel storage racks occurs when the racks are assumed to be loaded with fuel of the maximum permissible U-235 enrichment and filled with low-density hydrogenous fluid, the k-effective corresponding to this optimum moderation must not exceed 0.98, at a 95 percent probability, 95 percent confidence level.

(4) If no credit for soluble boron is taken, the k-effective of the spent fuel storage racks loaded with fuel of the maximum permissible U-235 enrichment must not exceed 0.95, at a 95 percent probability, 95 percent confidence level, if flooded with pure water. If credit is taken for soluble boron, the k-effective of the spent fuel storage racks loaded with fuel of the maximum permissible U-235 enrichment must not exceed 0.95, at a 95 percent probability, 95 percent confidence level, if flooded with borated water, and the k-effective must remain below 1.0 (subcritical), at a 95 percent probability, 95 percent confidence level, if flooded with pure water.

(5) The quantity of SNM, other than nuclear fuel stored on site, is less than the quantity necessary for a critical mass.

(6) Radiation monitors, as required by GDC 63, are provided in storage and associated handling areas when fuel is present to detect excessive radiation levels and to initiate appropriate safety actions.

(7) The maximum nominal U-235 enrichment of the fresh fuel assemblies is limited to no greater than five (5.0) percent by weight.

PART 70—DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

1. The authority citation for 10 CFR Part 70 continues to read as follows:

Authority: Secs. 51, 53, 161, 182, 183, 68 Stat. 929, 930, 948, 953, 954, as amended, sec. 234, 83 Stat. 444, as amended, sec. 1701, 106 Stat. 2951, 2952, 2953 (42 U.S.C. 2071, 2073, 2201, 2232, 2233, 2282, 2297f); secs. 201, as amended, 202, 204, 206, 88 Stat. 1242, as amended, 1244, 1245, 1246, (42 U.S.C. 5841, 5842, 5845, 5846).

Sections 70.1(c) and 70.20a(b) also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161). Section 70.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 70.21(g) also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 70.31 also issued under sec. 57d, Pub. L. 93-377, 88 Stat. 475 (42 U.S.C. 2077). Sections 70.36 and 70.44 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234).

Section 70.61 also issued under secs. 186, 187, 68 Stat. 955 (42 U.S.C. 2236, 2237). Section 70.62 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138).

2. In § 70.24, paragraph (d) is revised to read as follows:

§ 70.24 Criticality accident requirements.

(d) The requirements in paragraph (a) through (c) of this section do not apply to holders of a construction permit or operating license for a nuclear power reactor issued pursuant to part 50 of this chapter, or combined licenses issued under part 52 of this chapter, if the holders comply with the requirements of paragraph (b) of 10 CFR 50.68 of this chapter.

Dated at Rockville, Maryland this 14th day of November, 1997.

For the Nuclear Regulatory Commission.
L. Joseph Callan,
Executive Director for Operations.
[FR Doc. 97-31733 Filed 12-2-97; 8:45 am]
BILLING CODE 7890-01-P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 96-CE-99-AD; Amendment 39-10229; AD 96-24-17 R1]

RIN 2120-AA64

Airworthiness Directives; The Don Luscombe Aviation History Foundation Models 8, 8A, 8B, 8C, 8D, 8E, 8F, T-8F Airplanes; Correction

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; correction.

SUMMARY: This document clarifies information in airworthiness directive (AD) 96-24-17, which applies to Don Luscombe Aviation History Foundation (Luscombe) Models 8, 8A, 8B, 8C, 8D, 8E, 8F, T-8F airplanes. AD 96-24-17 currently requires installing new inspection holes, modifying the wing tip fairings, and inspecting the wing spars for intergranular corrosion. The actions specified in AD 96-24-17 are intended to prevent wing spar failure from intergranular corrosion, which could result in structural failure of the wings and loss of control of the airplane. The AD was published with an Appendix providing an alternative method of compliance. Since issuance of AD 96-24-17, the FAA has re-examined the Appendix and has determined that clarification of certain inspections procedures is needed. This action clarifies the procedures specified in the Appendix of AD 96-24-17.

DATES: Effective January 27, 1997.

The incorporation by reference of the Don Luscombe Aviation History Foundation Recommendation #2, dated December 15, 1993, revised November 21, 1995, as listed in the regulations, was previously approved by the Director of the Federal Register as of January 27, 1997 (61 FR 66900, December 19, 1996).
FOR FURTHER INFORMATION CONTACT: Mr. Sol Davis, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, 3960 Paramount Boulevard, Lakewood, California 90712; telephone (562) 627-5233; facsimile (562) 627-5210.

SUPPLEMENTARY INFORMATION:

Discussion

On November 25, 1996, the FAA issued AD 96-24-17, Amendment 39-9841 (61 FR 66900, December 19, 1996), which applies to Luscombe Models 8, 8A, 8B, 8C, 8D, 8E, 8F, T-8F airplanes. This AD currently requires installing a total of four additional wing inspection

holes in the metal covered wings to assist in conducting a more thorough examination of the wing spars, modifying the wing tip fairing so that it is removable, and providing easier access to the interior of the wings. A one time inspection for intergranular corrosion is required for both metal covered and fabric covered wings on these Luscombe 8 series airplanes in the areas of the front and rear spar extrusions of the wing installations.

Need for the Correction

AD 96-24-17 was published with an Appendix that provided an alternative method of compliance. The FAA has received reports that certain portions of the Appendix need clarification. Therefore, the FAA re-examined the procedures specified in the Appendix and has clarified items 2, 4, 6, 7, and 8, as well as clarifying a note regarding additional wing support.

Correction of Publication

This document clarifies the Appendix to AD 96-24-17, and adds the AD as an amendment to § 39.13 of the Federal Aviation Regulations (14 CFR 39.13).

The AD, as corrected, is being printed in its entirety for the convenience of affected operators. The effective date of the AD remains January 27, 1997, which is the effective date of the AD as originally issued.

Since this action only clarifies the Appendix instructions, it has no adverse economic impact and imposes no additional burden on any person. Therefore, the FAA has determined that prior notice and opportunity for public comment are unnecessary.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Correction

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 USC 106(g), 40119, 44701. § 39.13 [Amended]

2. Section 39.13, is amended by removing Airworthiness Directive (AD) 96-24-17, Amendment 39-9841 (61 FR