

investigational new drug application under which the investigation was conducted, or the applicant or the applicant's predecessor in interest, provided substantial support for the investigation. To demonstrate "substantial support," an applicant must either provide a certified statement from a certified public accountant that the applicant provided 50 percent or more of the cost of conducting the study or provide an explanation why FDA should consider the applicant to have conducted or sponsored the study if the applicant's financial contribution to the study is less than 50 percent or the applicant did not sponsor the investigational new drug. A predecessor in interest is an entity, e.g., a corporation, that the applicant has taken over, merged with, or purchased, or from which the applicant has purchased all rights to the drug. Purchase of nonexclusive rights to a clinical investigation after it is completed is not sufficient to satisfy this definition.

Date of approval means the date on the letter from FDA stating that the new drug application is approved, whether or not final printed labeling or other materials must yet be submitted as long as approval of such labeling or materials is not expressly required. "Date of approval" refers only to a final approval and not to a tentative approval that may become effective at a later date.

Essential to approval means, with regard to an investigation, that there are no other data available that could support approval of the application.

FDA means the Food and Drug Administration.

New chemical entity means a drug that contains no active moiety that has been approved by FDA in any other application submitted under section 505(b) of the act.

New clinical investigation means an investigation in humans the results of which have not been relied on by FDA to demonstrate substantial evidence of effectiveness of a previously approved drug product for any indication or of safety for a new patient population and do not duplicate the results of another

investigation that was relied on by the agency to demonstrate the effectiveness or safety in a new patient population of a previously approved drug product. For purposes of this section, data from a clinical investigation previously submitted for use in the comprehensive evaluation of the safety of a drug product but not to support the effectiveness of the drug product would be considered new.

(b) *Submission of and effective date of approval of an abbreviated new drug application submitted under section 505(j) of the act or a 505(b)(2) application.* (1) [Reserved]

(2) If a drug product that contains a new chemical entity was approved after September 24, 1984, in an application submitted under section 505(b) of the act, no person may submit a 505(b)(2) application or abbreviated new drug application under section 505(j) of the act for a drug product that contains the same active moiety as in the new chemical entity for a period of 5 years from the date of approval of the first approved new drug application, except that the 505(b)(2) application or abbreviated application may be submitted after 4 years if it contains a certification of patent invalidity or noninfringement described in § 314.50(i)(1)(i)(A)(4) or § 314.94(a)(12)(i)(A)(4).

(3) The approval of a 505(b)(2) application or abbreviated application described in paragraph (b)(2) of this section will become effective as provided in § 314.107(b)(1) or (b)(2), unless the owner of a patent that claims the drug, the patent owner's representative, or exclusive licensee brings suit for patent infringement against the applicant during the 1-year period beginning 48 months after the date of approval of the new drug application for the new chemical entity and within 45 days after receipt of the notice described at § 314.52 or § 314.95, in which case, approval of the 505(b)(2) application or abbreviated application will be made effective as provided in § 314.107(b)(3).

(4) If an application:

(i) Was submitted under section 505(b) of the act;

(ii) Was approved after September 24, 1984;

(iii) Was for a drug product that contains an active moiety that has been previously approved in another application under section 505(b) of the act; and

(iv) Contained reports of new clinical investigations (other than bioavailability studies) conducted or sponsored by the applicant that were essential to approval of the application, the agency will not make effective for a period of 3 years after the date of approval of the application the approval of a 505(b)(2) application or an abbreviated new drug application for the conditions of approval of the original application, or an abbreviated new drug application submitted pursuant to an approved petition under section 505(j)(2)(C) of the act that relies on the information supporting the conditions of approval of an original new drug application.

(5) If a supplemental application:

(i) Was approved after September 24, 1984; and

(ii) Contained reports of new clinical investigations (other than bioavailability studies) that were conducted or sponsored by the applicant that were essential to approval of the supplemental application, the agency will not make effective for a period of 3 years after the date of approval of the supplemental application the approval of a 505(b)(2) application or an abbreviated new drug application for a change, or an abbreviated new drug application submitted pursuant to an approved petition under section 505(j)(2)(C) of the act that relies on the information supporting a change approved in the supplemental new drug application.

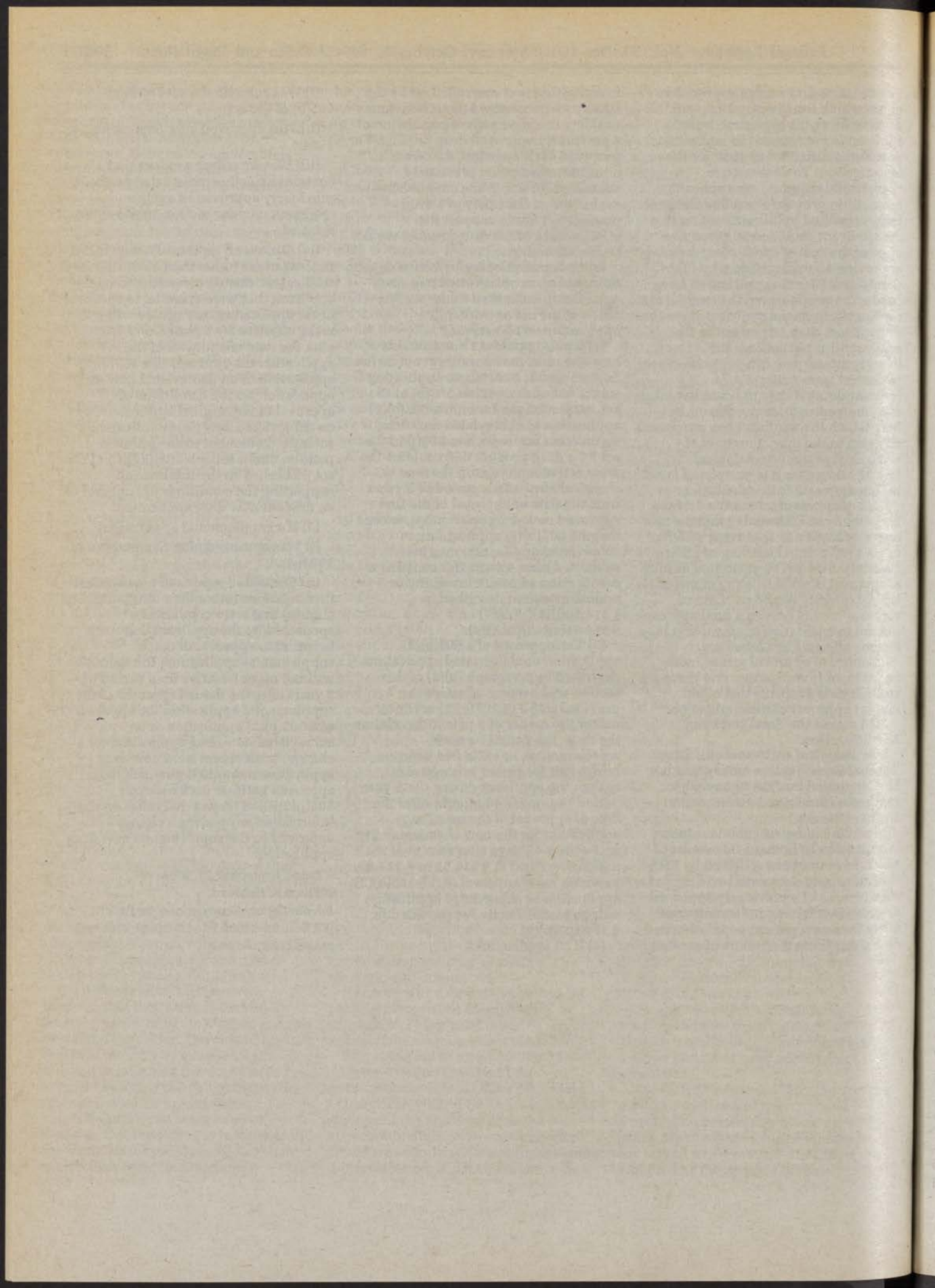
Dated: September 23, 1994.

William K. Hubbard,

Interim Deputy Commissioner for Policy.

[FR Doc. 94-24052 Filed 9-30-94; 8:45 am]

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Registered Federal Report

Monday
October 3, 1994

Part III

**Department of
Commerce**

**National Oceanic and Atmospheric
Administration**

50 CFR Parts 215 and 216
**General Authorization for Scientific
Research; Final Rule**

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 215 and 216

[Docket No. 940840-4262; I.D. 081694C]

RIN 0648-AH20

General Authorization for Scientific Research

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Interim final rule; request for comments.

SUMMARY: This interim final rule implements recent amendments to the Marine Mammal Protection Act of 1972 (MMPA) by amending the regulations implementing the MMPA to authorize, pursuant to a General Authorization for Scientific Research, the harassment of marine mammals in the wild for purposes of bona fide scientific research, that does not have the potential to injure marine mammals (Level B harassment).

DATES: The interim rule is effective on October 3, 1994. Comments must be postmarked or received by November 17, 1994.

ADDRESSES: Comments or requests for the Environmental Assessment (EA) prepared for this action should be sent to Chief, Permits Division, F/PR1, Office of Protected Resources, NMFS, 1335 East-West Highway, Silver Spring, MD 20910-3226. Comments regarding the burden-hour estimate or any other aspect of the collection-of-information requirement contained in this rule should be sent to Ann D. TerBush at the above address and to the Office of Management and Budget (OMB), Attention: NOAA Desk Officer, Washington, DC 20503.

FOR FURTHER INFORMATION CONTACT: Ann D. TerBush, (301) 713-2289.

SUPPLEMENTARY INFORMATION:

General Background and Statutory Information

Marine Mammal Protection Act

The MMPA (16 U.S.C. 1361 *et seq.*) places a moratorium on the taking and importing of marine mammals by persons subject to U.S. jurisdiction with limited exceptions. One exception is for the taking or importing of marine mammals for purposes of scientific research. The MMPA Amendments of 1994 (1994 Amendments), enacted on April 30, 1994 (P.L. 103-238), among

other things, require that, within 120 days of enactment, NMFS issue a General Authorization for Scientific Research and implementing regulations allowing takings of marine mammals in the wild for purposes of bona fide scientific research by no more than Level B harassment (pursuit, torment, or annoyance of marine mammals that does not have the potential to injure marine mammals).

The 120-day deadline requires that this General Authorization be issued by interim final rule without prior notice and opportunity for prior public comment. Comments on the General Authorization and implementing regulations are invited and will be considered in issuing a final rule.

Level B harassment is defined as any act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but does not have the potential to injure a marine mammal or marine mammal stock in the wild. Level A harassment is defined as any act which has the potential to injure a marine mammal or marine mammal stock in the wild. In general, except for small take authorizations for harassment under section 101(a)(5)(D) of the MMPA, a permit is required to take by Level A harassment. And, a permit is also required to hunt, capture, or kill marine mammals for the purposes of scientific research, public display, or enhancing the survival or recovery of a species or stock, or to take by Level B harassment for photography for educational or commercial purposes.

Fur Seal Act

In proposed revised permit regulations published on October 14, 1993 (58 FR 53320), NMFS proposed consolidating three sets of permit regulations that have been implemented under the MMPA, the Fur Seal Act of 1966 (FSA) (16 U.S.C. 1151 *et seq.*), and the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 *et seq.*). This interim final rule revises the permit sections of the implementing regulations of the FSA (50 CFR part 215) to reference MMPA permit regulations (50 CFR part 216, subpart D) as the applicable regulations for the taking of North Pacific fur seals for scientific research or exhibition purposes. The FSA permit regulations are also revised to allow the taking of North Pacific fur seals involving only Level B harassment for the purpose of scientific research under this interim final rule. (Note:

North Pacific fur seals (Pribilof Island population) have been designated as depleted under the MMPA.)

Collection of Certain Marine Mammal Parts

In enacting the 1994 Amendments it was the apparent intent of Congress to allow under a General Authorization the conduct of scientific research activities involving certain low-impact types of taking of marine mammals in the wild, with the goal of making a permit unnecessary for scientific research involving types of taking that do not have the potential to injure marine mammals or marine mammal stocks. NMFS believes that such types of low-impact taking include the collection of tissues, fluids, or other marine mammal parts sloughed, excreted, or otherwise discharged naturally by marine mammals in the wild, where such collection may not necessarily involve the harassment of living marine mammals in the wild. Accordingly, NMFS is amending § 216.26 of the implementing regulations (50 CFR part 216) to allow for purposes of bona fide scientific research, without issuance of a permit, the collection of any tissues, fluids or other marine mammal parts naturally sloughed, excreted or otherwise discharged by a living marine mammal in the wild. Section 216.26 is also amended to: (1) Ensure that requirements for the registration, identification, transfer, or other possession of such marine mammal parts are consistent with those already established for parts salvaged from beached or stranded marine mammals (§ 216.22(c)); (2) require that, in registering such marine mammal parts, the person collecting the part must also state the scientific research purpose for which the part was collected; and (3) prohibit the sale or trade of any such marine mammal part for commercial purposes.

Discussion of General Authorization and Implementing Regulations

The implementing regulations for the General Authorization are organized into five parts: (1) The General Authorization and the types of activities covered; (2) letter of intent requirements; (3) procedures for confirming that the General Authorization applies or notifying the applicant that a permit is required; (4) the terms and conditions applicable to activities conducted under the General Authorization, including reporting requirements; and (5) the circumstances under which NMFS may suspend, revoke, or modify the authority to

conduct scientific research under the General Authorization.

Scope

Activities Included Under the General Authorization

Research activities that are likely to involve only Level B harassment of marine mammals, and therefore that may be conducted under the General Authorization consistent with the requirements of these regulations, include: Photo-identification studies; behavioral observations; vessel surveys; and aerial surveys over water or land, and over pinniped rookeries if flown at altitudes greater than 1,000 ft (305 meters (m)). These activities are listed in § 216.45(a)(3). This list may be expanded as new information becomes available and NMFS determines that other types of research activities are likely to involve only Level B harassment. Comment is requested regarding what other types of research activities are likely to involve only Level B harassment (i.e., no potential to injure) and can be clearly and uniquely categorized as such in the final rule.

The General Authorization also applies to persons issued a scientific research permit under the ESA that authorizes the taking by Level B harassment of marine mammals listed as threatened or endangered. An ESA permit holder authorized to conduct Level B harassment is not required to submit a separate letter of intent. Such Level B activities are included under the MMPA General Authorization for Scientific Research and no letter of confirmation is needed.

Activities Not Included Under the General Authorization

As stated in section 2(b) of the 1994 Amendments, "Except as otherwise expressly provided, nothing in this Act is intended to amend, repeal, or otherwise affect any other provision of law." Thus, marine mammals listed as endangered or threatened under the ESA may be taken for purposes of scientific research only after issuance of a permit for such activities pursuant to the ESA (50 CFR part 222). And, except for Level B harassment, other types of taking of marine mammals listed as threatened or endangered that are authorized under an ESA permit for scientific research are not authorized under the General Authorization.

Research activities involving the harassment of marine mammals in the wild that have the potential to injure a marine mammal (Level A harassment) are not covered by the General Authorization. They may be conducted

only pursuant to a scientific research permit. Likewise, activities that involve the hunting, capturing, or killing of marine mammals for the purposes of scientific research, public display, or enhancing the survival or recovery of a species or stock, or taking by Level B harassment for photography for educational or commercial purposes, are not covered by the General Authorization and require a permit.

Although most population surveys are likely to involve only Level B harassment or no harassment at all, pinniped rookeries are an area of concern because many pinniped species stampede into the water when startled or otherwise threatened by a potential predator or by human activity. When a stampede occurs in a haulout area (in the non-reproductive season), it generally does not involve a potential injury, but in a rookery situation, a stampede has the potential to injure pups. The 1,000 ft (305 m) threshold for aerial surveys over pinniped rookeries serves as an objective standard that may be used to determine whether such research may be conducted under the General Authorization or may involve potential injury to marine mammals (i.e., Level A harassment) and, therefore, require a permit. In this regard, NMFS is interested in comments on whether different species-specific aerial survey altitudes or methods associated with minimal disturbance have been established definitively in the scientific literature.

In the interest of simplicity and predictability, the interim final rule limits research activities that may be conducted under the General Authorization to only those types listed in § 216.45(a)(3). In preparing this interim final rule, however, NMFS considered including provisions that would have allowed research activities other than those types listed in § 216.45(a)(3) to be included under the General Authorization; *Provided*, That in the letter of intent the applicant described the activity and furnished supporting documentation sufficient for NMFS to determine that the activity likely would involve only Level B harassment. For example, although bleach marking of pinnipeds in the wild is a type of research that could injure marine mammals (Level A harassment), if the activity is being conducted by an experienced researcher using only non-toxic bleaching agents and proven direct application methods on a species for which there is an established record of tolerance of such methods without any disturbance with potential to injure (e.g., Northern elephant seals, *Mirounga angustirostris*), NMFS, upon receipt of a

letter of intent containing sufficient documentation, could determine such activity likely would involve only Level B harassment and that the activity could be conducted under the General Authorization. NMFS is requesting comment on whether the final rule should include such flexibility; i.e., allow persons to conduct, under the General Authorization, a research activity that has not been listed in the regulations as a type of research likely to involve only Level B harassment, if sufficient documentation is submitted to NMFS to make a determination that the activity is bona fide scientific research and does not involve the potential to injure marine mammals or marine mammal stocks.

Applicants

An applicant submitting a letter of intent to conduct scientific research under the General Authorization must be the principal investigator, or the appropriate institution, government entity, or corporation responsible for the supervision of the principal investigator. If the research involves co-investigators, a single principal investigator, who will be primarily responsible for the research to be conducted under the General Authorization, must submit the letter of intent, with all co-investigators identified as such. Identification of both principal and co-investigators ensures accountability for activities conducted under the General Authorization.

All persons conducting an activity under the authority of the General Authorization must possess qualifications (e.g., education or experience) commensurate with their duties and responsibilities, or must be under the direct supervision of a person with such qualifications. Applicants must enclose with the letter of intent, curricula vitae for themselves and any co-investigators that may conduct research activities under the General Authorization. NMFS will consider this information in determining whether the research as described in the letter of intent can be expected to be conducted in a manner involving no more than Level B harassment of marine mammals or marine mammal stocks.

Letter of Intent

Persons intending to conduct a scientific research activity of the type listed in § 216.45 (a)(3) under the General Authorization must submit, at least 60 days before commencement of such research, a letter of intent by certified return/receipt mail to the Chief, Permits Division, F/PR1, Office of Protected Resources, NMFS, 1335 East-

West Highway, Silver Spring, MD 20910-3226. Persons issued an ESA scientific research permit authorizing the take of marine mammals in the wild by Level B harassment, however, need not submit a letter of intent. Those Level B activities are covered by the General Authorization, and no letter of confirmation is needed.

All letters of intent must include the name, address, telephone number, qualifications, and experience of the applicant (i.e., principal investigator) and any co-investigator(s). Curricula vitae must be provided for each, including a list of publications by such investigator relevant to the objectives, methodology, or other aspects of the proposed research. Each letter of intent must be signed, dated, and include the certification statement specified at § 216.45(b)(3).

Each letter of intent must include brief statements responsive to the information requirements of section 104(c)(3)(C) of the MMPA: The species or stocks of marine mammals (common and scientific names) that are the subject of the scientific research and any other species or stock of marine mammals that may be harassed during the conduct of the research; the geographic location(s) in which the research is to be conducted, e.g., geographic name or lat./long.; the period(s) of time over which the research will be conducted (up to 5 years), including the field season(s) for the research, if applicable; the purpose of the research, including a description of how the proposed research qualifies as bona fide research; and the methods to be used to conduct the research.

Confirmation Letter or Notification of Permit Requirement

No later than 30 days after receipt of a letter of intent, NMFS will issue a letter to the applicant either: Confirming that the General Authorization applies, notifying the applicant that all or part of the proposed research does not qualify for the General Authorization and that a scientific research permit is required, or notifying the applicant that the letter of intent was insufficient to determine whether the General Authorization applies and identifying the deficiencies to enable the applicant to revise and resubmit the letter.

The Marine Mammal Commission (MMC) and Committee of Scientific Advisors were established under Title II of the MMPA to, among other things, review applications for permits for the taking or import of marine mammals and provide comment and recommendations to NMFS. Although the 1994 Amendments do not provide

for the involvement of either the MMC or the Committee of Scientific Advisors in the General Authorization for Scientific Research, a copy of each letter of intent and NMFS' response will be forwarded to the MMC. This will allow the MMC to review all research activities involving marine mammals, including research conducted under the General Authorization.

Any suspension, revocation, or modification of the authorization under the General Authorization will be conducted in accordance with 15 CFR part 904.

Terms and Conditions

Monitoring and Coordination

In order to ensure that research activities conducted under the General Authorization do not either individually or cumulatively result in takes other than by Level B harassment, NMFS plans to coordinate and monitor research activities. Monitoring will be accomplished, in part, through NMFS and MMC review of required annual reports. Coordination of research activities will be accomplished, in part, by requiring persons conducting research under the General Authorization to notify the appropriate NMFS Regional Office(s) at least 2 weeks before initiation of on-site activities. The Regional Office(s) will review these notifications and coordinate upcoming research to minimize adverse impacts on marine mammals in the wild. Where appropriate, Regional Offices may convene meetings to coordinate research under the General Authorization. In the event of any circumstance where research activities result in a taking which exceeds Level B harassment, for example, in the case of potential or actual injury to or death of a marine mammal or marine mammal stocks in the wild, research activities must be immediately discontinued and the principal investigator must notify NMFS. NMFS will determine whether: The research activity in question may continue under the General Authorization; revision of the research methodology is necessary to remove any potential to injure marine mammals or marine mammal stocks; or, a permit is necessary to continue the research. The reporting of such incidents is a condition of conducting research under the General Authorization. Similarly, in certain instances (e.g., reports of abuse of the General Authorization), it may be necessary for a NMFS observer to monitor research activities directly. Therefore, a condition of conducting research under the General

Authorization is that, upon notification, the principal investigator must allow a NMFS observer to observe research activities.

Reporting Requirements

Persons conducting research under the General Authorization must submit annual reports of activity. This information will be used to monitor the effects of the activities on individual animals and their populations, to assess possible cumulative impacts, and to determine whether the activity is being conducted as described in the letter of intent. Annual reports will also be used to track the progress of the research, to determine whether the research continues to meet the bona fide requirement, and to allow for coordination with similar research in the same area.

Photography (e.g., still photography, videotaping, and motion picture filming) often will be one of the methodologies employed by researchers engaged in scientific research under the General Authorization. Such photography does not require a photography permit issued under the MMPA provided the primary use of the resulting images will be for the conduct of the research or presenting or publishing the results. In such case, such images may be incidentally used for other scientific, educational, or commercial purposes provided the names of all photographers are disclosed in the annual report and any photographs, videotape, or film obtained during the conduct of research under the General Authorization are identified by a statement that refers to the General Authorization and includes the file number provided by NMFS in the confirmation letter, the name of the photographer, and the date the image was taken. This statement must accompany the image(s) in all subsequent uses or sales. The annual report must note incidental scientific, educational, or commercial uses of the images. However, if the primary use of the images will be for educational or commercial use, a separate photography permit must first be obtained.

Classification

NMFS prepared an EA for this action and concluded that this interim final rule will not significantly affect the human environment. As a result, preparation of an Environmental Impact Statement on this action is not required by section 102(2) of the National Environmental Policy Act or its implementing regulations. Copies of the EA are available on request (see ADDRESSES).

This interim final rule has been determined to be not significant for purposes of E.O. 12866.

Pursuant to section 553(b)(3)(B) of the Administrative Procedure Act (APA), the Assistant Administrator for Fisheries, NOAA, (AA) finds there is a good cause to waive prior notice and opportunity to comment on this rule. It is contrary to public interest to provide prior notice and opportunity for comment because of the deadline for implementation mandated by the 1994 Amendments.

Pursuant to section 553(d) of the APA, the AA finds there is good cause to waive the required 30-day delay in the effective date. Any delay in this action would deny timely coverage by the General Authorization to qualified persons. This General Authorization grants an exception from the MMPA requirement to obtain a scientific research permit for the taking of marine mammals.

This interim final rule involves an existing collection-of-information requirement subject to the Paperwork Reduction Act that has been approved by OMB (control number 0648-0084). The burden for collection of that information was estimated to average 43 hours per response, including the time to complete permit applications, complete reporting requirements, and request subsequent modifications or authorizations. The public reporting burden for the collection-of-information associated with the General Authorization established under the current rule is estimated to average 17 hours per response. Send any comments regarding these burden estimates or any other aspect of these requirements, including suggestions for reducing the burden to NMFS and OMB (see ADDRESSES).

List of Subjects

50 CFR Part 215

Administrative practice and procedure, Marine mammals, Penalties, Pribilof Islands, Reporting and recordkeeping requirements.

50 CFR Part 216

Administrative practice and procedure, Imports, Indians, Marine mammals, Penalties, Reporting and recordkeeping requirements, Transportation.

Dated: September 27, 1994.

Gary Matlock,

Program Management Officer, National Marine Fisheries Service.

For reasons set out in the preamble, 50 CFR parts 215 and 216 are amended as follows:

PART 215—PRIBILOF ISLANDS

1. The authority citation for part 215 is revised to read as follows:

Authority: 16 U.S.C. 1151-1175, and 1361 *et seq.*

2. Section 215.1 is revised to read as follows:

§ 215.1 Purpose and scope.

The purpose of these regulations is to implement the provisions of the Fur Seal Act of 1966, as amended. These regulations apply to the administration of the Pribilof Islands; the take of fur seals; and permits for the take, transportation, importation, exportation, or possession of fur seals or their parts for educational, scientific, or exhibition purposes.

3. Subpart B is revised to read as follows:

Subpart B—Permits for Scientific Research and Public Display

§ 215.11 Permits for scientific research and public display purposes.

In accordance with the provisions of part 216, subpart D, of this chapter, the Director, Office of Protected Resources, NMFS, may issue permits for the taking, transportation, importation, exportation, or possession of fur seals or their parts for scientific research or public display purposes, and may authorize Level B harassment (defined at § 216.3) of fur seals for scientific research purposes under the General Authorization for Scientific Research set forth at § 216.45.

PART 216—REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS

4. The authority citation for part 216 continues to read as follows:

Authority: 16 U.S.C. 1361 *et seq.*, unless otherwise noted.

5. In § 216.3, the definition of "Act" is revised, and new definitions "Bona fide scientific research," "ESA," "FSA," "Level A harassment," "Level B harassment," and "MMPA" are added, in alphabetical order, to read as follows:

§ 216.3 Definitions.

Acts means, collectively, the Marine Mammal Protection Act of 1972, as amended, 16 U.S.C. 1361 *et seq.*, the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 *et seq.*, and the Fur Seal Act of 1966, as amended, 16 U.S.C. 1151 *et seq.*

Bona fide scientific research: (1) Means scientific research on marine

mammals conducted by qualified personnel, the results of which:

(i) Likely would be accepted for publication in a refereed scientific journal;

(ii) Are likely to contribute to the basic knowledge of marine mammal biology or ecology. (Note: This includes, for example, marine mammal parts in a properly curated, professionally accredited scientific collection); or

(iii) Are likely to identify, evaluate, or resolve conservation problems.

(2) Research that is not on marine mammals, but that may incidentally take marine mammals, is not included in this definition (see sections 101(a)(3)(A), 101(a)(5)(A), and 101(a)(5)(D) of the MMPA, and sections 7(b)(4) and 10(a)(1)(B) of the ESA).

* * * * *

ESA means the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 *et seq.*

* * * * *

FSA means the Fur Seal Act of 1966, as amended, 16 U.S.C. 1151 *et seq.*

* * * * *

Level A Harassment means any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild.

Level B Harassment means any act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild.

* * * * *

MMPA means the Marine Mammal Protection Act of 1972, as amended, 16 U.S.C. 1361 *et seq.*

* * * * *

6. In part 216, all references to "the Act" are revised to read "MMPA" in the following places only.

Part/Sec.	Paragraph	Frequency
216	Table of Contents entry for § 216.14.	
216.2		1
216.3	Introductory text	1
216.6	(a)	1
	(b)	1
	(d)	1
	(e)	3
216.7	(a)	1
	(b)	1
216.8		5
216.12	(b)(1)(i)	1
216.13	(b)	1

Part/Sec.	Paragraph	Frequency
216.14	(c) Heading	1
	(a) Introductory text	2
	(b)(1)	1
216.15	Introductory text	1
216.21		2
216.23	(d)	2
216.24	(b)(2)(vii)	2
	(b)(2)(viii)	1
	(b)(4)	1
	(c)(8)	1
	(d)(2)(i)(D)	3
	(d)(2)(vi)	2
	(e)(7) introductory text	1
	(e)(7)(ii)	1
	(g)	1
216.25	(a) introductory text	1
216.31	(a)(10)	1
	(c)	2
216.70	(a) introductory text	1
	(a)(3)	1
216.72		2
216.73	(b)(4)	1

7. In subpart B, § 216.16 is added to read as follows:

§ 216.16 Prohibitions under the General Authorization for Level B harassment for scientific research.

It shall be unlawful for any person to:

(a) Provide false information in a letter of intent submitted pursuant to § 216.45(b);

(b) Violate any term or condition imposed pursuant to § 216.45(d).

8. In subpart C, paragraphs (b), (c), and (d) of § 216.26 are revised to read as follows:

§ 216.26 Collection of certain marine mammal parts.

* * *

(b) Any tissues, fluids or other marine mammal parts sloughed, excreted, or otherwise discharged naturally by a living marine mammal in the wild may be collected for purposes of bona fide scientific research, *Provided*, That such parts are not substances of significant commercial value, such as ambergris, and any such collection does not otherwise involve the taking of a living marine mammal in the wild except as authorized under other provisions of this part.

(c) Any marine mammal part collected under paragraphs (a) and (b) of this section must be registered and identified, and may be transferred or otherwise possessed, in accordance with § 216.22(c). In registering a marine mammal part collected under paragraph (b) of this section, the person who collected the part must also state the scientific research purpose for which the part was collected.

(d) *No sale or commercial trade.* No person may sell or trade for commercial

purposes any marine mammal part collected under this section.

§ 216.40 [Redesignated as § 216.50]

9. Section 216.40 is redesignated as § 216.50 of subpart E.

10. In subpart D, § 216.45 is added to read as follows:

§ 216.45 General Authorization for Level B harassment for scientific research.

(a) *General Authorization.* (1) Persons are authorized under section 104(c)(3)(C) of the MMPA to take marine mammals in the wild by Level B harassment, as defined in § 216.3, for purposes of bona fide scientific research *Provided*, That:

(i) They submit a letter of intent in accordance with the requirements of paragraph (b) of this section, receive confirmation that the General Authorization applies in accordance with paragraph (c) of this section, and comply with the terms and conditions of paragraph (d) of this section; or

(ii) If such marine mammals are listed as endangered or threatened under the ESA, they have been issued a permit under Section 10(a)(1)(A) of the ESA and implementing regulations at 50 CFR parts 217–227, particularly at § 222.23 through § 222.28, to take marine mammals in the wild for the purpose of scientific research, the taking authorized under the permit involves such Level B harassment of marine mammals or marine mammal stocks, and they comply with the terms and conditions of that permit.

(2) Except as provided under paragraph (a)(1)(ii) of this section, no taking, including harassment, of marine mammals listed as threatened or endangered under the ESA is authorized under the General Authorization. Marine mammals listed as endangered or threatened under the ESA may be taken for purposes of scientific research only after issuance of a permit for such activities pursuant to the ESA.

(3) The following types of research activities will likely qualify for inclusion under the General Authorization: Photo-identification studies, behavioral observations, and vessel and aerial population surveys (except aerial surveys over pinniped rookeries at altitudes of less than 1,000 ft).

(b) *Letter of intent.* Except as provided under paragraph (a)(1)(ii) of this section, any person intending to take marine mammals in the wild by Level B harassment for purposes of bona fide scientific research under the General Authorization must submit, at least 60 days before commencement of such research, a letter of intent by certified

return/receipt mail to the Chief, Permits Division, F/PR1, Office of Protected Resources, NMFS, 1335 East-West Highway, Silver Spring, MD 20910–3226.

(1) The letter of intent must be submitted by the principal investigator (who shall be deemed the applicant). For purposes of this section, the principal investigator is the individual who is responsible for the overall research project, or the institution, governmental entity, or corporation responsible for supervision of the principal investigator.

(2) The letter of intent must include the following information:

(i) The name, address, telephone number, qualifications and experience of the applicant and any co-investigator(s) to be conducting the proposed research, and a curriculum vitae for each, including a list of publications by each such investigator relevant to the objectives, methodology, or other aspects of the proposed research;

(ii) The species or stocks of marine mammals (common and scientific names) that are the subject of the scientific research and any other species or stock of marine mammals that may be harassed during the conduct of the research;

(iii) The geographic location(s) in which the research is to be conducted, e.g., geographic name or lat./long.;

(iv) The period(s) of time over which the research will be conducted (up to five years), including the field season(s) for the research, if applicable;

(v) The purpose of the research, including a description of how the proposed research qualifies as bona fide research as defined in § 216.3; and

(vi) The methods to be used to conduct the research.

(3) The letter of intent must be signed, dated, and certified by the applicant as follows:

In accordance with section 104(c)(3)(C) of the Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1361 *et seq.*) and implementing regulations (50 CFR part 216), I hereby notify the National Marine Fisheries Service of my intent to conduct research involving only Level B harassment on marine mammals in the wild, and request confirmation that the General Authorization for Level B Harassment for Scientific Research applies to the proposed research as described herein. I certify that the information in this letter of intent is complete, true, and correct to the best of my knowledge and belief, and I understand that any false statement may subject me to the criminal penalties of 18 U.S.C. 1001, or penalties under the MMPA and implementing regulations. I acknowledge and accept that authority to conduct scientific

research on marine mammals in the wild under the General Authorization is a limited conditional authority restricted to Level B harassment only, and that any other take of marine mammals, including the conduct of any activity that has the potential to injure marine mammals (i.e., Level A harassment), may subject me to penalties under the MMPA and implementing regulations.

(c) Confirmation that the General Authorization applies or notification of permit requirement.

(1) Not later than 30 days after receipt of a letter of intent as described in paragraph (b) of this section, the Chief, Permits Division, NMFS will issue a letter to the applicant either:

(i) Confirming that the General Authorization applies to the proposed scientific research as described in the letter of intent;

(ii) Notifying the applicant that all or part of the research described in the letter of intent is likely to result in a taking of a marine mammal in the wild involving other than Level B harassment and, as a result, cannot be conducted under the General Authorization, and that a scientific research permit is required to conduct all or part of the subject research; or

(iii) Notifying the applicant that the letter of intent fails to provide sufficient information and providing a description of the deficiencies, or notifying the applicant that the proposed research as described in the letter of intent is not bona fide research as defined in § 216.3.

(2) A copy of each letter of intent and letter confirming that the General Authorization applies or notifying the applicant that it does not apply will be forwarded to the Marine Mammal Commission.

(3) Periodically, NMFS will publish a summary document in the *Federal Register* notifying the public of letters of confirmation issued.

(d) Terms and conditions. Persons issued letters of confirmation in accordance with paragraph (c) of this section are responsible for complying with the following terms and conditions:

(1) Activities are limited to those conducted for the purposes, by the means, in the locations, and during the periods of time described in the letter of intent and acknowledged as authorized under the General Authorization in the confirmation letter sent pursuant to paragraph (c) of this section;

(2) Annual reports of activities conducted under the General Authorization must be submitted to the Chief, Permits Division (address listed in paragraph (b) of this section) within

90 days of completion of the last field season(s) during the calendar year or, if the research is not conducted during a defined field season, no later than 90 days after the anniversary date of the letter of confirmation issued under paragraph (c) of this section. Annual reports must include:

(i) A summary of research activities conducted;

(ii) Identification of the species and number of each species taken by Level B harassment;

(iii) An evaluation of the progress made in meeting the objectives of the research as described in the letter of intent; and

(iv) Any incidental scientific, educational, or commercial uses of photographs, videotape, and film obtained as a result of or incidental to the research and if so, names of all photographers.

(3) Authorization to conduct research under the General Authorization is for the period(s) of time identified in the letter of intent or for a period of 5 years from the date of the letter of confirmation issued under paragraph (c) of this section, whichever is less, unless extended by the Director or modified, suspended, or revoked in accordance with paragraph (e) of this section;

(4) Activities conducted under the General Authorization may only be conducted under the on-site supervision of the principal investigator or co-investigator(s) named in the letter of intent. All personnel involved in the conduct of activities under the General Authorization must perform a function directly supportive of and necessary for the research being conducted, or be one of a reasonable number of support personnel included for the purpose of training or as back-up personnel;

(5) The principal investigator must notify the appropriate Regional Director, NMFS, (Regional Director) in writing at least 2 weeks before initiation of on-site activities. The Regional Director shall consider this information in efforts to coordinate field research activities to minimize adverse impacts on marine mammals in the wild. The principal investigator must cooperate with coordination efforts by the Regional Director in this regard;

(6) If research activities result in a taking which exceeds Level B harassment, the applicant shall:

(i) Report the taking within 12 hours to the Director, Office of Protected Resources, or his designee as set forth in the letter authorizing research; and

(ii) Temporarily discontinue for 72 hours all field research activities that

resulted in the taking. During this time period, the applicant shall consult with NMFS as to the circumstances surrounding the taking and any precautions necessary to prevent future taking, and may agree to amend the research protocol, as deemed necessary by NMFS.

(7) NMFS may review scientific research conducted pursuant to the General Authorization. If requested by NMFS, the applicant must cooperate with any such review and shall:

(i) Allow any employee of NOAA or any other person designated by the Director, Office of Protected Resources to observe research activities; and

(ii) Provide any documents or other information relating to the scientific research;

(8) Any photographs, videotape, or film obtained during the conduct of research under the General Authorization must be identified by a statement that refers to the General Authorization or ESA permit number, and includes the file number provided by NMFS in the confirmation letter, the name of the photographer, and the date the image was taken. This statement must accompany the image(s) in all subsequent uses or sales. The annual report must note incidental scientific, educational, or commercial uses of the images, and if there are any such uses, the names of all photographers; and

(9) Persons conducting scientific research under authority of the General Authorization may not transfer or assign any authority granted thereunder to any other person.

(e) Suspension, revocation, or modification. (1) NMFS may suspend, revoke, or modify the authority to conduct scientific research under the General Authorization if:

(i) The letter of intent included false information or statements of a material nature;

(ii) The research does not constitute bona fide scientific research;

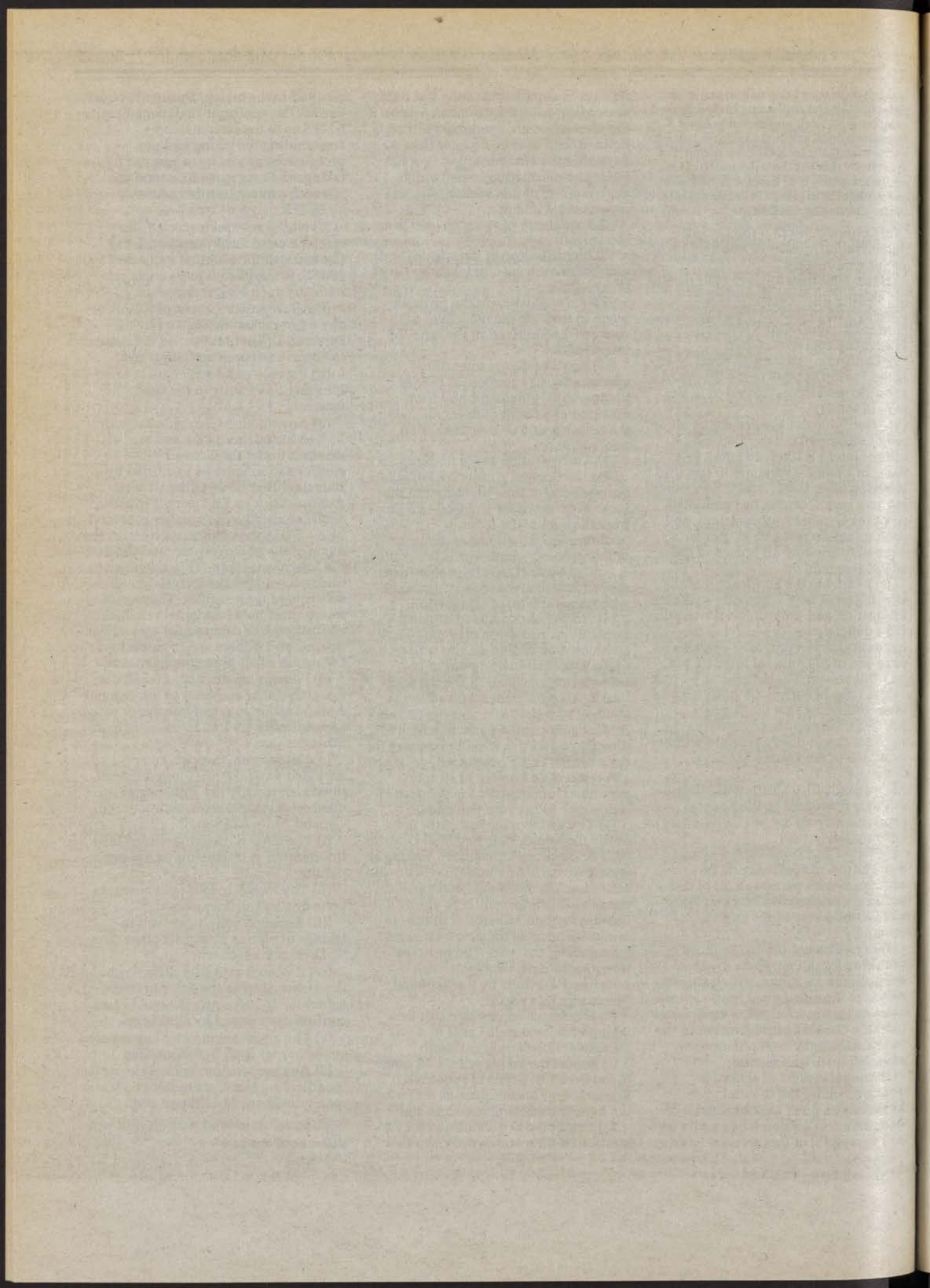
(iii) Research activities result in takings of marine mammals other than by Level B harassment;

(iv) Research activities differ from those described in the letter of intent submitted by the applicant and letter of confirmation issued by NMFS; or

(v) The applicant violates any term or condition set forth in this section.

(2) Any suspension, revocation, or modification is subject to the requirements of 15 CFR part 904.

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Crash Resistant Fuel System

Monday
October 3, 1994

Part IV

Department of Transportation

Federal Aviation Administration

14 CFR Parts 27 and 29

Airworthiness Standards; Crash Resistant
Fuel Systems in Normal and Transport
Category Rotorcraft; Final Rule

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 27 and 29

[Docket No. 26352 Amdts. 27-30, 29-35]

RIN 2120-AC68

Airworthiness Standards; Crash Resistant Fuel Systems in Normal and Transport Category Rotorcraft

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: These amendments add comprehensive crash resistant fuel system design and test criteria to the airworthiness standards for normal and transport category rotorcraft. Application of these standards will minimize fuel spillage near ignition sources and potential ignition sources and, therefore, will improve the evacuation time needed for crew and passengers to escape a post-crash fire (PCF). Implementation of these amendments will minimize the PCF hazard saving lives and substantially reducing the severity of physiological injuries sustained from PCF's in otherwise survivable accidents.

EFFECTIVE DATE: November 2, 1994.

FOR FURTHER INFORMATION CONTACT: Mr. Mike Mathias, Regulations Group, ASW-111, Rotorcraft Directorate, Aircraft Certification Office, FAA, Fort Worth, Texas 76193-0111, telephone number (817) 624-5123.

SUPPLEMENTARY INFORMATION:

Background

These amendments are based on a Notice of Proposed Rulemaking (NPRM) No. 90-24, issued September 27, 1990 (55 FR 41000, October 5, 1990). A correction to the NPRM was published on December 11, 1990 (55 FR 50931).

Post-crash fires (PCF's) are the primary cause of fatalities and injuries in otherwise survivable impacts resulting from rotorcraft accidents. It is estimated that 5 percent of the occupants in survivable rotorcraft accidents are killed or injured by PCF's annually. These types of fatalities and traumatic injuries will be substantially reduced by the implementation of the design and test criteria of this amendment. Nearly all PCF's are caused by crash-induced fuel leaks that quickly come in contact with ignition sources during or after impact. The fuel containment and hazard elimination provisions contained in this amendment will, in the majority of cases, give occupants the time necessary to escape

a survivable crash before a post-crash fire (PCF) could become life threatening. A crash resistant fuel system (CRFS) would not be expected to prevent all fires; however, a CRFS would, in the majority of survivable accidents, either prevent a PCF or delay the massive fire, or fireball, long enough to allow the occupants to escape. These standards have been validated by military safety statistics as significantly minimizing the PCF hazard and its associated fatalities and injuries.

Discussion of Comments

General

Thirteen commenters, including representatives from small and large U.S. helicopter manufacturers, foreign airworthiness authorities, and foreign helicopter manufacturers, commented on the NPRM. All commenters agree with the FAA that CRFS installations will improve occupant survivability in parts 27 and 29 rotorcraft.

The majority of commenters fully support all of the proposals. No commenter opposes adoption of the proposed amendments. One commenter proposes adoption of more stringent standards, and several commenters offer other counterproposals and recommendations for specific proposals.

General Comments on the Proposals

Unless specifically noted otherwise, the comments and responses apply to both proposed §§ 27.952 and 29.952, since the requirements in both are identical.

The Use of the Term "Flammable Fluid"

Flammable fluids other than fuel should not be included in the amendments, since all on-board light and heavy oil systems are affected. Accordingly, the commenter proposes that "flammable fluid" be changed to "fuel." The FAA agrees with this comment, and appropriate changes have been made.

Accuracy of the Economic Analysis

One commenter questions the accuracy of the economic analysis but offers no specific recommendations or corrections. The FAA has reevaluated the analysis and found no changes were necessary based on this comment.

Rigidity of the Proposals

A commenter states that the proposed amendments are "too rigid" in their approach and limit the designers' choices. The FAA disagrees. Although the 50-foot drop height and certain strength requirements are specific, these and most of the other requirements do not mandate specific designs. Objective

rules allow flexibility in showing compliance. An example of this flexibility is that bladders are not mandated; the rule specifies only freedom from leakage after impact. The amendments are intended to be as flexible as possible to allow design innovation while at the same time requiring a specific safety standard for a CRFS.

Level of Detail in the Proposals

A commenter states that the amendments include some very detailed requirements that are more appropriate for a Technical Standard Order (TSO). The FAA agrees that some of the details proposed for paragraphs 27.952 (e) and (f) and 29.952 (e) and (f) should not be regulatory requirements, are more appropriate for an advisory circular, and should not be part of the proposed standard. Therefore, those details have been removed and placed in the draft advisory material. However, the FAA disagrees with the commenter that the level of detail either in the proposals or in the advisory material would necessitate a CRFS TSO.

The Standardized Approach of the Proposals

A commenter believes that the standardized design and test approach of these amendments to CRFS certification, while acceptable, is not as valid as the establishment of individual design criteria on a case-by-case basis followed by a design review and a test program. However, the commenter offered no specific data or case histories to substantiate this position. Since all past successful civil and military experience has been with a standardized design and test approach, the FAA finds no historical or technical basis to support the commenter. Moreover, the FAA has determined that a standardized design and test approach, when properly applied, still allows for adequate use of individual design features that meet the specific safety standards.

Military Standards

A commenter expresses concern that the proposals are less stringent than the corresponding military standard because of perceived differences in the military and civil environments. The commenter is especially concerned that fuel tank bladders are not mandated. The commenter proposes verbatim adoption of the military standards. The FAA disagrees. Based on independent studies, the General Aviation Safety Panel (GASP) committee recommendations, and past civil CRFS service experience, the FAA has

determined that the proposals, while less stringent than the military standard, provide an equivalent level of safety considering the differences (such as violent atypical flight maneuvers, landing maneuvers, and gunfire hazards) in the civil and military environments. While it is anticipated that most successful fuel cell designs will involve the use of bladders, bladderless rigid designs (that provide the same level of safety as designs with bladders) may be approved under the new standard.

Comment Concerning Performance Criteria Specification

One commenter applauds the fact that the proposal specified performance standards (i.e., a minimum level of safety) in lieu of unnecessarily mandating certain specific design features such as flexible liners.

Comments on Specific Proposals

Comments on Section 27.561(d)

A commenter questions the need for the specification of load factors in proposed § 27.516(d), since similar load factors are specified in proposed § 27.952(b)(3). The FAA has determined that load factors are needed in both §§ 27.561(d) and 27.952(b)(3). Section 27.561(d) applies to fuselage structure, and § 27.952(b)(3) applies to fuel tanks. Although the load factors are identical, they are specified for different parts of the rotorcraft.

Another commenter correctly states that the load factors are clearly specified for fuel cells by their location on the rotorcraft but asks which load factors are to be used for other major fuel system components. The load factors used for each fuel cell location should be used for fuel cell components of significant mass in the same locations. Therefore, this amendment is adopted as proposed.

Comments on Sections 27.952(a) and 29.952(a)

A commenter states that identification of a critical fuel tank (if such exists) should not be allowed in certification. The FAA does not agree. The use of critical conditions, systems, etc., is a well-established technique for substantiating similar design features. Therefore, these amendments are adopted as proposed.

Comments on Sections 27.952(a)(1) and 29.952(a)(1)

All commenters support the proposed drop test, and most commenters favor the 50-foot drop height. However, two commenters propose a reduction in the drop height for a bare fuel cell from 50

to 25 feet. Another commenter proposed a reduction in drop height of a fuel cell test article configuration (i.e., a fuel cell installed in its representative airframe structure) from 50 to 15 feet. Another commenter contends that since the military fuel cell drop test (and nearly 20 years of associated, successful safety experience) is at a 65-foot drop height, the proposed drop height should be 65 feet, not 50 feet. The proposed 50-foot drop height is based, in part, on an analysis of nearly 20 years of combined military and civilian design and operational data. (The 15-foot reduction in drop height from the military standard to the proposed civil standard equates their level of safety because of the elimination of the additional risks associated with the military environment.) A significant part of this 20 years of data is based on approximately 1,500 civil rotorcraft that have been certificated (on a voluntary, nonhazard basis) to design standards (including a 50-foot drop test) analogous to these proposals. This 20 years of data and experience (from both the military and voluntary civil unit installations) have resulted in a good operational safety record. This good safety record indicates that fuel tank installations designed to these proposals (including the practical standard of a 50-foot drop height) successfully minimize the post-crash fire hazard. Therefore, no change to the 50-foot drop height is warranted.

Another commenter proposes deletion of the requirement to drop the fuel cell in its surrounding structure. The same commenter asks if the bare tank drop test will follow the procedure of MIL-T-27422B when the surrounding structure is free of projections or design features likely to contribute to tank ruptures. Another commenter states that the requirement to drop a representative structure should be fully defined. The same commenter states that no mention is made of production drop test requirements that would be made necessary by postproduction design changes to either the fuel system or its surrounding structure. The FAA considers these suggested changes unnecessary because (under Part 21) a design review (precipitated by a proposed design modification that affects the fuel cell-airframe interface) would automatically require a review of the interface with regard to these proposed standards. If that design review shows the surrounding structure is free of projections and hazards, the fuel cell may be dropped alone. Additionally, MIL-T-27422B procedures may be used, except that the drop height is reduced to 50 feet.

Further, major post certification design changes, such as major changes to the fuel system cells or their locations, automatically require recertification in accordance with FAR 21.93(a). Therefore, the amendments are adopted as proposed.

Comments on Sections 27.952(a)(3) and 29.952(a)(3)

A commenter notes that the proposed drop test criteria require that the fuel cell test article be filled 80 percent with water with no mention of the contents of the other 20 percent. The commenter states that this is different from part 23 Notice No. 85-7A (55 FR 7280, February 28, 1990) in that the proposed rotorcraft amendments do not require the air to be removed from the fuel cell prior to the drop test. The commenter suggests that the best method of compensating for the difference between the density of fuel and water is to leave the tank 100 percent full of fuel and adjust the drop height to a lower value.

The FAA notes that the drop test criteria proposed in Notice 90-24 are the same as those proposed in part 23 Notice 85-7A and the same as those used to comply with MIL-T-27422B. There are standard, acceptable methods of configuring (i.e., properly removing the air from) a soft flexible fuel cell, and there are standard, acceptable methods of configuring (i.e., properly removing the air from) the vents on a rigid fuel cell. The air removal methods intended by these proposals are the same as those used to comply with MIL-T-27422B and are accepted, industry practice. It is impracticable to remove a significant amount of air from many rigid fuel cell designs by pulling a vacuum without either inducing unacceptable stresses or causing structural failure. Extreme vacuum conditions inside fuel tanks do not exist in practice. However, natural venting (involving partial vacuums) exists for rigid tanks in a pre-crash, falling condition. A natural partial vacuum condition is intended to be duplicated for rigid tanks by allowing normal vent function during the drop test. Flexible fuel cells will have the air removed by hand (i.e., by pushing out the air and resealing the bag) prior to the drop as is currently practiced by the industry.

The method chosen to compensate for the density of water versus that of fuel (i.e., 80 percent full of water) is a standard method. It is used successfully by the civil rotorcraft industry. The commenter's alternate method of reducing the drop height has some merit but is not supported by current, known data.

Therefore, these amendments are adopted as proposed.

Comments on Sections 27.952(a)(4) and 29.952(a)(4)

A commenter notes that the amendments differ from MIL-T-27422B, in that the amendments require that the tank be dropped in its surrounding structure, unless it is clearly shown that the structure is free from projections and other such hazards. The commenter suggests that the FAA not adopt the requirement to drop the tank in the surrounding structure. The FAA disagrees. The FAA concluded that in the interests of safety the tank should be dropped in its surrounding structure. Only when all projections and other puncture hazards have been minimized by design will dropping a bare fuel cell suffice to show compliance. The FAA's approach improves on the MIL-T-27422B criteria in that an FAA-approved, documented certification design review will be required to minimize the surrounding airframe projections and other puncture hazards prior to a bare tank drop test. Therefore, the amendments are adopted as proposed.

Comments on Sections 27.952(b) and 29.952(b)

A commenter states that the load factors proposed in these sections are redundant to those contained in structural §§ 27.561 and 29.561(d), that no procedures to conduct these tests have been defined, and that the cost of this type of testing is not addressed. Two other commenters question the need for specification of separate load factors by rotorcraft zone (i.e., location) for fuel cells that exceed the standard airframe load factors. The FAA disagrees that the proposed load factors are redundant. They are for fuel cells and major mass items in the fuel system only. The load factors are to be used in standard structural analysis to structurally design the fuel cells, other major fuel system mass items, and their attachments. No special tests, other than the required structural substantiation tests are intended. No costs have been added since the required structural analysis and test programs are already conducted during certification for these components to the current load factors. The separate load factor specification by zone is necessary to provide proper crash resistance for occupant safety and PCF prevention for fuel system components located in three selected zones of the rotorcraft. They also provide the designer with specific criteria (i.e., load factors) for proper static analysis of fuel system

components in these specific zones. The load factors proposed by §§ 27.952(b) and 29.952(b) are for fuel system components only; whereas, the load factors of current § 29.561(d) are for the airframe only. However, load factors for fuel system components and airframe components are compatible.

Therefore, the amendments are adopted as proposed.

Comments on Sections 27.952(b)(2) and 29.952(b)(2)

A commenter suggests that the words " * * * that if loosened could injure an occupant in an emergency landing * * * " be removed from §§ 27.952(b)(2) and 29.952(b)(2). The commenter believes removal to be necessary because this phrase is intended to minimize a "mechanical" ballistic hazard from fuel system components and not a PCF hazard. The amendments, in the commenter's view, are only intended to minimize a PCF. The commenter's presumption is incorrect. The amendments are intended to provide a CRFS. This includes preventing impact-induced, ballistic hazards to fuel system components as well as PCF hazards. Therefore, the amendments are adopted as proposed.

Comments on Sections 27.952(c) and 29.952(c)

A commenter believes that the proposed amendments mandate self-sealing breakaway couplings and suggests that the amendments be revised to include the words "Where hazardous relative motion of fuel system components is likely to exist during a crash, breakaway self-sealing couplings shall be required." Another commenter suggests that no alternate, equivalent designs to breakaway fuel fittings be allowed by the amendments. A third commenter points out that there is no mention of any pull-out strength requirements for fuel tank fittings as stated in MIL-T-27422B. The amendments already express the intent of the wording suggested by the first commenter concerning hazardous relative motion. Further, the FAA does not agree with the second comment that alternate, equivalent designs to breakaway fuel fittings should not be allowed, since several proven, alternate, equivalent designs have already been approved. Thus, alternate, equivalent designs for breakaway fuel fittings are acceptable. In response to the third commenter, fitting strength and hose pull-out strength requirements of MIL-T-27422B are industry practice and are acceptable as one means of compliance. Therefore, the amendments are adopted as proposed.

Comments on Sections 27.952(c)(1)(iii) and 29.952(c)(1)(iii)

A commenter suggests that §§ 27.952(c)(2)(iii) and 29.952(c)(1)(iii) be changed to specify leakage as one method of detecting an unlocked or otherwise faulty breakaway coupling. The FAA agrees that leakage is one method of detecting an unlocked coupling but finds that the proposed wording of "design provisions to visually ascertain" adequately covers consideration of leakage as a means to verify locking of the couplings. Therefore, the amendments are adopted as proposed.

Comments on Sections 27.952(c)(1)(v) and 29.952(c)(1)(v)

A commenter suggests that §§ 27.952(c)(1)(v) and 29.952(c)(1)(v) be changed to allow "fuel seepage" after a breakaway coupling has performed its intended function. The FAA agrees with the intent of the comment but has determined that this kind of detail is more appropriate in advisory guidance material. It is intended that industry practice, which allows loss of entrapped fuel (up to 8 ounces) and fuel seepage (up to 5 drops per minute), be acceptable after the valve has functioned. Therefore, the amendments are adopted as proposed.

Comments on Sections 27.952(d) and 29.952(d)

A commenter suggests adding a sentence between the second and third sentences of §§ 27.952(d) and 29.952(d) as follows: "For tanks using a flexible tank or flexible liner, all filler caps and tank fittings attached to structure in locations of anticipated structural deformation must be frangibly attached such that the tank fittings and filler caps stay with the fuel tank to preclude tank ruptures after the frangible separation." The FAA agrees with the intent of this comment but finds that no change is necessary in the final rule. The FAA understands the commenter is suggesting that compliance methodology rather than objective substance be included in the rule. Therefore, the amendments are adopted as proposed.

Comments on Sections 27.952(d)(1) and 29.952(d)(1)

A commenter suggests that the FAA remove the second sentence from §§ 27.952(d)(1) and 29.952(d)(1), which reads as follows: "To prevent inadvertent separation or deformation, the load must be 10 times the normal service loads at the frangible or deformable attachment location." The FAA recognizes the large variance in

industry design practice in calculating this particular ratio and in setting its specific value. Accordingly, the FAA agrees with the commenter, and the sentence is removed from the final rule. Therefore, these amendments are adopted as revised.

Comments on Sections 27.952(e)(1) and 29.952(e)(1)

A commenter states that the proposed §§ 27.952(e)(1) and 29.952(e)(1) criteria largely repeat existing criteria. The commenter provides several specific examples of the perceived repetition. Another commenter asks why airframe mounted fuel filters are not acceptable in the engine compartment (i.e., fire zone) if engine mounted filters are acceptable. The FAA maintains that the proposed sections relate to a post-crash configured rotorcraft, that is radically different in terms of ignition sources, fuel leaks, and geometry than a pre-crash configured rotorcraft even though similarities may exist. Prior to these proposed amendments, parts 27 and 29 applied only to pre-crash (or flight) configured rotorcraft. Also, the proposed sections refer to the entire rotorcraft, not just specific zones, such as the pre-crash configured exhaust system regulations that were cited by the commenter in a particular example. However, because of this and other related comments, the FAA has decided to simplify the final rule by deleting the proposed subsections relating to compliance methodology and moving the term "occupiable areas" from proposed paragraphs e(4) to revised paragraphs (e).

With respect to the comment concerning the use of airframe mounted fuel filters, the FAA agrees that airframe mounted fuel filters, as well as engine mounted fuel filters inside the engine fire zone, are acceptable. Therefore, §§ 27.952(e) and 29.952(e) are adopted as revised; and §§ 27.952(e)(1), (e)(2), (e)(3), (e)(4); 29.952(e)(1), (e)(2), (e)(3) and (e)(4) are deleted.

Comments on Sections 27.952(e)(4) and 29.952(e)(4)

A commenter states that the existing rules are adequate to ensure sufficient PCF protection for fuel tanks located near occupiable areas. Therefore, from a practical view, sufficient separation cannot be economically achieved to the extent that it would have a significant impact on preventing a PCF. Thus, the commenter suggests that §§ 27.952(e)(4) and 29.952(e)(4) be removed. In contrast, the FAA believes that it is practical to enhance PCF safety through design changes under proposed §§ 27.952(e)(4) and 29.952(e)(4). For

example, moving a fuel cell an additional ¼ or more inches aft of an occupied volume (within the maximum practicable extent of a given design envelope) could avoid a major, occupant-drenching, post-crash fuel spill (and potential PCF). This could be accomplished by simply adding ¼ or more inches of crushable, energy absorbing airframe distance between the occupied volume and the fuel cell. Such a design decision would not need to be considered under the current standards. Under these proposals it would have to be considered. As stated previously, §§ 27.952(e)(4) and 29.952(e)(4) have been removed in order to simplify the final rule by deleting the compliance methodology. However, the requirement for separation of fuel tanks from occupiable areas is adopted in §§ 27.952(e) and 29.952(e).

Comments on Sections 27.952(e) and 29.952(e)(5)

Three commenters correctly observe that §§ 27.952(e)(5) and 29.952(e)(5) contained the incorrect reference, " * * * (as defined by paragraph (b) of this section) * * * ". The FAA agrees. As stated previously, §§ 27.952(e)(5) and 29.952(e)(5) have been removed in order to simplify the final rule by deleting the compliance methodology.

Comments on Sections 27.952(e)(6) and 29.952(e)(6)

A commenter states that, under his interpretation, proposed §§ 27.952(e)(6) and 29.952(e)(6) would require firewalls to retain their sealing ability under the load factors of §§ 27.952(b)(1) and 29.952(b)(1). The commenter believes that all large mass items, such as engines and cowlings, in the vicinity of the firewall would have to be restrained to prevent impact-induced firewall ruptures (i.e., preserve postimpact sealing ability). The commenter further believes that, based on other common design requirements such as fuel line penetrations of firewalls, the proposed amendment is impractical. Another commenter concurs with the proposed firewall survivable impact sealing retention requirement, but is concerned that a direct application of the proposed §§ 27.952(b)(1) and 29.952(b)(1) load factors would produce a stiff, heavy firewall that, while able to retain sealing capability, would be heavy, uneconomical, and not have the intended crash-resistant design features.

The commenters misinterpreted the intent of proposed §§ 27.952(e)(6) and 29.952(e)(6). These proposals are based on similar MIL-STD-1290 requirements that have been used in design for many years. The FAA does not intend that a

firewall designed to the load factors of §§ 27.952(b)(1) and 29.952(b)(1) would retain its complete sealing ability under all post-crash threats. Thus, some leakage around typical vent and line penetrations and other small post-crash penetrations of the firewall in a survivable impact are acceptable. Unless an obvious, catastrophic hazard would be created in a survivable impact by atypical design features, restraint of the engines and cowlings to prevent impact-induced firewall rupture was not intended. The FAA intends that the firewall retain its sealing ability in a survivable impact. The most significant problem addressed during the firewall design is deformation of the firewall induced by fuselage deformations under crash conditions.

Concerning the second comment, the FAA does not agree that the proposed requirement will result in stiff, heavy firewalls. The requirement can be met by a firewall of a low stiffness, ductile design that can withstand the maximum vertical, lateral, and horizontal crushing displacements that are estimated to occur in a survivable impact. A low stiffness, ductile design can efficiently accommodate crash-induced deformations without shearing fuel or electrical lines and without rupturing or otherwise losing its gross sealing ability (i.e., creating a major ignition source or fire path). A displacement based firewall certification test should be conducted that shows that it is capable of performing its intended gross sealing function in a survivable impact. As stated previously, in order to simplify the final rule by deleting the compliance methodology, new §§ 27.952(e) and 29.952(e) are adopted as revised, and proposed §§ 27.952(e)(6) and 29.952(e)(6) are removed.

Comments on Sections 27.952(e)(1)(iv) and 29.952(e)(1)(iv)

A commenter suggests that §§ 27.952(e)(1)(iv) and 29.952(e)(1)(iv) be modified to add the phrase " * * * if it can be considered an ignition source," to the end of the last sentence. The commenter correctly states that not all hot surfaces should be considered as ignition sources. The FAA agrees. As stated previously, §§ 27.952(e)(1)(iv) and 29.952(e)(1)(iv) have been removed; new §§ 27.952(e) and 29.952(e) adequately incorporate the substance of this comment.

Comments on Sections 27.952(e)(1)(v)

A commenter notes that the word "not" was omitted between "must" and "be" in the second sentence of §§ 27.952(e)(1)(v). The FAA agrees. The error was discovered after publication of

the proposed rule, and a correction was published in the **Federal Register** on December 11, 1990 (55 FR 50931).

Comments on Sections 27.952(f) and 29.952(f)

A commenter recommends placing the detailed design criteria proposed by §§ 27.952(f) and 29.952(f) in an advisory circular retaining only a shortened lead-in version of §§ 27.952(f) and 29.952(f). Another commenter believes that §§ 27.952(f) and 29.952(f), while acceptable in principle, duplicate many current FAR requirements and several other sections of 27.952 and 29.952. The commenter cited several examples of perceived duplication. The FAA agrees with the first commenter's proposal to place detailed design criteria in the advisory circular material. Therefore, proposed §§ 27.952(f)(1) through 27.952(f)(9) and 29.952(f)(1) through 29.952(f)(9) are removed. Sections 27.952(f) and 29.952(f) are revised to replace the proposed, detailed design criteria specified after the phrase "as follows:" with a less detailed design criteria indicated by the phrase, " * * * to be crash resistant * * *." Therefore, these amendments are adopted as revised. Additionally, this revision answers the second commenter's perceived duplicity concerns.

Another commenter notes that the word 'long' used in line 4 of § 29.952(f)(5) should be 'along'. The FAA agrees but no correction is necessary since this proposed paragraph was removed.

Comments on Sections 27.952(g) and 29.952(g)

A commenter suggests that requirements for impact and tear resistance be included in the amendments. The commenter correctly notes that the GASP report recommends specific impact and tear resistance values for civil rotorcraft based on MIL-T-27422B requirements. The FAA agrees with the comment in general but notes that proposed §§ 27.952(g) and 29.952(g) objectively requires that crash-resistant fuel cells be tear and impact resistant. Further, it is intended that paragraphs 4.6.5.1 through 4.6.5.5 of MIL-T-27422B (modified for the civil environment) may be used to provide one acceptable method of properly assessing impact and tear resistance. Therefore, the amendments are adopted as proposed.

Comments on Sections 27.952(h) and 29.952(h)

Two commenters state that §§ 27.952(h) and 29.952(h) and (b) are redundant. The FAA agrees. Therefore,

proposed §§ 27.952(h) and 29.952(h) are deleted.

Comments on Sections 27.975(b) and 29.975(a)(7)

A commenter states full support for §§ 27.975(b) and 29.975(a)(7), which propose that the venting system be designed to minimize spillage of fuel through the vents to an ignition source in the event of a rollover. However, the comment suggests deletion of the phrase " * * * is shown to be extremely improbable * * *" because, in his view, in practical terms, it would be impossible for an applicant to demonstrate such a low probability. The FAA agrees. The current term "extremely remote" rather than "extremely improbable" was intended. The FAA has determined that "extremely remote" is the correct term. The amendments are adopted as proposed except for replacing the word "improbable" with the word "remote."

Regulatory Evaluation Summary

Executive Order 12866 dated September 30, 1993, directs Federal agencies to promulgate new regulations and maintain current regulations only if they are required by law, are necessary to interpret the law, or are made necessary by a "compelling public need." The order also requires that agencies assess all costs and benefits of available regulatory alternatives and select the alternative that maximizes the net benefits and imposes the least burden on society.

Additionally, the order requires agencies to submit a list of all rules, except those specifically exempted by the Office of Information and Regulatory Affairs (OIRA) because they respond to emergency situations or other narrowly defined exigencies, to determine if the rules constitute "significant regulatory action." "Significant regulatory action" means an action that is likely to result in a rule that may (1) have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact on entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. "Significant regulatory action" is

submitted to centralized regulatory review by OIRA.

OIRA and the FAA have determined that this rule is not "a significant regulatory action." However, a cost-benefit analysis, including evaluation of cost-reducing alternatives to this rule has been prepared. This analysis also contains the regulatory flexibility determination required by the Regulatory Flexibility Act and a Trade Impact Assessment. If more detailed economic information is desired, the reader may refer to the full evaluation contained in the docket.

Benefits

Studies have shown that a significant PCF hazards exist in rotorcraft operations. In a study of rotorcraft crashworthiness dynamics, the FAA found that burn fatalities and injuries account for about 14 percent of rotorcraft accident casualties and occur in about 20 percent of the accidents in which there are injuries. In a study comparing rotorcraft equipped with and without a CRFS, the U.S. Army found that average thermal casualty costs per survivable accident were 95.4 percent lower in CRFS-equipped rotorcraft, and that 50 percent of all rotorcraft accidents with a PCF are survivable prior to the onset of fire. An FAA review of NTSB rotorcraft accident data from 1983 through 1987 shows that 295 accidents occurred that involved a crash landing or collision with an object resulting in fatalities, serious injuries, or combinations of fatalities and injuries. Sixty-three of these accidents involved a PCF, in which about 77 percent of the occupants were fatally injured, as compared to 42 percent of the occupants in accidents not involving a PCF.

In the 63 accidents involving a PCF, there were 113 fatalities, 27 serious injuries, 5 minor injuries, and one noninjury. The FAA estimates that the use of CRFS's would have altered these casualty distributions to approximately the following: 83 fatalities, 31 serious injuries, 24 minor injuries, and 8 noninjuries—a difference of 30 fewer fatalities with some of the fatalities being reduced to serious injuries (4) and minor injuries (19).

In order to provide the public and government officials with a benchmark comparison of the expected safety benefits of rulemaking actions with estimated costs over an extended period of time, the FAA currently uses a minimum value of \$1.5 million to statistically represent an avoided fatality. Serious injuries are estimated to have an average cost of \$640,000, and minor injuries are estimated to have an average cost of \$2,300. Applying these

values to the calculated differences yields benefits of about \$42 million [(30 fewer fatalities $\times$ \$1.5 million) - (4 more serious injuries $\times$ \$640,000) - (19 more minor injuries $\times$ \$2,300)]. The average benefit per accident involving a PCF is approximately \$670,000.

Accounting for parts 27 and 29 separately, the average benefits are approximately \$464,000 per part 27 rotorcraft accident involving a PCF and approximately \$1,638,000 per part 29 rotorcraft accident involving a PCF.

During the 5-year study period, an average of 5,450 part 27 rotorcraft and an average of 1,150 part 29 rotorcraft were in operation in the United States. During this period, the annual probability of a part 27 rotorcraft being involved in a serious survivable accident with a PCF is estimated to be 1.903×10^{-3} (52 accidents / 5,450 part 27 rotorcraft) / 5 years). The corresponding probability for part 29 rotorcraft is 1.913×10^{-3} (11 accidents / 1,150 part 29 rotorcraft) / 5 years). Multiplying these probabilities by an estimated benefits per accident with a PCF yields annual benefits of \$885 per part 27 rotorcraft and \$3,134 per part 29 rotorcraft. Assuming 15-year operating lives, these benefits when discounted equate to \$3,103 per part 27 rotorcraft and \$10,985 per part 29 rotorcraft.

Costs

This rule will increase costs for both rotorcraft manufacturers and operators. Manufacturers will incur increased development, certification, and production costs; and operators (in addition to absorbing these costs in higher rotorcraft acquisition costs) will incur increased operating costs due to the additional weight of the fuel system.

The FAA estimates the development and certification costs per new rotorcraft certification will be \$36,000. Most of these costs are for testing, analysis, and documentation. The primary testing required by the rule is a test of each fuel tank to show no loss of fuel under specified crash conditions. This can be accomplished by a simple, inexpensive drop test.

There will be increased production costs associated with fuel tanks, fittings, and flexible fuel lines. The incremental cost of a fuel tank meeting the requirements of the rule is estimated to be \$30 per gallon of tank capacity. Part 27 rotorcraft are assumed to have 50-gallon tanks that will cost \$1,500 more as a result of this rule; part 29 rotorcraft are assumed to have 200-gallon tanks costing \$6,000 more. The FAA estimates that the cost per frangible, self-sealing fitting is \$60; that a typical part 27 rotorcraft will require 8 fittings, totaling

\$480; and that a typical part 29 rotorcraft will require 10 fittings, totaling \$600. Flexible fuel line sections are expected to add about \$100 to the cost of a fuel system for a part 27 rotorcraft and about \$150 for a part 29 rotorcraft. The estimated total incremental production costs are \$2,080 per part 27 rotorcraft and \$6,750 per part 29 rotorcraft.

The FAA estimates that the rule will increase the weight of a part 27 rotorcraft by 9.5 pounds and a part 29 rotorcraft by 33 pounds, and that each extra pound of weight increases average annual fuel consumption by 3.8 gallons per part 27 rotorcraft and 6.2 gallons per part 29 rotorcraft. Applying fuel prices of \$1.87 per gallon for part 27 rotorcraft and \$1.78 for part 29 rotorcraft, the estimated increase in average annual operating costs is \$68 ($\1.87×3.8 gals. $\times$ 9.5 lbs.) per part 27 rotorcraft and \$364 ($\1.78×6.2 gals. $\times$ 33 lbs.) per part 29 rotorcraft.

Assuming 15 years operating lives, the total incremental development, certification, production, and operating costs when discounted are \$1,426 per part 27 rotorcraft and \$4,617 per part 29 rotorcraft.

Benefit/Costs Comparison

Benefits exceed costs for both parts 27 and 29 rotorcraft. The net present value (discounted benefits minus discounted costs) is \$1,677 per part 27 rotorcraft and \$6,368 per part 29 rotorcraft. The rule will be cost beneficial even if it is only 50 percent effective in eliminating PCF fatalities and injuries.

Regulatory Flexibility Determination

The Regulatory Flexibility Act (RFA) of 1980 was enacted by Congress to ensure that small entities are not unnecessarily or disproportionately burdened by Government regulations. The RFA requires a Regulatory Flexibility Analysis if a rule is expected to have a "significant economic impact on a substantial number of small entities." FAA Order 2100.14A, Regulatory Flexibility Criteria and Guidance, prescribes standards for complying with RFA review requirements in FAA rulemaking actions. The FAA does not expect the rule to have a significant economic impact on a substantial number of small manufacturers or operators.

Trade Impact Assessment

The rule will have no impact on trade for either U.S. firms doing business in foreign markets or foreign firms doing business in the United States. In the United States, foreign manufacturers must meet U.S. requirements, and thus

will gain no competitive advantage. In foreign countries, U.S. manufacturers are not bound by parts 27 and 29 requirements and can choose whether or not to implement the provisions of this rule on the basis of competitive and other considerations. Also, the Joint Airworthiness Authority (JAA) and Transport Canada are both in the process of adopting this rule.

Federalism Implications

The regulations herein do not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this amendment does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Conclusion

For the reasons discussed in the preamble and based on the findings in the Regulatory Flexibility Determination and the Trade Impact Assessment, the FAA has determined that these amendments are not major under Executive Order 12866. In addition, the FAA certifies that these amendments do not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. These amendments are considered nonsignificant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A regulatory evaluation of the amendments, including a Regulatory Determination and Trade Impact Analysis, has been placed in the docket. A copy may be obtained by contacting the Rules Docket (AGC-10), Docket No. 26392, 800 Independence Avenue, SW., Washington, D.C. 20590.

List of Subjects in 14 CFR Parts 27 and 29

Air transportation, Aircraft, Aviation safety, Rotorcraft, Safety.

The Amendment

Accordingly, the Federal Aviation Administration amends 14 CFR parts 27 and 29 of the Federal Aviation Regulations as follows:

PART 27—AIRWORTHINESS STANDARDS: NORMAL CATEGORY ROTORCRAFT

1. The authority citation for part 27 continues to read as follows:

* Authority: 49 U.S.C. 1344, 1354(a), 1355, 1421, 1423, 1425, 1428, 1429, 1430; and 49 U.S.C. 106(g).

2. Section 27.561 is amended by adding a new paragraph (d) to read as follows:

§ 27.561 General.

* * * * *

(d) Any fuselage structure in the area of internal fuel tanks below the passenger floor level must be designed to resist the following ultimate inertial factors and loads and to protect the fuel tanks from rupture when those loads are applied to that area:

- (i) Upward—1.5g.
- (ii) Forward—4.0g.
- (iii) Sideward—2.0g.
- (iv) Downward—4.0g.

3. A new § 27.952 is added to read as follows:

§ 27.952 Fuel system crash resistance.

Unless other means acceptable to the Administrator are employed to minimize the hazard of fuel fires to occupants following an otherwise survivable impact (crash landing), the fuel systems must incorporate the design features of this section. These systems must be shown to be capable of sustaining the static and dynamic deceleration loads of this section, considered as ultimate loads acting alone, measured at the system component's center of gravity, without structural damage to system components, fuel tanks, or their attachments that would leak fuel to an ignition source.

(a) *Drop test requirements.* Each tank, or the most critical tank, must be drop-tested as follows:

- (1) The drop height must be at least 50 feet.
- (2) The drop impact surface must be nondeforming.
- (3) The tank must be filled with water to 80 percent of the normal, full capacity.

(4) The tank must be enclosed in a surrounding structure representative of the installation unless it can be established that the surrounding structure is free of projections or other design features likely to contribute to rupture of the tank.

(5) The tank must drop freely and impact in a horizontal position $\pm 10^\circ$.

(6) After the drop test, there must be no leakage.

(b) *Fuel tank load factors.* Except for fuel tanks located so that tank rupture with fuel release to either significant ignition sources, such as engines, heaters, and auxiliary power units, or occupants is extremely remote, each fuel tank must be designed and installed

to retain its contents under the following ultimate inertial load factors, acting alone.

- (1) For fuel tanks in the cabin:
 - (i) Upward—4g.
 - (ii) Forward—16g.
 - (iii) Sideward—8g.
 - (iv) Downward—20g.

(2) For fuel tanks located above or behind the crew or passenger compartment that, if loosened, could injure an occupant in an emergency landing:

- (i) Upward—1.5g.
- (ii) Forward—8g.
- (iii) Sideward—2g.
- (iv) Downward—4g.
- (3) For fuel tanks in other areas:
 - (i) Upward—1.5g.
 - (ii) Forward—4g.
 - (iii) Sideward—2g.
 - (iv) Downward—4g.

(c) *Fuel line self-sealing breakaway couplings.* Self-sealing breakaway couplings must be installed unless hazardous relative motion of fuel system components to each other or to local rotorcraft structure is demonstrated to be extremely improbable or unless other means are provided. The couplings or equivalent devices must be installed at all fuel tank-to-fuel line connections, tank-to-tank interconnects, and at other points in the fuel system where local structural deformation could lead to the release of fuel.

(1) The design and construction of self-sealing breakaway couplings must incorporate the following design features:

(i) The load necessary to separate a breakaway coupling must be between 25 to 50 percent of the minimum ultimate failure load (ultimate strength) of the weakest component in the fluid-carrying line. The separation load must in no case be less than 300 pounds, regardless of the size of the fluid line.

(ii) A breakaway coupling must separate whenever its ultimate load (as defined in paragraph (c)(1)(i) of this section) is applied in the failure modes most likely to occur.

(iii) All breakaway couplings must incorporate design provisions to visually ascertain that the coupling is locked together (leak-free) and is open during normal installation and service.

(iv) All breakaway couplings must incorporate design provisions to prevent uncoupling or unintended closing due to operational shocks, vibrations, or accelerations.

(v) No breakaway coupling design may allow the release of fuel once the coupling has performed its intended function.

(2) All individual breakaway couplings, coupling fuel feed systems,

or equivalent means must be designed, tested, installed, and maintained so that inadvertent fuel shutoff in flight is improbable in accordance with § 27.955(a) and must comply with the fatigue evaluation requirements of § 27.571 without leaking.

(3) Alternate, equivalent means to the use of breakaway couplings must not create a survivable impact-induced load on the fuel line to which it is installed greater than 25 to 50 percent of the ultimate load (strength) of the weakest component in the line and must comply with the fatigue requirements of § 27.571 without leaking.

(d) *Frangible or deformable structural attachments.* Unless hazardous relative motion of fuel tanks and fuel system components to local rotorcraft structure is demonstrated to be extremely improbable in an otherwise survivable impact, frangible or locally deformable attachments of fuel tanks and fuel system components to local rotorcraft structure must be used. The attachment of fuel tanks and fuel system components to local rotorcraft structure, whether frangible or locally deformable, must be designed such that its separation or relative local deformation will occur without rupture or local tear-out of the fuel tank or fuel system components that will cause fuel leakage. The ultimate strength of frangible or deformable attachments must be as follows:

(1) The load required to separate a frangible attachment from its support structure, or deform a locally deformable attachment relative to its support structure, must be between 25 and 50 percent of the minimum ultimate load (ultimate strength) of the weakest component in the attached system. In no case may the load be less than 300 pounds.

(2) A frangible or locally deformable attachment must separate or locally deform as intended whenever its ultimate load (as defined in paragraph (d)(1) of this section) is applied in the modes most likely to occur.

(3) All frangible or locally deformable attachments must comply with the fatigue requirements of § 27.571.

(e) *Separation of fuel and ignition sources.* To provide maximum crash resistance, fuel must be located as far as practicable from all occupiable areas and from all potential ignition sources.

(f) *Other basic mechanical design criteria.* Fuel tanks, fuel lines, electrical wires, and electrical devices must be designed, constructed, and installed, as far as practicable, to be crash resistant.

(g) *Rigid or semirigid fuel tanks.* Rigid or semirigid fuel tank or bladder walls must be impact and tear resistant.

4. Section 27.963 is amended by revising paragraph (f) and by adding new paragraphs (g) and (h) to read as follows:

§ 27.963 Fuel tanks: general.

(f) Each fuel tank installed in personnel compartments must be isolated by fume-proof and fuel-proof enclosures that are drained and vented to the exterior of the rotorcraft. The design and construction of the enclosures must provide necessary protection for the tank, must be crash resistant during a survivable impact in accordance with § 27.952, and must be adequate to withstand loads and abrasions to be expected in personnel compartments.

(g) Each flexible fuel tank bladder or liner must be approved or shown to be suitable for the particular application and must be puncture resistant. Puncture resistance must be shown by meeting the TSO-C80, paragraph 16.0, requirements using a minimum puncture force of 370 pounds.

(h) Each integral fuel tank must have provisions for inspection and repair of its interior.

5. A new § 27.967 is added to read as follows:

§ 27.967 Fuel tank installation.

(a) Each fuel tank must be supported so that tank loads are not concentrated on unsupported tank surfaces. In addition—

(1) There must be pads, if necessary, to prevent chafing between each tank and its supports;

(2) The padding must be nonabsorbent or treated to prevent the absorption of fuel;

(3) If flexible tank liners are used, they must be supported so that it is not necessary for them to withstand fluid loads; and

(4) Each interior surface of tank compartments must be smooth and free of projections that could cause wear of the liner unless—

(i) There are means for protection of the liner at those points; or

(ii) The construction of the liner itself provides such protection.

(b) Any spaces adjacent to tank surfaces must be adequately ventilated to avoid accumulation of fuel or fumes in those spaces due to minor leakage. If the tank is in a sealed compartment, ventilation may be limited to drain holes that prevent clogging and excessive pressure resulting from altitude changes. If flexible tank liners are installed, the venting arrangement for the spaces between the liner and its container must maintain the proper

relationship to tank vent pressures for any expected flight condition.

(c) The location of each tank must meet the requirements of § 27.1185 (a) and (c).

(d) No rotorcraft skin immediately adjacent to a major air outlet from the engine compartment may act as the wall of the integral tank.

6. Section 27.973 is revised to read as follows:

§ 27.973 Fuel tank filler connection.

(a) Each fuel tank filler connection must prevent the entrance of fuel into any part of the rotorcraft other than the tank itself during normal operations and must be crash resistant during a survivable impact in accordance with § 27.952(c). In addition—

(1) Each filler must be marked as prescribed in § 27.1557(c)(1);

(2) Each recessed filler connection that can retain any appreciable quantity of fuel must have a drain that discharges clear of the entire rotorcraft; and

(3) Each filler cap must provide a fuel-tight seal under the fluid pressure expected in normal operation and in a survivable impact.

(b) Each filler cap or filler cap cover must warn when the cap is not fully locked or seated on the filler connection.

7. Section 27.975 is amended by revising paragraph (b) to read as follows:

§ 27.975 Fuel tank vents.

(b) The venting system must be designed to minimize spillage of fuel through the vents to an ignition source in the event of a rollover during landing, ground operation, or a survivable impact, unless a rollover is shown to be extremely remote.

PART 29—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY ROTORCRAFT

8. The authority citation for part 29 continues to read as follows:

Authority: 49 U.S.C. 1344, 1354(a), 1355, 1421, 1423, 1424, 1425, 1428, 1429, 1430; and 49 U.S.C. 106(g).

9. A new § 29.952 is added to read as follows:

§ 29.952 Fuel system crash resistance.

Unless other means acceptable to the Administrator are employed to minimize the hazard of fuel fires to occupants following an otherwise survivable impact (crash landing), the fuel systems must incorporate the design features of this section. These systems must be shown to be capable of sustaining the static and dynamic

deceleration loads of this section, considered as ultimate loads acting alone, measured at the system component's center of gravity without structural damage to the system components, fuel tanks, or their attachments that would leak fuel to an ignition source.

(a) *Drop test requirements.* Each tank, or the most critical tank, must be drop-tested as follows:

(1) The drop height must be at least 50 feet.

(2) The drop impact surface must be nondeforming.

(3) The tanks must be filled with water to 80 percent of the normal, full capacity.

(4) The tank must be enclosed in a surrounding structure representative of the installation unless it can be established that the surrounding structure is free of projections or other design features likely to contribute to rupture of the tank.

(5) The tank must drop freely and impact in a horizontal position $\pm 10^\circ$.

(6) After the drop test, there must be no leakage.

(b) *Fuel tank load factors.* Except for fuel tanks located so that tank rupture with fuel release to either significant ignition sources, such as engines, heaters, and auxiliary power units, or occupants is extremely remote, each fuel tank must be designed and installed to retain its contents under the following ultimate inertial load factors, acting alone.

(1) For fuel tanks in the cabin:

(i) Upward—4g.

(ii) Forward—16g.

(iii) Sideward—8g.

(iv) Downward—20g.

(2) For fuel tanks located above or behind the crew or passenger compartment that, if loosened, could injure an occupant in an emergency landing:

(i) Upward—1.5g.

(ii) Forward—8g.

(iii) Sideward—2g.

(iv) Downward—4g.

(3) For fuel tanks in other areas:

(i) Upward—1.5g.

(ii) Forward—4g.

(iii) Sideward—2g.

(iv) Downward—4g.

(c) *Fuel line self-sealing breakaway couplings.* Self-sealing breakaway couplings must be installed unless hazardous relative motion of fuel system components to each other or to local rotorcraft structure is demonstrated to be extremely improbable or unless other means are provided. The couplings or equivalent devices must be installed at all fuel tank-to-fuel line connections, tank-to-tank interconnects, and at other

points in the fuel system where local structural deformation could lead to the release of fuel.

(1) The design and construction of self-sealing breakaway couplings must incorporate the following design features:

(i) The load necessary to separate a breakaway coupling must be between 25 to 50 percent of the minimum ultimate failure load (ultimate strength) of the weakest component in the fluid-carrying line. The separation load must in no case be less than 300 pounds, regardless of the size of the fluid line.

(ii) A breakaway coupling must separate whenever its ultimate load (as defined in paragraph (c)(1)(i) of this section) is applied in the failure modes most likely to occur.

(iii) All breakaway couplings must incorporate design provisions to visually ascertain that the coupling is locked together (leak-free) and is open during normal installation and service.

(iv) All breakaway couplings must incorporate design provisions to prevent uncoupling or unintended closing due to operational shocks, vibrations, or accelerations.

(v) No breakaway coupling design may allow the release of fuel once the coupling has performed its intended function.

(2) All individual breakaway couplings, coupling fuel feed systems, or equivalent means must be designed, tested, installed, and maintained so inadvertent fuel shutoff in flight is improbable in accordance with § 29.955(a) and must comply with the fatigue evaluation requirements of § 29.571 without leaking.

(3) Alternate, equivalent means to the use of breakaway couplings must not create a survivable impact-induced load on the fuel line to which it is installed greater than 25 to 50 percent of the ultimate load (strength) of the weakest component in the line and must comply with the fatigue requirements of § 29.571 without leaking.

(d) *Frangible or deformable structural attachments.* Unless hazardous relative motion of fuel tanks and fuel system components to local rotorcraft structure is demonstrated to be extremely improbable in an otherwise survivable impact, frangible or locally deformable attachments of fuel tanks and fuel system components to local rotorcraft structure must be used. The attachment of fuel tanks and fuel system

components to local rotorcraft structure, whether frangible or locally deformable, must be designed such that its separation or relative local deformation will occur without rupture or local tear-out of the fuel tank or fuel system component that will cause fuel leakage. The ultimate strength of frangible or deformable attachments must be as follows:

(1) The load required to separate a frangible attachment from its support structure, or deform a locally deformable attachment relative to its support structure, must be between 25 and 50 percent of the minimum ultimate load (ultimate strength) of the weakest component in the attached system. In no case may the load be less than 300 pounds.

(2) A frangible or locally deformable attachment must separate or locally deform as intended whenever its ultimate load (as defined in paragraph (d)(1) of this section) is applied in the modes most likely to occur.

(3) All frangible or locally deformable attachments must comply with the fatigue requirements of § 29.571.

(e) *Separation of fuel and ignition sources.* To provide maximum crash resistance, fuel must be located as far as practicable from all occupiable areas and from all potential ignition sources.

(f) *Other basic mechanical design criteria.* Fuel tanks, fuel lines, electrical wires, and electrical devices must be designed, constructed, and installed, as far as practicable, to be crash resistant.

(g) *Rigid or semirigid fuel tanks.* Rigid or semirigid fuel tank or bladder walls must be impact and tear resistant.

10. Section 29.963 is amended by removing paragraph (b); by redesignating paragraphs (c), (d), and (e) as (b), (c), and (d) respectively; by revising redesignated paragraph (b); and by adding a new paragraph (e) to read as follows:

§ 29.963 Fuel tanks: general.

* * * * *

(b) Each flexible fuel tank bladder or liner must be approved or shown to be suitable for the particular application and must be puncture resistant. Puncture resistance must be shown by meeting the TSO-C80, paragraph 16.0, requirements using a minimum puncture force of 370 pounds.

* * * * *

(e) Each fuel tank installed in personnel compartments must be

isolated by fume-proof and fuel-proof enclosures that are drained and vented to the exterior of the rotorcraft. The design and construction of the enclosures must provide necessary protection for the tank, must be crash resistant during a survivable impact in accordance with § 29.952, and must be adequate to withstand loads and abrasions to be expected in personnel compartments.

§ 29.967 [Amended]

11. Section 29.967 is amended by removing paragraph (e).

12. Section 29.973 is revised to read as follows:

§ 29.973 Fuel tank filler connection.

(a) Each fuel tank filler connection must prevent the entrance of fuel into any part of the rotorcraft other than the tank itself during normal operations and must be crash resistant during a survivable impact in accordance with § 29.952(c). In addition—

(1) Each filler must be marked as prescribed in § 29.1557(c)(1);

(2) Each recessed filler connection that can retain any appreciable quantity of fuel must have a drain that discharges clear of the entire rotorcraft; and

(3) Each filler cap must provide a fuel-tight seal under the fluid pressure expected in normal operation and in a survivable impact.

(b) Each filler cap or filler cap cover must warn when the cap is not fully locked or seated on the filler connection.

13. Section 29.975 is amended by revising paragraph (a)(7) to read as follows:

§ 29.975 Fuel tank vents and carburetor vapor vents.

(a) * * *

(7) The venting system must be designed to minimize spillage of fuel through the vents to an ignition source in the event of a rollover during landing, ground operations, or a survivable impact, unless a rollover is shown to be extremely remote.

* * * * *

Issued in Washington, D.C., on September 26, 1994.

David R. Hinson,
Administrator.

[FR Doc. 94-24218 Filed 9-30-94; 8:45 am]

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Test Report 1994

Monday
October 3, 1994

Part V

Department of Transportation

Federal Aviation Administration

14 CFR Part 101

Model Rocket Operations; Final Rule

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 101

[Docket No. 26965; Amendment No. 101-6]

RIN 2120-AD84

Model Rocket Operations

AGENCY: Federal Aviation Administration (FAA), DOT.
ACTION: Final rule.

SUMMARY: This action amends the operational guidelines of the Federal Aviation Regulations (FAR) Part 101 for model rockets that: use not more than 125 grams (4.4 ounces) of propellant; are made of paper, wood, or breakable plastic; contain no substantial metal parts; and weigh not more than 1,500 grams (53 ounces). This amendment is necessary to provide for the operation of the technologically advanced, larger category, model rockets and to ensure that their operation is in concert with the maximum level of safety protection for aircraft, flight crews, and the flying public. The FAA believes that this amendment will foster important aeronautical education and research activities, while retaining appropriate operational safety precautions.

EFFECTIVE DATE: November 2, 1994.

FOR FURTHER INFORMATION CONTACT: Mr. Joseph C. White, Air Traffic Rules Branch, ATP-230, Airspace Rules and Aeronautical Information Division, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591, telephone (202) 267-8783.

SUPPLEMENTARY INFORMATION:

Background

On May 28, 1985, the National Association of Rocketry (NAR) and the Hobby Industry Association (HIA) filed a joint petition requesting that the FAA amend 14 CFR 101.1, by raising the upper weight limit on excepted model rockets from 16 ounces to 1,500 grams (approximately 53 ounces) and the allowable propellant mass from 4 ounces to 125 grams (approximately 4.4 ounces). At present, 14 CFR 101.1 exempts "model" rockets having no more than 4.0 ounces of propellant and weighing no more than 16 ounces, including the propellant.

In response to the NAR/HIA joint petition, the FAA published a Notice of Proposed Rulemaking (NPRM), Notice 92-12, 57 FR 41628, Sep. 10, 1992. Notice 92-12 proposed to amend 14 CFR Part 101 by adding § 101.22,

Special provisions for larger model rockets, and by amending § 101.25, Notice requirements, to accommodate larger model rockets. In summary, model rockets that use not more than 125 grams of propellant; that weigh not more than 1,500 grams, including the propellant; that are constructed principally of paper, wood, or breakable plastic, and continue to have no substantial metal parts; may be operated in a controlled airspace, within 5 miles of the boundary of any airport, within 1,500 feet of any person or property that is not associated with the operations or at night. These operations may be conducted, provided that persons operating these model rockets give prior notification of launch activities and other pertinent launch information to the FAA Air Traffic Control (ATC) facility nearest the place of intended operation between 24 and 48 hours prior to beginning the operation and the manager of any airport whose landing area or runway is within 5 miles of the model rocket launch site.

Analysis of Comments

Interested persons were invited to participate in this rulemaking effort by submitting written data, views, or arguments. All comments received during the comment period were considered before making a determination regarding this final rule.

During the comment period, a total of 117 comments were received in response to Notice 92-12. Two comments were received from the NAR, and one comment each, from the Airline Pilots Association (ALPA), the Arizona Pilots Association, the Airport Transport Association (ATA), and the National Fire Protection Association. Ninety-one comments were received from individuals, eight from pilots, six from model rocket associations, three from teachers/professional educators, and one each from a scientist, an aerospace educational organization, and a model rocket manufacturer. A discussion of these comments follows:

One commenter supports the NPRM as written. All other commenters oppose the NPRM and support, instead, either the original NAR petition or the development of regulatory action which proposes fewer model rocket notification requirements. Comments opposing the NPRM are summarized in the following categories, each of which is subsequently discussed more fully:

1. Approximately 95 commenters state there is no need for a separate category of "Large Model Rockets"; they favor adoption of NAR's original petition for rulemaking.

2. Approximately 74 commenters believe the NPRM's proposed notification requirements are burdensome and unnecessary.

3. Approximately 8 commenters state the FAA needs to update its rules to reflect the current technology of model rocketry and to promote the inherent educational value of the hobby.

4. Approximately 3 commenters oppose both the NPRM and NAR's original petition for rulemaking.

5. Approximately 4 commenters suggest regulatory alternatives to the NPRM.

A number of commenters oppose the proposal to establish a separate category of "Large Model Rockets" and instead support the NAR's original petition to broaden the exempt definition of model rockets. Based upon NAR and FAA studies, commenters argue that air traffic will not be adversely affected by the NAR's requested increase in the maximum, unregulated model rocket liftoff and propellant weight. The NAR reiterates that, "not a single documented incident of model rockets interfering with aviation, hitting or harming aircraft on ascent or descent of the rocket, or impairing aircraft flight operations has occurred". Commenters attribute this enviable safety record to rocketeers' voluntary compliance with the *Model Rocket Safety Code*. Accordingly, they consider the code and a rocketeer's own visual and aural check as sufficient launch safety measures. Moreover, several commenters assert that increasing model rocket weight may actually improve model rocket safety as heavier rockets are purported to have larger drag coefficients, achieve lower altitudes, have shorter flight duration, and be more easily seen by aircraft than lighter rockets.

The FAA agrees that the model rocket industry has a long and distinguished record of safety. However, as noted in Notice 92-12, the FAA must acknowledge the remote, yet inherent increase in hazard potential that accompanies greater model rocket propellant/mass weight. This consideration is particularly relevant for general aviation aircraft and rotorcraft, which operate at a lower velocity and flight altitude, making them especially vulnerable to collision with larger, more powerful model rockets. In order to provide a maximum level of safety protection to aircraft passengers and crew members, the FAA has determined that operational safeguards, beyond the *Model Rocket Safety Code* and rocketeers' own diligence, are needed for larger rockets with greater propellant/mass weight. Therefore, a

regulatory category that segregates larger rockets from smaller rockets is required.

A number of commenters believe that the proposed notification requirements for "Large Model Rocket" launches are unnecessary and burdensome. Commenters argue that the FAA has cited "no cases where notification would have increased air safety above and beyond . . . current regulations which require no notification." Several commenters also mention the potential for conflict to occur between lawful rocketeers and airport/ATC officials who are unfamiliar with model rocketry and with 14 CFR Part 101 entitlement. Two commenters detail occasions where misinformation was believed to have resulted in the denial of waiver applications or the interruption of model rocket launch competitions. Commenters are equally troubled by the requirement to notify air traffic officials within 24 to 48 hours of "Large Model Rocket" launches, regardless of where these launches occur.

The proposed notification requirements assist the FAA and airport officials in determining how model rocket launch activities may affect flight operations in a given area. The proposed requirements are not intended to hinder or minimize model rocket activity, but merely to ensure that airspace is mutually accommodating of both model rocket operations and aircraft operations. To this end, FAA or airport officials review model rocket launch information and make it available to pilots, as necessary, via air traffic control or through Notice to Airmen (NOTAM) publications. NOTAMs highlight events that may result in airspace restrictions and give time frames in which restrictions will be in effect. Review of NOTAMs offers pilots an opportunity to adjust or reschedule their flight plans in light of planned aerial activity. Because a pilot's awareness of model rocket launches enhances this safety process, the proposed notification requirements are beneficial. Additionally, to facilitate disclosure of requested model rocket launch data, the NPRM proposed a decrease in the amount and specificity of information currently required from rocketeers. For example, when there are multiple participants at a single event, rather than give names and addresses for every rocketeer, a single person may be designated as the event launch coordinator for the operation. Similarly, rather than provide the specific number, size, weight, and maximum altitude of each rocket to be launched, the appropriate individual may estimate the information. The FAA further concludes that the current level of safety will not

be decreased by utilizing the less restrictive reporting requirements as proposed in the NPRM when a single name and address of the person provided is that of the event launch coordinator, and this person is the one who has provided the other required launch data estimates for that event.

Several commenters recommend that notification of the airport manager or FAA tower facility be required only when large model rockets will be launched into controlled airspace or within 5 miles of an airport.

The current prohibition against operating such model rockets in controlled airspace, within 5 miles of an airport, within 1,500 feet of any non-participant, or between sunset and sunrise, will not apply provided the person operating the model rocket complies with the proposed modified provisions of § 101.25. The intent of the notice requirement is not to exclude or hinder model rocket operations, but to provide notification of such operations to afford an adequate level of safety for person and property in the air, as well as on the ground.

Commenters maintain that the notice requirement is unrealistic for several reasons: Model rocket launch times are inherently unpredictable as they are dependent upon favorable cloud cover and weather conditions; many impromptu launches occur at model rocket meets, making it difficult to give prior disclosure of the total number of participants and other launch information; the notification process may prove too complex for novice or youthful rocketeers; and, the notification process is likely to be cost intensive to the FAA, as the agency will be forced to process a presumably high number of waiver applications.

The FAA disagrees that the notification process may prove too complex for novice or youthful rocketeers. Through voluntary compliance with the *Model Rocket Safety Code*, model rocketeers of all ages have proven a ready aptitude and willingness for ensuring launch safety and have demonstrated an awareness of how to knowledgeably operate scientific equipment. The effective handling of these important responsibilities is believed to be an accurate indicator of rocketeers' ability to adhere to the proposed notification requirements. The FAA acknowledges that the agency will incur costs in receiving, recording, and evaluating notification information; but, the agency determines these costs to be minor.

Several commenters believe the FAA needs to update 14 CFR Part 101 to reflect the current technology of model

rocketry and to promote the inherent educational value of the hobby. According to the NAR, original model rocket limitations were set in light of what was the only foreseeable type of model rocket propellant at the time, black powder. Over the years, new propellant technologies have emerged that are vastly superior to black powder, both in terms of specific impulse and a capability to accommodate more complex payloads, e.g. cameras, radio control receivers, and computer equipment. One commenter mentions that it is difficult to construct these payloads while remaining within the present 16 ounce total weight limitation. Most commenters agree that the more diverse payloads available with larger-sized rockets present unique opportunities for promoting scientific study. Teachers and rocketry clubs report using larger rockets as educational aids. Science professionals use them in collecting data and conducting analysis. These groups believe their efforts help the United States remain academically and technologically competitive. As such, they assert that the FAA's proposed restrictions on large model rockets are counterproductive to scientific achievement and overall growth of the model rocket industry.

Three major factors form the basis of the proposed amendment: (1) The FAA's support in fostering public interest in aeronautics through model rocketry; (2) the agency's recognition of the importance for model rocketeers to utilize state-of-the-art technology to enhance educational value and international competitiveness; and (3) the agency's responsibility to ensure aircraft flight safety. Accordingly, the proposed amendment reflects the FAA's desire to support the advancement of model rocketry while maintaining an assurance that larger and faster rockets do not jeopardize the safety of aircraft in flight.

Several commenters oppose both the NPRM and NAR's original petition. The Air Line Pilots Association (ALPA) and the Air Transport Association (ATA) believe that the larger and more powerful rockets pose a potential threat to air traffic safety. Both organizations underscore the point that larger model rockets are capable of achieving aircraft cruising altitudes. In this regard, ALPA believes collision with a model rocket can cause aircraft damage beyond that "comparable to the impact of large hailstones" and that penetration of the aircraft wing skin is likely. For this reason, ALPA believes that the current provisions of 14 CFR Part 101 best ensure safety and recommends that the

notification requirements be applied to any rocket firing surpassing 1500 feet above ground level (AGL), regardless of airport proximity. Additionally, ALPA recommends that a safety officer should visually survey rocket firings in controlled areas and manufacturers should provide a copy of applicable FAA regulations relating to launch activities. The ATA favors ensuring safety by permitting no unmanned rockets within a 30-mile radius of regulated airspace.

The FAA acknowledges a minimal risk increase in hazard potential that accompanies the operation of larger, more powerful rockets. This minimal risk increase was confirmed by a March 1991 FAA study, *Model Rocketry Hazard Study*, conducted as part of the agency's analysis of in-flight collision probability between aircraft and model rockets. In concert with the study's final report recommendation, Notice 92-12 proposed certain guidelines for large model rocket launches. These proposed guidelines, together with rocketeers' proven launch safety vigilance, effectively lessen the minimal risk increase in hazard potential associated with heavier model rockets.

One commenter concurs with the safety concerns raised by ATA and ALPA and alleges that hazardous incidents have occurred with larger model rockets. This commenter believes that present technology offers model rockets sufficient propellant capacity so that the FAA should set a maximum allowable rocket weight of 3 pounds and hold propellant mass to a maximum 62.5 grams. To further ensure safety, this commenter recommends that the FAA establish clear, defined limits for model rocket construction material. The commenter contends that "hi-tech" paper and plastic are being used to construct more durable rockets than 14 CFR 101 intends.

No data was provided by the commenter to support the allegation, and the FAA has no other data which substantiates any occurrence of hazardous instances with larger model rockets. The FAA shares the viewpoint that model rockets only be constructed of paper and other breakable material. To reiterate this agency intent, Notice 92-12 maintains the current language of § 101.1(c), which outlines appropriate material for model rocket construction. However, to issue explicit direction on the manufacture of model rockets, which appears to be the commenter's suggestion, goes beyond the FAA's regulatory purview.

Several commenters asked that the FAA create a uniform set of regulations pertaining specifically to model rockets

weighing greater than 53 ounces launch weight.

The FAA acknowledges the commenters' suggestions and concerns. However, since Notice 92-12 conveyed only those proposals contained in the original NAR petition. Recommendations to create an additional set of uniform rules specifically for model rockets would be a separate rulemaking action and is beyond the scope of this particular action.

The NAR and several other commenters assert that an apparent typographical error in Notice 92-12 incorrectly reports the NAR's estimate of model rocket launches as 250,000 since the inception of the sport. Commenters state that the appropriate number, as submitted in NAR's 1985 study, is 250,000,000.

The FAA has investigated the commenters' assertion and noted that Notice 92-12 reference was "250,000 launches of model rockets since the inception of the sport . . ." The estimate, as contained in the NAR report is, "At the time the NAR's petition was submitted in 1985, NAR informed the FAA that more than 250,000,000 launches had been made." Because the number of launches of model rockets since the inception of the sport was not used in any FAA rulemaking calculations, the correct figure is hereby noted in this document and has no further bearing on this rulemaking activity.

Regulatory Evaluation Summary

Cost-Benefit Analysis

The FAA has determined that this final rule is not a "significant regulatory action", as defined by Executive Order 12866 (Regulatory Planning and Review). The anticipated costs and benefits associated with this final rule are summarized below. (A detailed discussion of costs and benefits is contained in the full evaluation in the docket for this final rule).

Costs

The final rule for unmanned rockets consists of provisions that specify what persons operating certain model rockets (rockets using not more than 125 grams of propellant; made of paper, wood, or breakable plastic; containing no substantial metal parts, and weighing not more than 1500 grams including propellant) would be required to do. The final rule is designed to accommodate the advancement of model rocketry with regulations that will also provide an adequate level of

assurance that such rockets will not jeopardize the safety of aircraft in flight.

The FAA estimates that the changes in the final rule will have a no cost impact to users of model rockets. In fact, the changes might produce a cost savings. The savings associated with these changes, however are considered negligible and unquantifiable.

Section 101.22(a)(2), however, may impose minor costs on the FAA. Persons operating model rockets will have to provide the information required in existing § 101.25 to the manager of that airport and to the FAA ATC facility that is nearest the place of the intended operation. The FAA would then incur costs associated with receiving, recording, and evaluating the material that has been received. The FAA believes that these costs will be minor.

Benefits

The final rule will provide benefits, in that the FAA has determined that the final regulations will accommodate the advancement of model rocketry and simultaneously provide an adequate level of assurance that such rockets will not jeopardize the safety of aircraft in flight.

Conclusions

Based upon the fact that there are little or no compliance costs coupled with the potential benefits, the FAA concludes that the final rule is cost beneficial.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily and disproportionately burdened by government regulations. The RFA requires agencies to review rules that may have "a significant cost impact on a substantial number of small entities."

With regards to this regulatory evaluation, there is no cost associated with any of the amendments. The FAA has determined that the amendments contained herein will not have a significant economic impact on a substantial number of small entities.

International Trade Impact Assessment

The amendments apply to users of model rockets in the United States only. There is no economic impact resulting from any of the amendments and the FAA has determined that these regulations will not have an impact on international trade.

Federalism Determination

The regulations adopted herein will not have substantial direct effects on the

states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Paperwork Reduction Act

The information collection requirements of part 101 were previously approved under OMB Control No. 2120-0027. This amendment makes only minor changes to those requirements.

International Civil Aviation Organization and Joint Aviation Regulations

In keeping with the U.S. obligations under the convention on International Civil Aviation (ICAO), it is FAA policy to comply with ICAO Standards and Recommended Practices (SARP) to the maximum extent practicable. The FAA has determined that this regulation complies with the ICAO SARP.

Conclusion

For the reasons discussed in the preamble, and based on the findings in the Regulatory Flexibility Determination and the International Trade Impact Assessment, the FAA has determined that this regulation is not a "significant regulatory action" under Executive Order 12866. This rule is not considered significant under DOT Order 2100.5, Policies and Procedures (44 FR 11034, February 26, 1979). In addition, the FAA certifies that this rule will not have a significant economic impact, positive or negative, on a substantial number of

small entities under the criteria of the Regulatory Flexibility Act. A regulatory evaluation of the final rule, including a Regulatory Flexibility Determination and Trade Impact Assessment, has been placed in the docket. A copy may be obtained by contacting the person identified under FOR FURTHER INFORMATION CONTACT.

List of Subjects in 14 CFR Part 101

Aircraft, Aviation Safety, Federal Aviation Administration, Recreation and recreation areas.

The Amendment

In consideration of the foregoing, the Federal Aviation Administration finds that it would be in the public interest to adopt the amendment as proposed. Accordingly, pursuant to the authority delegated to me, the Federal Aviation Administration amends part 101 of the Federal Aviation Regulations (14 CFR Part 101) as follows:

1. The authority citation for Part 101 continues to read as follows:

Authority: 49 U.S.C. App. 1348, 1354, 1372, 1421, 1442, 1443, 1472, 1510, and 1522; E.O. 11514; 49 U.S.C. 106(g).

Subpart C—Unmanned Rockets

2. Section 101.22 is added to read as follows:

§ 101.22 Special provisions for large model rockets.

Persons operating model rockets that use not more than 125 grams of propellant; that are made of paper, wood, or breakable plastic; that contain no substantial metal parts, and that weigh not more than 1,500 grams, including the propellant, need not comply with § 101.23 (b), (c), (g), and (h), provided:

(a) That person complies with all provisions of § 101.25; and

(b) The operation is not conducted within 5 miles of an airport runway or other landing area unless the information required in § 101.25 is also provided to the manager of that airport.

3. Section 101.25 is amended by revising the introductory text and paragraphs (a), (b), (c), and (d) to read as follows:

§ 101.25 Notice requirements.

No person may operate an unmanned rocket unless that person gives the following information to the FAA ATC facility nearest to the place of intended operation no less than 24 hours prior to and no more than 48 hours prior to beginning the operation:

(a) The names and addresses of the operators; except when there are multiple participants at a single event, the name and address of the person so designated as the event launch coordinator, whose duties include coordination of the required launch data estimates and coordinating the launch event;

(b) The estimated number of rockets to be operated;

(c) The estimated size and the estimated weight of each rocket; and

(d) The estimated highest altitude or flight level to which each rocket will be operated.

* * * * *

Issued in Washington, DC, on September 26, 1994.

David R. Hinson,
Administrator.

[FR Doc. 94-24217 Filed 9-30-94; 8:45 am]

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