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This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.
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DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

7 CFR Part 908

[Valencia Orange Reg. 370]

Valencia Oranges Grown in Arizona and Designated Part of California; Limitation of Handling

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Final rule.

SUMMARY: Regulation 370 establishes the quantity of California-Arizona Valencia oranges that may be shipped to market during the period July 4–10, 1986. The regulation is needed to balance the supply of fresh Valencia oranges with market demand for the period specified due to the marketing situation confronting the orange industry.

EFFECTIVE DATE: Regulation 370 (§ 908.670) is effective for the period July 4–10, 1986.

FOR FURTHER INFORMATION CONTACT: Ronald L. Cioffi, Chief, Marketing Order Administration Branch, F&V AMS, USDA, Washington, DC 20250, telephone: 202/447-5697.

SUPPLEMENTARY INFORMATION: This final rule has been reviewed under Departmental Regulation 1512-1 and Executive Order 12291 and has been determined to be a "non-major" rule under criteria contained therein.

Pursuant to requirements set forth in the Regulatory Flexibility Act (RFA), the Administrator of the Agricultural Marketing Service has determined that this action will not have a significant economic impact on a substantial number of small entities.

The purpose of the RFA is to fit regulatory actions to the scale of business subject to such actions in order that small businesses will not be unduly or disproportionately burdened. Marketing orders issued pursuant to the Agricultural Marketing Agreement Act and rules issued thereunder are unique in that they are brought about through group action of essentially small entities on their own behalf. Thus, both statutes have small entity orientation and compatibility.

The regulation is issued under Marketing Order No. 908, as amended (7 CFR Part 908), regulating the handling of Valencia oranges grown in Arizona and designated part of California. The order is effective under the Agricultural Marketing Agreement Act of 1937, as amended (7 U.S.C. 601–674). This action is based upon the recommendation and information submitted by the Valencia Orange Administrative Committee (VOAC) and upon other available information. It is hereby found that this action will tend to effectuate the declared policy of the act.

The regulation is consistent with the marketing policy for 1985–86. The Committee met publicly on July 1, 1986, to consider the current and prospective conditions of supply and demand and recommended the quantity of Valencia oranges deemed advisable to be handled during the specified week. The committee reports that the market for Valencia oranges is light.

It is further found that it is impracticable and contrary to the public interest to give preliminary notice, engage in public rulemaking, and postpone the effective date until 30 days after publication in the Federal Register (5 U.S.C. 553), because there is insufficient time between the date when information upon which this regulation is based became available and the effective date necessary to effectuate the declared policy of the act. Interested persons were given opportunity to submit information and views on the regulation at an open meeting. To effectuate the declared policy of the act, it is necessary to make the regulatory provisions effective as specified, and handlers have been notified of the regulation and the effective date.

List of Subjects in 7 CFR Part 908

Marketing agreements and orders, California, Arizona, Oranges, Valencias.

PART 908—[AMENDED]

1. The authority citation for 7 CFR Part 908 continues to read:

Authority: (Secs. 1–9, 48 Stat. 31, as amended; 7 U.S.C. 601–674).

2. Section 908.670 is added to read as follows:

§ 908.670 Valencia Orange Regulation 370.

The quantities of Valencia oranges grown in California and Arizona which may be handled during the period July 4, 1986, through July 10, 1986, are established as follows:

(a) District 1: 299,000 cartons;
(b) District 2: 351,000 cartons;
(c) District 3: Unlimited cartons.

Dated: July 2, 1986.

Thomas R. Clark,
Acting Director, Fruit and Vegetable Division, Agricultural Marketing Service.

[FR Doc. 86-15316 Filed 7-2-86; 4:16 pm]

BILLING CODE 3410-02-M

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

Regulation of Advanced Nuclear Power Plants; Statement of Policy

AGENCY: Nuclear Regulatory Commission.

ACTION: Final policy statement.

SUMMARY: The Nuclear Regulatory Commission intends to improve the licensing environment for advanced nuclear power reactors to minimize complexity and uncertainty in the regulatory process. This statement gives the Commission's policy regarding the review of, and desired characteristics associated with, advanced reactors. This policy statement is a revision of the "Proposed Policy for Regulation of Advanced Nuclear Power Plants" that was published for comment on March 26, 1985 (50 FR 11884).

EFFECTIVE DATE: August 7, 1986.

FOR FURTHER INFORMATION CONTACT: Ken Herring and Dennis Rathbun, Office of Policy Evaluation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 202-634-3295.

SUPPLEMENTARY INFORMATION:

Background

The Commission's primary objectives in issuing an advanced reactor policy statement are threefold:

• First, to encourage the earliest possible interaction of applicant, vendors, and government agencies with the NRC;

• Second, to provide all interested parties, including the public, with the Commission's views concerning the desired characteristics of advanced reactor designs; and

• Third, to express the Commission's intent to issue timely comment on the implications of such designs for safety and the regulatory process.

Such interaction and guidance early in the design process should enhance stability and predictability in the licensing and regulation of advanced reactors.

Advanced reactors are considered here to be those reactors that are significantly different from current generation light water reactors under construction or in operation.

The Commission expects that these designs will reflect the benefits of significant research and development work, and include the experience gained in operating the many power and development reactors both in the United States and throughout the world. The Commission expects that advanced reactors would provide more margin prior to exceeding safety limits and/or utilize simplified, inherent, passive, or other innovative means to reliably accomplish their safety functions. The Commission expects, as a minimum, at least the same degree of protection of the public and the environment that is required for current generation LWRs. For the longer term, the Commission expects designs to provide enhanced margins of safety. To provide regulatory guidance during the development phase of advanced reactor design, the Commission wishes to encourage the earliest possible interaction between the NRC and other government agencies, reactor designers, and potential licensees.

This advanced reactor policy statement sets forth the general characteristics of advanced reactor design, which the Commission believes advanced reactors should exhibit, to increase assurance of safety, to improve public understanding, and to promote more effective regulation. As the agency responsible for assuring the protection of the public from the potential hazards of nuclear power plants, the Commission will keep the public informed of its judgment on the safety aspects of advanced reactor designs as such designs come before the Commission.

A report which discusses the revisions to the Policy Statement will be published shortly as NUREG-XXX "TITLE." A copy of NUREG-XXX will be available for inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, DC.

Regulatory Policy for Advanced Reactors

The Commission intends to improve the licensing environment for advanced nuclear power reactors and to minimize complexity and uncertainty in the regulatory process. This is a statement of the Commission's policy regarding the review of, and desired characteristics associated with, advanced reactors. This policy statement is a revision of the "Proposed Policy for Regulation of Advanced Nuclear Power Plants" that was published for comment on March 26, 1985 (50 FR 11884).

The Commission's primary objections in issuing an advanced reactor policy statement are threefold:

• First, to encourage the earliest possible interaction of applicant, vendors, and government agencies, with the NRC;

• Second, to provide all interested parties, including the public, with the Commission's views concerning the desired characteristics of advanced reactor designs; and

• Third, to express the Commission's intent to issue timely comment on the implications of such designs for safety and the regulatory process.

Such interaction and guidance early in the design process should enhance stability and predictability in the licensing and regulation of advanced reactors.

The Commission considers the term "Advanced" to apply to reactors that are significantly different from current generation light water reactors (LWRs) now under construction, or in operation and to include reactors that provide enhanced margins of safety or utilize simplified inherent or other innovative means to accomplish their safety functions.

Currently, certain high temperature gas-cooled reactors (HTGRs), liquid metal reactors (LMRs), and light-water reactors (LWRs) of innovative design are considered advanced designs.

Legislative Background

The Commission's policy with respect to regulation of advanced reactors is guided by the legislative background. The Energy Reorganization Act of 1974, which established the Nuclear Regulatory Commission, specifically delegated to NRC "licensing and related regulatory authority" for demonstration nuclear reactors other than those already in existence ". . . when operated as part of the power generation facilities of an electric utility system, or when operating in any other manner for the purpose of demonstrating the suitability for commercial application of such a reactor . . ." The Energy Research and Development Administration (now the Department of Energy) was charged with ". . . encouraging and conducting research and development, including demonstration of commercial feasibility and practical applications of the extraction, conversion, storage, transmission, and utilization phases related to the development and use of energy from . . . nuclear . . . sources."

Under section 205 of the Energy Reorganization Act, the NRC must provide a "Long-term plan for projects for the development of new or improved safety systems for nuclear power plants." The NRC is precluded from designing, or doing research on, complete new designs for the purpose of establishing or developing their commercial potential.[1]

Previous Experience

The Commission has had experience in the regulation of HTGRs and LMRs as well as in the regulation of LWRs. The NRC has reviewed several applications for HTGR construction permits, and a conceptual design for a gas-cooled breeder reactor, and has granted an operating license to Peach Bottom-1 and to Fort St. Vrain. The NRC also expended substantial effort from 1975 to 1979 in reviewing General Atomic's Standard high-temperature, gas-cooled nuclear reactor steam supply system (GASSAR). In addition, the NRC has supported a modest program of safety research on gas-cooled reactors every year since the agency's inception.

The Commission has also had experience in the review and licensing of LMRs. In the past the FERMI-1 and SEFOR reactors were reviewed and licensed. DOE's Fast Flux Test Facility (FFTF) was reviewed and approved but not licensed, and a formal construction permit licensing proceeding was conducted for the Clinch River Breeder Reactor (CRBR). The CRBR was subject to the same regulatory process as any current commercial nuclear power project.

Finally, the Commission notes that the precedent for the broad policy approach to advanced reactor regulation, as

[1] The general principal defining the scope of NRC's research can be described as avoiding a conflict of interest—"[NRC] should never be placed in a position to generate, and then have to defend, basic design data of its own" as expressed in the Conference Report to the Energy Reorganization Act of 1974.

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This advanced reactor policy statement sets forth the general characteristics of advanced reactor design, which the Commission believes advanced reactors should exhibit, to increase assurance of safety, to improve public understanding, and to promote more effective regulation. As the agency responsible for assuring the protection of the public from the potential hazards of nuclear power plants, the Commission will keep the public informed of its judgment on the safety aspects of advanced reactor designs as such designs come before the Commission.

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proposed here, is firmly established in the 1979 Nonproliferation Alternative Systems Assessment Program (NASAP), wherein the NRC considered the safety and licensability of a variety of advanced reactor concepts within the context of nonproliferation objectives. The concepts considered and reported on by the NRC in the 1979 study ranged from preliminary conceptual designs to variations of existing (LWR) power plants designs.

Commission Policy

Consistent with its legislative mandate, the Commission's policy with respect to regulating nuclear power reactors is to assure adequate protection of the public health and safety and the environment. Regarding advanced reactors, the Commission expects, as a minimum, at least the same degree of protection of the public and the environment that is required for current-generation LWRs. Furthermore, the Commission expects that advanced reactors will provide enhanced margins of safety and/or utilize simplified, inherent, passive, or other innovative means to accomplish their safety functions. The Commission also expects that advanced reactor designs will comply with the Commission's forthcoming safety goal policy statement.

Among the attributes which could assist in establishing the acceptability or licensability of a proposed advanced reactor design, and which therefore should be considered in advanced designed are:

- Highly reliable and less complex shutdown and decay heat removal systems. The use of inherent or passive means to accomplish this objective is encouraged (negative temperature coefficient, natural circulation).
- Longer time constants and sufficient instrumentation to allow for more diagnosis and management prior to reaching safety systems challenge and/or exposure of vital equipment to adverse conditions.
- Simplified safety systems which, where possible, reduce required operator actions, equipment subjected to severe environmental conditions, and components needed for maintaining safe shutdown conditions. Such simplified systems should facilitate operator comprehension, reliable system function, and more straight-forward engineering analysis.
- Designs that minimize the potential for severe accidents and their consequences by providing sufficient inherent safety, reliability, redundancy, diversity and independence in safety systems.
- Designs that provide reliable equipment in the balance of plant, (or safety-system independence from balance of plant) to reduce the number of challenges to safety systems.
- Designs that provide easily maintainable equipment and components.
- Designs that reduce potential radiation exposures to plant personnel.
- Designs that incorporate defense-in-depth philosophy by maintaining multiple barriers against radiation release, and by reducing the potential for and consequences of severe accidents.
- Design features that can be proven by citation of existing technology or which can be satisfactorily established by commitment to a suitable technology development program.

If specific advanced reactor designs with some of all of the above of the foregoing attributes are brought to the NRC for comment and/or evaluation, the Commission can develop preliminary design safety evaluation and licensing criteria for their safety related aspects. Combination of some or all of the above attributes may help obtain early licensing approval with minimum regulatory burden. Designs with some or all of these attributes are also likely to be more readily understood by the general public. Indeed, the number and nature of the regulatory requirements may depend on the extent to which an individual advanced reactor design incorporates general attributes such as listed above. However, until such time as conceptual designs are submitted, the Commission believes that regulatory guidance must be sufficiently general to avoid placing unnecessary constraints on the development of new design concepts.

To provide for more timely and effective regulation of advanced reactors, the Commission encourages the earliest possible interaction of applicants, vendors, other government agencies, and the NRC to provide for early identification of regulatory requirements for advanced reactors, and to provide all interested parties, including the public, with a timely, independent assessment of the safety characteristics of advanced reactor designs. Such licensing interaction and guidance early in the design process, will contribute toward minimizing complexity and adding stability and predictability in the licensing and regulation of advanced reactors.

While the NRC itself does not develop new designs, the Commission intends to develop the capability for timely assessment and response to innovative and advanced designs that might be presented for NRC review. Prior experience has shown that new reactor designs—even variations of established designs—may involve technical problems that must be solved in order to assure adequate protection of the public health and safety. The earlier such design problems are identified, the earlier satisfactory resolution can be achieved. Prospective applicants are reminded that, while the NRC will undertake to review and comment on new design concepts, the applicants are responsible for documentation and research necessary to support any specific license application. (NRC research is conducted to provide the technical bases for rulemaking and regulatory decisions; to support licensing and inspection activities; and to increase NRC's understanding of phenomena for which analytical methods are needed in regulatory activities).

During the initial phase of advanced reactor development, the Commission particularly encourages design innovations which enhance safety and reliability (such as those described above) and which generally depend on technology which is either proven or can be demonstrated by a straight-forward technology development program. In the absence of a significant history of operating experience on an advanced concept reactor, plans for innovative use of proven technology and/or new technology development program should be presented to the NRC for review as early as possible, so that the NRC can assess how the proposed program might influence regulatory requirements. To achieve these broad objectives, an Advanced Reactors Group has been established in the Office of Nuclear Reactor Regulation. This group will be the focal point for NRC interaction with the Department of Energy, reactor designers and potential applicants, and will coordinate the development of regulatory criteria and guidance for proposed advanced reactors. In addition, the group will maintain knowledge of advanced reactor designs, developments and operating experience in other countries, and will provide guidance on an NRC-funded advanced reactor safety research program to ensure that it supports, and is consistent with, the Commission's advanced reactor policy. The Advanced Reactors Group will also provide guidance regarding the timing and format of submittals for review. The Advisory Committee on Reactor Safeguards (ACRS) will play a significant role in reviewing proposed advanced reactor design concepts and supporting activities.

Commission Position Regarding Policy Statement Questions

Six questions pertaining to the proposed policy for advanced reactors were included for comment in the original policy statement. The public responses to these questions are summarized in the "Abstract of Comments" section. After careful consideration of the public comments, the Commission response to the issues raised in each question is as follows:

Question 1. Should NRC's regulatory approach be revised to reduce dependence on prescriptive regulations and, instead, establish less prescriptive design objectives, such as performance standards? If so, in what aspects of nuclear power plant design (For Example, reactor core power density, reactor core heat removal, containment, and siting) might the performance standards approach be applied most effectively? How could implementation of these performance standards be verified?

Commission Response. Many of the Commission's existing regulations, criteria, and guidelines are of a non-prescriptive nature, and the extent to which the Commission's proposed safety goals, (which are also of a nonprescriptive nature) will be used in the regulation of nuclear reactors is currently being evaluated. In the review and regulation of advanced reactors the Commission intends to make use of existing and future regulations where they are applicable to advanced reactors. Many such regulations are expected to be of a nonprescriptive nature. The areas where existing regulations and guidelines would be used include: quality assurance, equipment qualification, external events, sabotage, fire protection, radiation protection, and operator training and qualification. In developing additional criteria and guidance to address those characteristics which differ from LWRs less prescriptive criteria will be considered. The use of less prescriptive criteria will depend upon the design in question and the ability to verify compliance with the criteria. Advanced reactor designers are encouraged as part of their design submittals to propose specific review criteria or novel regulatory approaches which NRC might apply to their designs.

Question 2. Should the regulations for advanced reactors require more inherent safety margin for their design? If so, should the emphasis be on providing features that permit more time for operator response of off-normal conditions, or should the emphasis be on providing systems that are capable of functioning under conditions that exceed the design basis?

Commission Response. The Commission encourages the incorporation of enhanced margins of safety in advanced designs and will encourage the use of designs that accomplish their safety functions in as reliable and simplified a fashion as practical. The Commission considers inherent or passive safety systems to have the potential for high reliability and encourages the consideration of such means (in lieu of active systems) in advanced designs.

To encourage such action the Commission, in its review of these advanced designs, will look favorably on designs with greater safety margin and/or highly reliable safety systems. Such desirable features can be design-related or can take the form of reduced administrative requirements.

Question 3. Should licensing regulations for advanced reactors mandate simplified designs which require the fewest operator actions, and the minimum number of components needed for achieving and maintaining safe shutdown conditions, thereby facilitating operator comprehension and reliable system function for off-normal conditions?

Commission Response. The Commission will encourage designs which are simpler and more reliable in accomplishing their safety functions. While current generation nuclear power plants, in operation or under construction represent no undue risk to either the public or the environment, the Commission believes that reactors with improved safety characteristics can and will be developed. Such improved safety characteristics support the Commission's Long-range Goal of minimizing the risk to the public and the environment through the "ALARA" approach.

Question 4. Should the NRC develop general design criteria for advanced reactors by modifying the existing regulations, which were developed for the current generation of light water reactors, or by developing a new set of general design criteria applicable to specific concepts which are brought before the Commission?

Commission Response. In developing licensing criteria for advanced reactors, the Commission intends to build upon existing regulations wherever practical, as discussed in the response to Question No. 1. In following this approach, it is the Commission's intent to establish, for each design reviewed, the licensing criteria that apply to that design. As stated in the response to Question No. 1, these criteria will be a combination of applicable LWR criteria and criteria developed to address the unique characteristics of that design. Reactor designers are encouraged to propose specific criteria and novel regulatory approaches which might apply to their design.

Question 5. Should the NRC favor advanced reactor designs that concentrate the primary safety functions in very few large systems (rather than in multiple subsystems), thereby minimizing the need for complex benefit and cost balancing in the engineering of safe reactors?

Commission Response. While the NRC will not necessarily favor one design approach over another in regard to the number of safety systems, the NRC will encourage the use of simplified systems and systems of high reliability for the accomplishment of safety functions.

Question 6. What degree of proof would be sufficient for the NRC to find that a new design is based on technology which is either proven or can be demonstrated by a satisfactory technology development program? For example, is it necessary or advisable to require a prototypical demonstration of an advanced reactor concept prior to final licensing of a commercial facility?

Commission Response. The Commission requires proof of performance of certain safety-related components, systems or structures prior to issuing a license on a design. For LWR's this proof has traditionally been in the form of analysis, testing, and research development sufficient to demonstrate the performance of the item in question. Similar proof of performance for certain components, systems or structures for advanced reactors will also be required. The requisite proof will be design dependent. Therefore, the Commission's specific assessment of a safety technology development program for an advanced reactor design, or of the possible need for a prototypical demonstration of that design can be determined only by review of a specific design. However, the Commission favors the use of prototypical demonstration facilities as an acceptable way of resolving many safety related issues.

The dissenting views of Commissioner Asselstine and the additional views of Commissioner Bernthal follow.

For the Nuclear Regulatory Commission.

Dated at Washington, DC this 1st day of July, 1986.

Samuel J. Chilk,

Secretary of The Commission.

Dissenting Views of Commissioner Asselstine

I do not believe that this advance reactor policy statement provides the sound regulatory basis needed to support a new generation of nuclear power plants in this country. This policy statement encourages, but does not require, safety improvements in advanced reactor design, and expresses a willingness on NRC's part to conduct safety reviews of advanced reactor design concepts so that NRC will be in a position to act on any future plant or design license application. The primary decision made in developing this policy is the commitment to maintain a small advanced reactor group within the Agency that would serve as the focal point for interaction with reactor design groups. However it appears that even this commitment may be in jeopardy given current budgetary constraints.

I believe that more is needed to articulate an effective regulatory policy and to ensure a successful program for future nuclear power plants in this country, whether those plants are of a type similar to current light water reactors or whether they are of more fundamentally different design. Such a policy should reconsider the Commission's regulatory practices of the past thirty years. Those past practices can be characterized as primarily a reactive regulatory regime to what the designers propose. It leaves resolution of issues to what one industry executive has called the rough, tough, surly competitive elements. Safety systems are limited because of cost considerations. Containment capabilities are minimized to reduce costs.[1] Core power densities have been driven to the limits of materials capabilities and our understanding of decay heat removal phenomena.[2] And the balance of plant is designed to lower standards than the reactor systems to minimize costs. These competitive forces are what led to the level of safety achieved in the current generation of nuclear power plants and are in part responsible for the poor performance of some of our plants.

The NRC and AEC before it have often avoided developing stringent specifications or design requirements because of a fear that if the Commission were to be too specific in its requirements, the emerging industry might be slowed in its growth and innovation might be discouraged. That argument might have had some validity in the 1960's and 1970's when the current generation of reactors was being designed without the benefit of significant operating experience or data. However, now that we have considerable worldwide experience with a large variety of nuclear reactor designs, I believe it is time for NRC to become more proactive in what it will require of futher generations of reactors.

Following the TMI-2 accident, the notion of a demarcation between the current generation of plants and a future generation of plants was raised, with the distinction that the latter would be designed based on a reformulation of the Siting Criteria and General Design Criteria to reflect all that had been learned over the years, including the broader lessons of TMI-2. Thus, the TMI Action Plan was developed with the current generation of plants in mind, leaving open the question of possible broader changes for a future generation of plants. One such broad change could be to go beyond the so-called single failure criterion which experience shows may not be serving us well. The June 9, 1985 accident at Davis-Besse is a case in point where 14 separate failures occurred.

Many foreign countries are requiring four independent trains of safety systems whereas NRC requires only two. When NRC reviews advanced designs such as the one being jointly developed by a U.S. vendor and a foreign country, the NRC staff does not require as prudent additional safety features being required by the foreign country. Rather, Commission practices and procedures require a cost-benefit analysis to justify any additional safety feature. This analysis is typically incomplete and often crude. Furthermore, the Commission gives little consideration to the enormous uncertainties in reactor risks in its decisionmaking process. This approach to reactor safety needs improvement.

There has been insufficient thought and effort in developing a map for the future. The Advanced Reactor Policy Statement provides no guidance on what containment capabilities will be required; on whether the single failure criterion is adequate for the future; on acceptable core power densities (an issue which has significant bearing on the core meltdown risks to the public); and on the root causes of the core meltdown risks that might be addressed by design improvements in a future generation of reactors. Nor is there guidance on what standards the balance of plant must meet. Nothing is said about the fuel cycle and the process for licensing the fuel cycle associated with some of the advanced designs currently being examined. For example, one problem area presented by some designs in the proliferation potential of the reactor's fuel cycle. This fuel cycle could present the need for the Commission to reopen the aborted proceeding on plutonium recycle. And, finally the Commission gives essentially no guidance on whether a prototypical plant will be required before allowing widespread use of that design. This policy statement encourages much, just like the Commission encourages excellence in operations. However, the Commission too often accepts far less. I would have expected that NRC would approach a future generation of nuclear power plants with an attitude of correcting past weaknesses. Unfortunately, the Advanced Reactor Policy Statement does not reflect that kind of attitude.

Other countries with extensive nuclear power programs appear to be designing, constructing, operating and maintaining better nuclear power plants than those of this country. Foreign countries are demanding more safety and reliability in their current generation of plants than the NRC is requiring of the U.S. plants. Yet, this Advanced Reactor Policy Statement accepts the next generation of U.S. power plants if such a design provides a level of safety equivalent to that achieved in the U.S. designs that were completed over 10 years ago. I do not think such a policy serves the country well. My concern is not merely that we should keep up with others. Rather, my concern is that the current generation of plants is still surprising us in their performance. As the Commission has recently acknowledged to the Congress, the current generation of nuclear power plants in this country can best be characterized as a complex technology that is not fully mature. There remain great uncertainties in the level of risk they pose to the public. In such circumstances, I believe prudent decisionmaking should come down on the side of improved safety, not only for the current generation of plants but for the next generation as well.

If there is to be a future generation of nuclear power plants and if the nuclear option is to be an important element of the nation's future energy mix, then the NRC, the vendors, the utilities, and the Congress must ensure that the next generation of power plants is substantially better than the current generation. The next generation of plants should be more reliable, more forgiving, simpler, easier to construct, easier to operate, and easier to maintain than the current generation. Any design that does not accomplish this is not acceptable in my view. I say this for a straightforward reason. We cannot affort to will to the future reactor designs that have a fifty percent chance of a core meltdown every ten to twenty years in a population of 100 reactors. We should not will to the future the great uncertainties in safety levels that exist today. Nor should we will to the future consumer reactor designs that have a 50 to 60 percent capacity factor.

We must step back and examine the strengths and weaknesses of past and current designs and the approaches taken in getting where we are today. Only then, in my view, can we intelligently map a course for the future. I am encouraged that there is a

[1] For example, to keep the containment size down, crucial pumps, heat exchangers, and emergency water supplies have been located outside the containment, which results in flow paths for highly contaminated water that effectively bypass the containment. In addition, containment volumes and design pressures have been traded-off for pressure suppression schemes that substantially complicate safety analyses and that add additional vulnerabilities to the public health and safety. Initially containments were intended to be an independent barrier to substantial releases given a core meltdown. Some of that defense-in-depth was given up for the sake of costs, when large power reactors came on the scene in the mid-1960's and it became known that the decay heat and the core meltdown phenomena could fail the containment.

[2] For example, in the event of a loss of coolant accident, external water supplies must be rapidly injected into the core to keep it from melting. While some relatively small-scale integral experiments on loss of coolant phenomena have been completed, there are still multinational supported research programs underway to further examine thermal hydraulic phenomena during accidents. Further, we are just beginning expensive, integral effects tests on thermal hydraulic phenomena associated with a class of pressurized water reactors.

segment within the industry that is undertaking a fresh look at the nuclear technology. The forward-looking members of the industry are attempting to generate a set of requirements that, from the standpoint of the utilities, must be met before utilities will consider placing new orders. I find it disappointing that the NRC is unwilling to generate a set of safety requirements for the next generation of power plants.

Additional Views of Commissioner Bernthal on Advanced Reactor Policy Statement

Less than three years ago, the Commission began to consider seriously its responsibility (and the mandate of Congress) to become more deeply involved with early review and comment on new and advanced reactor design concepts. Such early design review has long been a commonplace within the Federal Aviation Administration, for example, where timely FAA review and comment on new airframe design proposals is longstanding tradition.

The Commission has since undergone considerable progressive evolution in its thinking on this subject, and in this document the Commission, for the first time, has gone on record as supporting such timely, anticipatory safety review of new design concepts. In addition, the Commission has plainly stated its expectation that next-generation reactors will exhibit enhanced and simplified safety characteristics, and has set down broad and diverse guidelines for how it believes such characteristics might be achieved.

There is little doubt that this policy statement as it stands fails to conform in some respect with each Commissioner's ideal of what such a statement should be. But I find the statement to be a major step forward; it commits the Commission to exactly the kind of "proactive" planning that Commissioner Asselstine still seems to find absent.

Many of the specific objections raised by my colleague are puzzling. His sweeping statement that "containment capabilities are minimized to reduce costs" and "core power densities have been driven to the limits of materials capabilities and our understanding of decay heat removal phenomena" are scientifically insupportable and inconsistent with the facts as generally understood. The fact is that containment capabilities were in general designed to cope with well-known accident scenarios, and core power limits were conservatively derived.

Nor *should* the Commission insist on "specific requirements" for advanced reactor designs—indeed, such insistence would go far beyond our mandate (and our capability). Such specificity was never the intent of this policy statement. Detailed specification of systems such as containment, for example, was never contemplated as an objective of the "advanced reactor" policy; indeed, one can imagine advanced reactor designs that might demand *less* containment capability than current generation LWR plants.

In sum, it was never intended that this statement promulgate "a set of safety requirements". As the statement notes, broad safety requirements are to be addressed in the Commission's forthcoming Safety Goal Policy Statement (to the extent they are not already addressed in the Severe Accident Policy Statement and elsewhere). Furthermore, the Commission's response to Question 6 makes clear its encouragement of plant designs firmly grounded in prototypical plants—just as Commissioner Asselstine desires.

Nor does this policy "accept the next generation of U.S. power plants if [they] provide a level of safety equivalent to that achieved in the U.S. designs that were completed 10 years ago." There is necessarily room for interpretation in the Commission's pronouncement, but whether or not the Commission might ever issue (or be asked to issue) new construction permits replicating "current generation plants, plants whose designs were largely frozen more than 10 years ago" is not the question. It is amply clear from this policy statement that "the Commission expects that *advanced* (emphasis added) reactors will provide enhanced margins of safety . . .", and the Commission has broadly defined "advanced" to include reactors that lie beyond current generation designs.

Finally, Commissioner Asselstine's comment that the "next generation of plants should be more reliable, more forgiving, simpler, easier to construct, easier to operate, and easier to maintain than the current generation" is a nice synopsis of the broad guidelines clearly set forth in this policy statement. I am pleased that he concurs in the desirability of those traits.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 86-CE-18-AD; Amdt. 39-5350]

Airworthiness Directives; Aerostar (Raven) Models S-40A, S-50A, S-55A, S-60A, S-66A, S-77A, RX-6, RX-7, and W100LB Hot Air Balloons

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new Airworthiness Directive (AD), AD 86-10-11, applicable to Aerostar (Raven) Models S-40A, S-50A, S-55A, S-60A, S-66A, S-77A, RX-6, RX-7, and W100LB balloons and codifies the corresponding priority letter AD issued May 21, 1986, into the Federal Register. This AD requires a one-time check to detect and remove from service certain defective fuel hose assemblies.

DATES: *Effective Date:* July 10, 1986, to all persons except those to whom it has already been made effective by priority letter AD from the FAA issued May 21, 1986.

Compliance: As prescribed in the body of the AD.

ADDRESSES: Aerostar Service Bulletin No. 120, undated, applicable to this AD may be obtained from Aerostar International, Inc., 1812 "E" Avenue, Sioux Falls, South Dakota 57104. A copy of the information is also contained in the Rules Docket, Office of the Regional Counsel, Room 1558, 601 East 12th Street, Kansas City, Missouri 64106.

FOR FURTHER INFORMATION CONTACT: Mr. Ty Krolicki, Chicago Aircraft Certification Office, FAA, ACE-140C, 2300 East Devon Avenue, Des Plaines, Illinois 60018; Telphone (312) 694-7032.

SUPPLEMENTARY INFORMATION: This AD is necessary because a manufacturing process deficiency has been identified which has resulted in the installation of certain fuel supply hose assemblies in Aerostar (Raven) hot air balloons which are prone to splitting and subsequent fuel leakage. In the latter half of 1984, the manufacturer who supplies the hose to Aerostar experienced formulation or process problems in the manufacture of the multi-layered (rubber, braided cloth, and braided stainless steel) hose. The FAA has received reports which indicate that the inner-layered rubber hose is subject to "rapid aging" resulting in longitudinal splitting. These hoses carry propane liquid under pressure and this longitudinal splitting will result in a fuel leak which could result in uncontained fire in the balloon basket. Therefore, this AD is being issued to require a one-time check to detect and remove from service these defective hose assemblies. These hoses may have been installed as original equipment in new production balloons produced by Aerostar (Raven) between July 1, 1984, and May 12, 1986, or as replacement hoses for balloons with earlier production dates. Aerostar Service Bulletin No. 120 is referenced in a note added to the codified release of the AD for clarification. The service bulletin was not called out in the priority letter AD because it was not available at that time.

Paragraph (b) of the AD was revised to clarify our intention that only hose assemblies which contained the "FC321-06" markings (but were missing the date of manufacture code) needed to be replaced, besides the hose assemblies which met the marking criteria of paragraph (a). Until October of 1979, Aerostar (Raven) had used a hose type with different markings or no markings at all in the manufacture of their ballons. The AD does not require replacement of the older hose. Words were also added to this paragraph specifically requiring