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MINUTES OF THE
ACRS SUBCOMMITTEE MEETING ON
TRANSPORTATION OF RADIOACTIVE MATERIALS
AUGUST 24, 1982
WASHINGTON, D.C.

INTRODUCTION

The ACRS Subcommittee on Transportation of Radioactive Materials held a meeting on August 24, 1982, at 1717 H Street, N.W., Washington, D.C., to continue its discussion on the adequacy of the activities of the Transportation Certification Branch (TCB) of the Office of Nuclear Material Safety and Safeguards (NMSS) of the NRC. The entire meeting was open to the public attendance. Mr. Sam Duraiswamy was the Designated Federal Employee for the meeting. A list of documents submitted to the Subcommittee is included in Attachment A.

ATTENDEES:

ACRS: C. P. Siess (Subcommittee Chairman), J. C. Mark, M. Bender, and D. W. Moeller (part time).
Sam Duraiswamy (Designated Federal Employee).

ACRS Consultants: J. Langhaar and Z. Zudans.

Principal
NRC Speakers: R. Cunningham, C. MacDonald, and D. Hopkins.

EXECUTIVE SESSION

Dr. Siess, the Subcommittee Chairman, convened the meeting at 8:30 a.m. and reviewed briefly the schedule for the meeting, indicating that in the morning portion of the meeting the Subcommittee would discuss a draft report, prepared by him on behalf of the Subcommittee, on the adequacy of the TCB activities as they relate to the review procedures for certifying packages for the transportation of radioactive materials. In the afternoon portion of the meeting, the Subcommittee would discuss the proposed revisions to 10 CFR Part 71, "Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions". He said that the Subcommittee had received neither written comments nor requests for time to make oral statements from members of the public. He mentioned that the Subcommittee had received some written comments on the proposed revisions to 10 CFR Part 71 from Mr. Langhaar, one of the Subcommittee's consultants, and the Staff's responses to these comments will be discussed during the course of the meeting.

DESIGNATED ORIGINAL

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BACKGROUND INFORMATION

In September 1980, Mr. Cunningham, Director, Division of Fuel Cycle and Material Safety of NMSS requested that the ACRS perform an independent review of the adequacy of the TCB activities as they relate to the review procedures for certifying packages for transportation of radioactive materials. The ACRS discussed this request by Mr. Cunningham with the Commission and it was subsequently endorsed by the Commission during December 1980.

The ACRS Subcommittee on Transportation of Radioactive Materials was assigned to perform such a review. The Subcommittee held six meetings, as shown below, to review this matter:

October 29, 1980, in Washington, D.C.
March 10, 1981, in Washington, D.C.
May 20, 1981, in Washington, D.C.
October 1 and 2, 1981, in Oak Ridge, Tennessee
April 14, 1982, in Washington, D.C.
August 24, 1982, in Washington, D.C.

The first two meetings were devoted primarily to define the scope of the Subcommittee's review of the related matter. The Subcommittee decided to limit its review scope only to the activities of the TCB as they relate to the TCB procedures in certifying packages for transportation of radioactive materials; it decided not to extend its review scope to include the existing transportation regulations, since they are under review and subject to change. However, in order to have a clear perspective of the roles of various other offices of the NRC and other Federal Agencies in the field of transportation of radioactive materials, the Subcommittee met with the representatives of the following:

NRC Offices Other Than NMSS

- ° Office of Nuclear Regulatory Research (RES) including the Office of Standards Development
- ° Office of State Programs (OSP)
- ° Office of Inspection and Enforcement (IE)

Headquarters
Region III
Region IV

Other Federal Agency

- ° U.S. De

The Subcommittee also met with the following industry representatives in order to have a clear understanding of the activities of the Shippers and Receivers of radioactive packages.

Industry

- ° Chem-Nuclear Systems
- ° Nuclear Assurance Corporation

Based on the information obtained in these meetings, Dr. Siess prepared a draft report summarizing the Subcommittee's findings and recommendations on the adequacy of TCB procedures in certifying packages for transportation of radioactive materials. Although not requested by Mr. Cunningham in his original request, Dr. Siess included in his report some other issues in the transportation of radioactive materials area that came to light during the course of the subject review.

DISCUSSION OF THE DRAFT REPORT ON THE TCB ACTIVITIES

The Subcommittee and its consultants discussed the report prepared by Dr. Siess on the adequacy of TCB activities. After extensive discussion, the Subcommittee approved the report with some minor changes. The Subcommittee decided to submit this report to the full Committee during the September 9-11, 1982 ACRS meeting with the recommendation that the full Committee review and approve or endorse the Subcommittee's report and transmit it to the Commission or to the Executive Director for Operations.

Some of the Subcommittee's findings and recommendations included in its report are as follows:

- ° TCB is doing a generally excellent job of reviewing and certifying packages for the transportation of radioactive materials in accordance with the requirements of 10 CFR Part 71.
- ° The documentation procedures used by TCB have some inadequacies. In some instances, errors in the Applicant's Safety Analysis Report (SAR) have been allowed to go uncorrected if the TCB Staff has found them to be un consequential or if the acceptability of the design has been demonstrated by the Staff's independent

calculations. This practice permits an erroneous document to exist and could be troublesome if the same or another Applicant tried to use or reference it in connection with another application.

- ° The bases for certain judgments exercised by the TCB Staff to determine the acceptability of a package design have not always been documented for future reference. Lack of such documentation has the potential for inconsistent decisions in the future.
- ° Feedback to the TCB from package users and transporters, from IE and from DOT is far from complete. More extensive feedback is necessary and the TCB should review the incidents or accidents with a view toward changes in package design that might reduce the probability of serious procedural errors.
- ° Appendix E to 10 CFR Part 71 contains QA requirements for several activities such as design, purchase, and fabrication; since not all of these requirements apply to all of these activities, and since not all the licensees will be involved in all of these activities, there would be merit in rewriting or reorganizing Appendix E to make clear what applies to whom.

In addition, to providing comments on the TCB activities, the Subcommittee provided the following comments on the overall regulatory structure associated with the transportation of radioactive materials:

- ° It is not clear that anyone, inside or outside of the NRC, has or could reasonably be expected to have a clear and complete picture of the full spectrum of activities in the transportation area and of the effectiveness with which they are being carried out in actual practice. A review of the entire regulatory process and organization in this area is needed in an attempt to more clearly define the role of each organization and to adjust those roles as might be useful and practical. It is recommended that the NRC undertake such a review, including at least the NRC offices involved and their interfaces with other agencies, but preferably including all of the agencies now sharing responsibility. Further, special attention

should be given to the inspection and enforcement function of the NRC activities if there is likely to be a substantial increase in the volume of radioactive material to be transported under NRC regulatory control.

Mr. Langhaar commented (Attachment B, Page 1) that there is one other point relating to guidance to Applicants and Staff which the Subcommittee did not explore, but which may be pertinent. The information and certain analysis required by the Staff from Applicants for use in the Staff's review of package designs is not uniform in nature. He believes that such a practice may cause some problem, especially when there is a change in assigned personnel during the course of a review. He believes that there may be a need for more uniform practice and more guidance to certain reviewers and Applicants with regard to what is expected of them.

Dr. Siess said that he believes that the concern raised by Mr. Langhaar is partially covered in the Subcommittee's report. However, he suggested that the TCB Staff consider the concern expressed by Mr. Langhaar.

Indicating that there have been some indications that budget constraints will reduce the number of inspections in the transportation area, Dr. Mark asked how serious that problem is going to be. Mr. Cunningham responded that he believes that it is a serious problem. He stated that the results of the review of the whole transportation program that is being proposed will identify the need for more inspection in the transportation area. In the future, more resources will have to be devoted to this problem. Mr. Grella added that, at present, there are no NRC inspectors dedicated solely for the transportation activities. He also believes that, if the number of inspections in the transportation area is going to be increased, additional resources will be needed.

DISCUSSION OF PROPOSED REVISIONS TO 10 CFR PART 71, "PACKAGING OF RADIOACTIVE MATERIAL FOR TRANSPORT AND TRANSPORTATION OF RADIOACTIVE MATERIAL UNDER CERTAIN CONDITIONS" - MR. D. HOPKINS

Mr. Hopkins discussed the reasons for and the nature of the proposed revisions to 10 CFR Part 71. He said that the present NRC regulations related to the transportation of radioactive materials are based on, and are consistent with, the International Atomic Energy Agency (IAEA) transportation regulations that

were published in 1967. Since IAEA had published a revised version of its transportation regulations in 1973, coupled with the fact that several of the foreign countries had revised their regulations to incorporate the provisions of the 1973 IAEA regulations, the NRC has decided to revise its regulations to bring them into general accord with the IAEA regulations that were published in 1973. The proposed revisions to 10 CFR Part 71, in combination with a corresponding amendment to 49 CFR 173 (Department of Transportation regulations), would bring the U.S. regulations into general accord with the relevant portions of the IAEA regulations to the extent considered feasible, thereby making U.S. regulations compatible with the domestic regulations of most of the international community.

Mr. Hopkins said that the proposed 10 CFR Part 71 differs significantly from the existing one in the following areas:

- ° Transport groups for radionuclides are deleted and replaced by a new system of determining allowable activity limits for individual radionuclides both in "normal" and "special form"; each radionuclide will be assigned two values, A_1 and A_2 , which are the maximum quantity of that radionuclide permitted in Type A packages in special form and normal form, respectively.
- ° The "Large Quantity" classification is eliminated.
- ° Two classes of Type B packages are included in the proposed 10 CFR Part 71; Unilateral approval - Type B(U) - for international carriage; Type B(U) packages require approval only by the competent IAEA-member state which originally approved the package design. Multilateral approval - Type B(M) - for international carriage; Type B(M) packages require approval by the competent authority of each country through or into which the package travels.
- ° The new criteria for Low Specific Activity materials are being withdrawn and are not considered further.

- ° Provisions for the use of freight containers (containers designed to hold several packages of radioactive material) are added to the regulations.
- ° Measurement and test parameters are specified in metric rather than English units.
- ° Minor changes include: (a) new qualification criteria for "special form" materials, (b) changes in criteria for exemption of fissile materials from the requirements of 10 CFR Part 71, (c) defining the necessary test sensitivity for satisfying the "no leakage" under normal conditions of transport requirement, and (d) adding lead-201 to the list of radio-nuclides which are assigned A_1 and A_2 limits by the regulations.

The Subcommittee wondered why it took about ten years for the NRC to incorporate the provisions of the IAEA regulations. Mr. Hopkins said that the main reason for such a delay in incorporating the IAEA regulations is that the NRC does not have a commitment to adopt IAEA regulations as soon as they are issued.

Dr. Siess asked whether the delay in implementing the IAEA regulations would have some impact on the public health and safety. Mr. Hopkins responded that he does not believe that such delays would have any impact on public health and safety. However, it would cause some interference in making international shipment.

Dr. Mark asked whether the proposed 10 CFR Part 71 would be compatible with the next version of the IAEA regulations that are expected to be issued in 1984. Mr. Hopkins responded that the proposed 10 CFR Part 71 is not intended to be compatible with the expected 1984 version of the IAEA regulations; it is intended to incorporate the provisions of the 1973 IAEA regulations. However, they are trying to take into account, as appropriate, some of the changes that are expected to be included in the 1984 version of the IAEA regulations.

Dr. Mark asked what type of changes are expected to be in the 1984 version of the IAEA regulations. Mr. Hopkins responded that IAEA is expected to adopt both the

deep immersion test as well as a substantial crush test for packages. The immersion test, to be applied only to spent fuel casks, will require casks to be tested for structural integrity by immersing them in water at a pressure corresponding to a depth of 200 meters. The crush test will require that certain packages be tested for structural integrity by dropping a heavy weight on them from a certain height.

Dr. Moeller asked whether the NRC Staff has performed any analysis to look at the consequences of spilling spent resin into a water supply during a transportation accident. Mr. Hopkins responded that they have not analyzed the consequences of low-level wastes contaminating a water supply. Their main concern have been related to the airborne contamination of radioactive spills. They believe that the probability of spilling radioactive materials into a water supply during a transportation accident is much less than that of spilling such materials on dry land. Therefore, most of the analyses performed by them have been related to the consequences of airborne contamination during a transportation accident.

Dr. Moeller commented that one should not ignore the possibility of a truck or train carrying radioactive shipments going off a bridge, spilling radioactive material in the water, and contaminating a water supply. He said that he would like to see any analysis that has been performed on this issue.

Dr. Moeller asked what is the basis for the 2 millirem/hour dose limit specified in paragraph (d) in Section 71.47 which requires that, for a package transported in an exclusive-use vehicle by rail, highway or water, radiation levels must not exceed 2 millirem/hour in any normally occupied position of the vehicle, unless persons occupying these positions are provided with special health supervision. Mr. Hopkins responded that the 2 millirem/hour dose limit is taken from DOT regulations. He mentioned that the NRC Staff has not evaluated the appropriateness of this dose limit for exclusive-use vehicles.

Dr. Moeller asked whether the 2 millirem/hour dose limit is compatible with the proposed 10 CFR Part 20. Mr. Hopkins responded that they have not yet evaluated the proposed 10 CFR Part 20 to see whether some of the provisions of 10 CFR Part 71 are compatible.

Dr. Moeller suggested that the NRC Staff evaluate whether some of the provisions in 10 CFR Part 71, such as the 2 millirem/hour dose limit, are compatible with the proposed 10 CFR Part 20 as well as with the ICRP recommendations.

Dr. Mark commented that the correlation between enrichment and the maximum permissible amount of U-235 specified in Table I is not clear. Further, he is skeptical about the specific activity levels specified in Table A-1 for some of the isotopes.

Dr. Siess asked whether the requirement in paragraph (b) of Section 71.51 related to filters applies only to normal conditions of transport. Mr. Hopkins responded that it should apply also to accident conditions of transport and they would make appropriate changes to reflect this point.

Dr. Siess suggested that a decision table would be helpful to follow the contents of 10 CFR Part 71.

The Subcommittee discussed the resolution by RES of the comments by TCB and the comments provided by Mr. Langhaar, ACRS consultant (Attachment C, Pages 1-8).

After further discussion, the Subcommittee indicated that it would recommend the proposed revisions to 10 CFR Part 71 to the full Committee for concurrence during the September 9-11, 1982 ACRS meeting.

Dr. Siess thanked all participants and adjourned the meeting at 5:02 p.m.

A transcript of the open portion of the meeting is available in the NRC Public Document Room at 1717 H Street, N.W., Washington, D.C., or can be obtained at cost from Alderson Reporting, 400 Virginia Avenue, S.W., Washington, D.C. 202/554-2345.

LIST OF DOCUMENTS SUBMITTED
TO THE SUBCOMMITTEE AND ITS CONSULTANTS

1. Proposed Revisions to 10 CFR Part 71
2. Comments from J. Langhaar on 10 CFR Part 71 transmitted to S. Duraiswamy through a letter dated August 2, 1982.

1680 Bay Shore Drive
Cocoa Beach, FL 32931

2 August, 1982

Mr. Sam Duraiswamy
U. S. Nuclear Regulatory Commission
Advisory Committee on Reactor Safeguards
Washington, D. C. 20555

CC: Dr. C. P. Siess
805 Hamilton Drive
Champaign, IL 61820

Dear Mr. Duraiswamy:

REVIEW OF PROPOSED REVISED 10 CFR Part 71

As requested in your letter of 13 July, 1982, following are some comments on the proposed revised 10 CFR Part 71. Since the major objective is to achieve better compatibility with present and predicted design and performance requirements of the IAEA regulations, and not to affect significantly the degree of safety, these comments do not consider the possibility that certain requirements may be more stringent or less stringent than justified, except for a couple of cases where they seem unrealistic. There is evidence that from a real risk standpoint, the regulations go beyond the point of diminishing returns; however, the risk as perceived by the public must be factored in. In a cost-benefit analysis, if one could be made, the manner of application of the regulations, particularly in the area of structural analysis, would be of major concern, because some deviation from specified performance requirements would have a negligible effect on safety in practice. This should be taken into account in any regulatory guides such as might ensue from the omission of certain previously proposed allowable stress levels.

The staff responses to various public comments seem appropriate except, as discussed later, with respect to pressure relief devices (p. 19 of Enclosure F) and the minor matter of converting 800C to 1475F. (p. 78 of Enclosure F).

The NRC Staff is to be congratulated on the improved organization and clarity of the proposed revision. The objective of compatibility with present IAEA regulations is generally satisfied, although the omission of some of the requirements could result in some U.S. packages being unacceptable in other countries at least until the IAEA regulations are revised. We cannot assess the degree of compatibility with future IAEA regulations, because of lack of sufficient information on what changes are expected; however, there has been considerable support in several countries for including requirements for resistance to crushing, which recent studies have indicated to be one of the most likely causes of packaging failure in an accident. Unless this is considered applicable only to Type A packages, some comments about it in the preamble and/or some related regulatory requirements would seem to be in order.

§71.4, definition of "maximum normal operating pressure", says "... in the absence of operational controls during shipping." The main reason for the one year period was to allow for packages being lost, strayed, or stolen. One might question whether there is justification for that particular period of time; however, it would seem that there would be concern also about lack of operational controls while unattended somewhere, as well as "during transport".

§71.4, definition of "nuclear waste". It would help to give the requirements of Part 73 also in Part 71.

§71.4, definition of "Type B package". It is not clear whether bolt stretch to relieve gasket compression, or distortion of the closure, for example, would be considered to represent a "pressure relief device." §71.51(a)(2) would allow the escape of an amount A_2 for both B(M) and B(U); controlling it by a reseating pressure relief device might be better than allowing escape by other means.

§71.4, definition of "Shipment Notification Quantity". This concept appears to be used only in the definition of "nuclear waste". Cross-reference would help.

§71.10(a) There is an internal inconsistency here, because by definition a radioactive material cannot have a specific activity of 0.002 microcurie/gm or less.

§71.13(b)(2) It would be better to say "...satisfies any applicable requirements of this part."

§71.13(c) It is apparently not required that a licensee submit such an application unless he wants to have a package classified as B(U). However, this should be clarified. Also, would it be required to meet all requirements of this part, or only those that distinguish B(U) from B(M) ?

§71.31(b) This could be taken to mean that any modification, even if not safety related, would result in ratcheting to the new standards. This is probably not intended, as indicated by §71.13(b)(2), and should be clarified.

§71.43(f) There is no clear way out of this, but "no loss or dispersal" may be taken to mean zero for a fissile material package with a Type A quantity. Then, since this is a standard for all packages, the exception in §71.51(a)(1) for Type B seems inconsistent. The same sort of problem exists in IAEA regulations.

§71.45(b)(1) The 2-5-10 g requirements, which are carried over from present Part 71, are not in IAEA regulations, and unless there are very recent substantiating test results, do not have a suitable technical basis. For highway and water transport under normal conditions, it was concluded a few years ago that the figures are excessively high and result in unnecessary cost for design, analysis, and fabrication. For rail transport, there is some evidence that the 2 g vertical is too low and the 5 g lateral is too high -- for the bed of the vehicle. What the tiedown attachments on the package would experience may be quite different, depending on the design of the entire system. It is recommended that either substantiating data should be published or the numbers should be deleted. Adequate protection is provided by §71.45(b)(3), which requires that even if the tiedown device should fail, the package would otherwise be OK.

§71.51(a)(1) This is not an additional requirement.

§71.51(b) There is reason to suppose that a mechanical cooling system would sometimes fail to function after an accident. However, filters can be designed to remain operative, and to be effective in removing certain radionuclides. There is no clear reason to discourage completely the use of filters; it would seem better to have the restriction apply only to B(U), as is done in the IAEA regulations.

§71.51(c) If the package does not satisfy the requirements of this section, it is not a Type B package. Should not this provision for LSA be located elsewhere in the regulations?

§71.71(c)(1) A table of this type has some merit in cases where the solar radiation is of minor consequence. However, the percentage error may be large, and there is uncertainty about how to apply the figures. For example, for a cylindrical, finned cask, would the "curved surface" figure be applied to the projected area? How much off of horizontal is "not horizontal"? How would the figures be applied to a finned, rectangular (i.e., flat surface) package transported with its axis inclined from the horizontal? The IAEA did allow, in a footnote, the alternative of calculation using a sine function for the intensity of solar radiation. This is not included in the proposed Part 71. It is recommended that more explicit directions be given on use of the table, and that alternative methods of calculation be permitted and described. It should be noted that in using the table, zero should be assumed for the other 12 hours of a day.

§71.71(c)(7) The upside down drop of a 100 ton cask as a normal condition of transport has no realistic basis, and one might hope that the IAEA will recognize this in their forthcoming revision. If, as sometimes suggested, this provision gives protection against some other unspecified occurrences, it would seem better to try to specify those occurrences.

§71.73(c)(3) and elsewhere. The inaccurate conversion of 800°C to 1475°F is defended on grounds that seem a little shaky. It would be fortuitous if a rather "unround" number like 1475 F was originally selected without consideration of its being very close to 800 C. In any event, conversions should be correct to as many significant figures as given, unless an explanation is also given. Note that §71.77(d) incorrectly says 800°F.

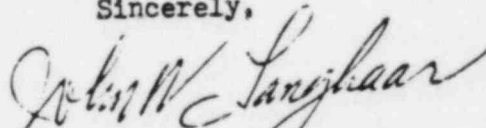
§71.85(b) The internal pressure of some containers will increase with time because of radioactive decay or other chemical and physical action. In such cases, special precautions may be taken to ensure prompt transport and delivery, so that holding the package for one year to develop the "maximum normal operating pressure" might be classed as an accident. If a package is lost, there is nothing magic about one year, although this figure was arbitrarily selected by the IAEA. It would thus seem justified to permit release corresponding to accident conditions, and to permit the use of a pressure relief device (and perhaps also a filter) in order to avoid what might be an excessively costly or heavy container to withstand a test pressure 50% above the defined MNOP. The staff response on this subject on p. 19 of enclosure F indicates that a pressure relief device might be used, but that nevertheless a test pressure 50% above MNOP would be required. (The reference to Subpart C is not clear; perhaps Subpart E was intended). This staff response also indicates that relief from the requirement would not be granted under §71.41(c). Further consideration of this matter is recommended.

§71.87(k) Suggest saying "...will remain within the limits ..." rather than "...are within the limits ...".

§71.97(a) There must be a reason for it, but it is not clear why the advance notification is only for "nuclear waste". The same material (except for irradiated fuel) going to a facility other than a disposal site, or a quantity of cobalt-60 going to a food irradiation facility, for example, would apparently not require such notification. This might be cleared up by inclusion here of the notification requirements of 10 CFR Part 73 which were referred to.

In summary, I regard the proposed Part 71 as a substantial improvement over the present Part 71, and appreciate the extent of the effort which went into producing this document. There are a few provisions which seem unjustified and should be considered further, and a few paragraphs which need clarification.

Sincerely,



John W. Langhaar

ACRS COMMENTS

(LANGHAAR LETTER DATED 2 AUGUST 1982)

1. PARA. 1, PERFORMANCE REQUIREMENTS - PART 71 AND IAEA (IN 1984) MOVING TO PERFORMANCE REQUIREMENTS.
2. PARA. 3, IAEA INCOMPATIBILITY - PACKAGES FOR INTERNATIONAL USE CAN BE EVALUATED AGAINST BOTH REGULATIONS.
3. PARA. 3, FUTURE IAEA REGULATIONS - MECHANISMS EXIST FOR INFORMATION ON IAEA RULES.
4. 71.4, MNOP DEFINITION - ONE YEAR PERIOD AGREED ON INTERNATIONALLY. EXCEPTIONS AVAILABLE THROUGH REGULATIONS WHEN JUSTIFIED. PART 71 LIMITED TO TRANSPORT.
5. 71.4, PART 73 REQUIREMENTS - SPENT FUEL REQUIREMENT IN PART 73 FOR INFORMATION SAFEGUARDING PROVISIONS.
6. 71.4, BOLT STRETCH - NOT CONSIDERED A PRESSURE RELIEF DEVICE UNDER PART 71. NOT AN ENGINEERED FIXTURE.
7. 71.4, SHIPMENT NOTIFICATION QUANTITY - CONFUSION REDUCED BECAUSE "NUCLEAR WASTE" DEFINITION ELIMINATED.
8. 71.10, INCONSISTENCY - DEFINITION OF RADIOACTIVE MATERIAL DELETED.

9. 71.13(b), EDITORIAL - NO CLEAR ADVANTAGE.
10. 71.13(c), LICENSEE CHOICE - INTENT APPEARS CLEAR.
11. 71.13(c), ALL OR PARTIAL REQUIREMENTS - INTENT APPEARS CLEAR THAT ALL REQUIREMENTS MUST BE MET.
12. 71.31, INCONSISTENCY - EXCEPTION ADDED TO 71.31 (b).
13. 71.43, NO LOSS OR DISPERSAL - NOT CLEAR THE WORDING PRESENTS A PROBLEM.
14. 71.45, TIE-DOWN STANDARDS - PROPOSED DELETING, PUBLIC COMMENTS, REVERSED. 71.45(b)(3) NOT ADEQUATE BY ITSELF, PROBABILITY OF PACKAGE FALL WOULD RISE.
15. 71.51(a), NOT ADDITIONAL - ADDED SPECIFICITY.
16. 71.51(b), RECOGNIZE FILTERS - NO NEED TO ALLOW CREDIT FOR FILTERS. NOT BEST ENGINEERING PRACTICE.
17. 71.51(c), NOT TYPE B PACKAGE - IT IS PACKAGE FOR TYPE B QUANTITY OF LSA.
18. 71.71(c)(1), SOLAR TABLE - SOLAR RADIATION HAS MINOR EFFECT. CHOSE NOT TO COMPLICATE.
19. 71.71(c)(7), INVERTED DROP - RECOGNIZE NOT A GOOD NORMAL TEST FOR LARGE PACKAGES. EXCEPTIONS PROVIDED.

20. 71.75, TEMPERATURE CONVERSION - PARENTHETICAL NUMBERS ONLY .APPROXIMATE. SEE 71.4 INTRODUCTION.
21. 71.85, MNOP TEST - PROTECTION REQUIRED AGAINST LOST PACKAGE TOGETHER WITH INOPERATIVE PRESSURE RELIEF. EXCEPTIONS CAN BE PROVIDED WHEN JUSTIFIED.
22. 71.87, EDITORIAL - IMPROVEMENT ACCEPTED.
23. 71.97, LIMITED SCOPE - APPLICABILITY LIMITED TO WHAT CONGRESS SPECIFIED.

RESOLUTION OF INTERNAL COMMENTS - GENERAL COMMENTS

(NMSS MEMO DATED JUNE 11, 1982)

- 1(A) LSA PROBLEMS - ADD BRIEF STATEMENT ON IMPENDING RULE-
MAKING ACTION.
- 1(B) TYPE A QUANTITY LIMITS - COMMENT WITHDRAWN.
2. LSA TRANSFER TO DOT - DELETION OF DISCUSSION ON TRANSFER;
POSTPONE ACTION ON PETITIONS.
3. EXISTING PACKAGES - ADDED SUGGESTED TEXT.
4. IAEA TRANSPORT REGULATIONS - COMMENT WITHDRAWN.
5. Pu AIR TRANSPORT - ORDER CANCELLED IN REGULATION.
6. AUTOMATIC RENEWAL - TEXT CLARIFIED.
7. ECONOMIC IMPACTS - COMMENT WITHDRAWN

RESOLUTION OF INTERNAL COMMENTS - PART 71 TEXT
(NMSS MEMO DATED JUNE 11, 1982)

1. NUCLEAR WASTE DEFINITION - DEFINITION COMBINED WITH TEXT OF REQUIREMENT.
2. RADIOACTIVE MATERIAL DEFINITION - DEFINITION DELETED.
3. LIST OF DOT REGULATIONS - ADMINISTRATIVE REQUIREMENT.
4. PHYSICIAN EXEMPTION - NO CHANGE.
5. GENERAL LICENSES - MOVED PU. AIR RESTRICTION TO SUBPART G.
6. EXISTING PACKAGE PROVISION - CLARIFYING CHANGE.
7. DATES FOR FABRICATION AND EXPORT - MADE THE SAME.
8. GENERAL LICENSES - MOVED PU. AIR RESTRICTION TO SUBPART G.
9. LSA EXEMPTION - CLARIFICATION.
10. MULTIPLE DROPS - WILL DELETE WHEN JUSTIFIED.
11. REPORT PACKAGE DEFECTS - REFERENCE TO PART 21.