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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
631 PARK AVENUE  
KING OF PRUSSIA, PENNSYLVANIA 19406

September 12, 1980

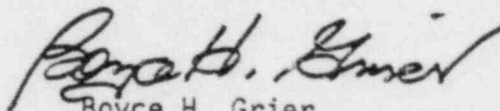
Docket Nos. 50-157  
50-97

Cornell University  
ATTN: Mr. Paul McIsaac, Associate Dean  
Engineering College  
241 Computer Hall  
Ithaca, New York 14853

Gentlemen:

The enclosed IE Information Notice No. 80-32, "Clarification of Certain Requirements for Exclusive-use Shipments of Radioactive Materials," is forwarded to you for information. No written response is required. If you desire additional information regarding this matter, please contact this office.

Sincerely,

  
Boyce H. Grier  
Director

Enclosures:

1. IE Information Notice No. 80-32
2. List of Recently Issued IE Information Notices

CONTACT: H. W. Crocker  
(215-337-5217)

cc w/encls:

Dr. D. D. Clark, Director, Ward Laboratory of Nuclear Engineering  
H. Aderhold, Reactor Supervisor, Ward Laboratory  
Dr. W. Kiker, Director of Radiation Safety

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
WASHINGTON, D.C. 20555

August 29, 1980

IE Information Notice No. 80-32: CLARIFICATION OF CERTAIN REQUIREMENTS FOR  
EXCLUSIVE-USE SHIPMENTS OF RADIOACTIVE  
MATERIALS

Background

In mid-1979 the NRC initiated an enhanced program for inspection of shipments of radioactive materials, including, in particular, low level wastes. In conjunction with this effort, civil penalties have been assessed for violation of associated regulatory requirements. IE Bulletins 79-19 and 79-20, "Packaging of Low Level Radioactive Waste for Transport and Burial," issued August 8, 1979 and IE Information Notice 79-21, "Transportation and Commercial Burial of Radioactive Material," issued September 7, 1979, provide background in this regard.

During the past year, this augmented inspection/enforcement program has prompted a number of questions on the proper application of certain regulatory requirements. These questions involve mainly the problems and deficiencies associated with exclusive use highway shipments of low-level radioactive wastes. The purpose of this Notice is to discuss the questions and clarify the applicability of certain requirements.

Application of 49 CFR 173.393(i) and (j)

Numerous questions involve the application of the limits of radiation levels of exclusive use shipments as prescribed in 49 CFR 173.393(j). As stated therein, the regulation reads

(j) Packages for which the radiation dose rate exceeds the limits specified in paragraph (i) of this section, but does not exceed at any time during transportation any of the limits specified in paragraphs (j)(1) through (4) of this section may be transported in a transport vehicle which has been consigned as exclusive use (except aircraft). Specific instructions for maintenance of the exclusive use (sole use) shipment controls must be provided by the shipper to the carrier. Such instructions must be included with the shipping paper information:

- (1) 1,000 millirem per hour at 3 feet from the external surface of the package (closed transport vehicle)
- (2) 200 millirem per hour at 1 foot from the car or vehicle

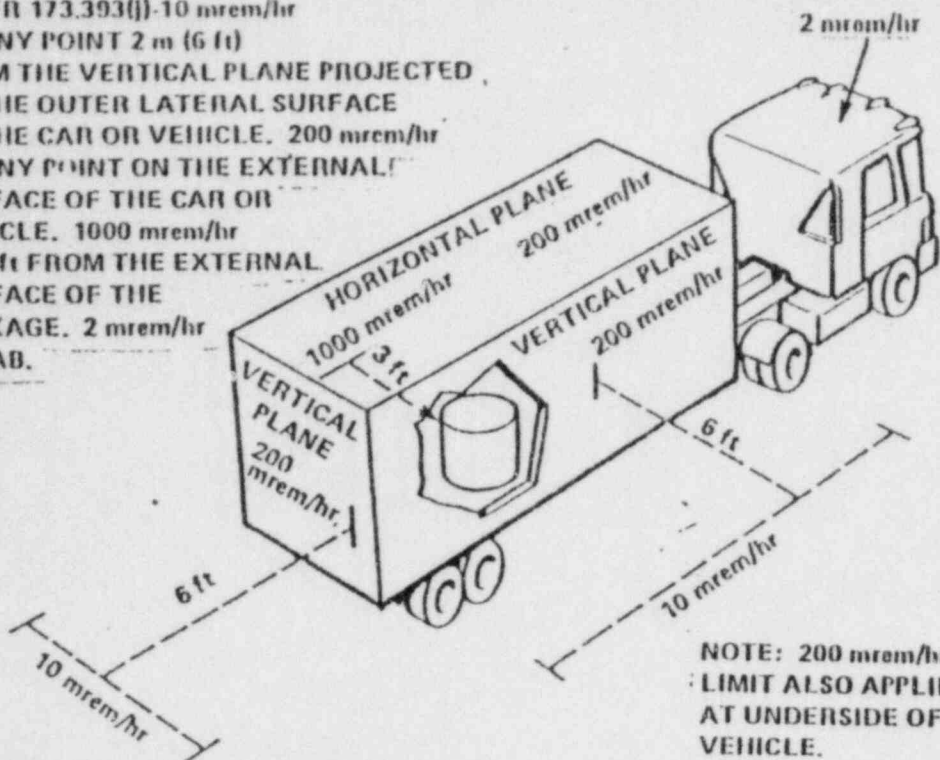
DUPLICATE DOCUMENT

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entered into system under:

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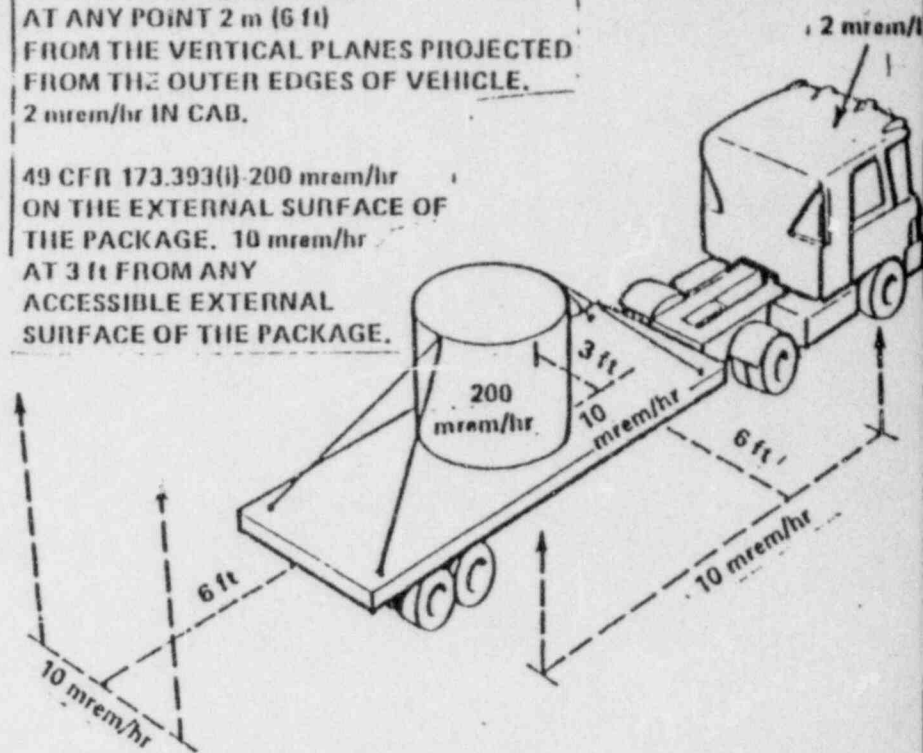
49 CFR 173.393(j)-10 mrem/hr  
 AT ANY POINT 2 m (6 ft)  
 FROM THE VERTICAL PLANE PROJECTED  
 BY THE OUTER LATERAL SURFACE  
 OF THE CAR OR VEHICLE. 200 mrem/hr  
 AT ANY POINT ON THE EXTERNAL  
 SURFACE OF THE CAR OR  
 VEHICLE. 1000 mrem/hr  
 AT 3 ft FROM THE EXTERNAL  
 SURFACE OF THE  
 PACKAGE. 2 mrem/hr  
 IN CAB.



**EXCLUSIVE-USE CLOSED TRANSPORT**

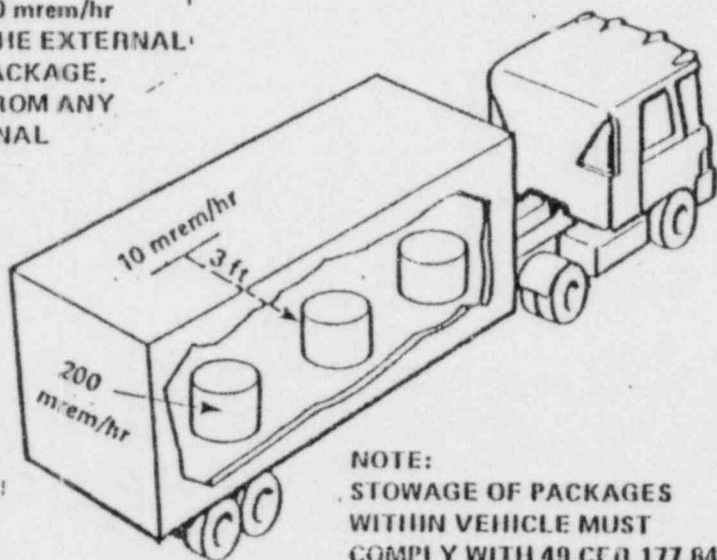
49 CFR 173.393(j)-10 mrem/hr  
 AT ANY POINT 2 m (6 ft)  
 FROM THE VERTICAL PLANES PROJECTED  
 FROM THE OUTER EDGES OF VEHICLE.  
 2 mrem/hr IN CAB.

49 CFR 173.393(i)-200 mrem/hr  
 ON THE EXTERNAL SURFACE OF  
 THE PACKAGE. 10 mrem/hr  
 AT 3 ft FROM ANY  
 ACCESSIBLE EXTERNAL  
 SURFACE OF THE PACKAGE.



**EXCLUSIVE-USE OPEN TRANSPORT**

49 CFR 173.393(i)-200 mrem/hr  
 AT ANY POINT ON THE EXTERNAL  
 SURFACE OF THE PACKAGE.  
 10 mrem/hr AT 3 ft FROM ANY  
 ACCESSIBLE EXTERNAL  
 SURFACE OF THE  
 PACKAGE.



NOTE:  
 TOTAL TI IS NOT  
 TO EXCEED 50 PER  
 49 CFR 177.842(a).

NOTE:  
 STOWAGE OF PACKAGES  
 WITHIN VEHICLE MUST  
 COMPLY WITH 49 CFR 177.842(b).

**NON-EXCLUSIVE-USE OPEN OR CLOSED**

APPENDIX A

IE INFORMATION NOTICE 80-32

**RADIATION  
 LIMITS**

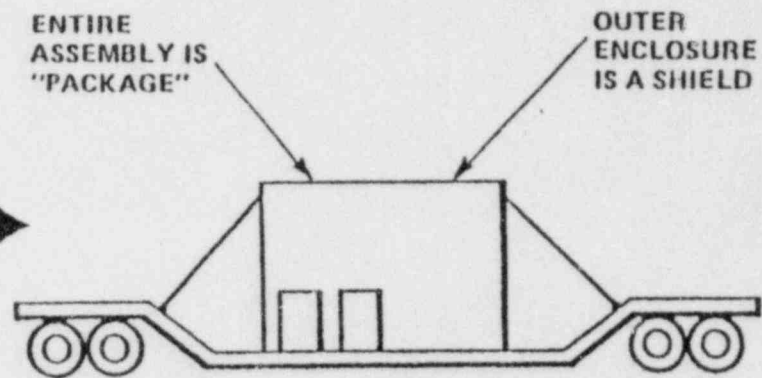
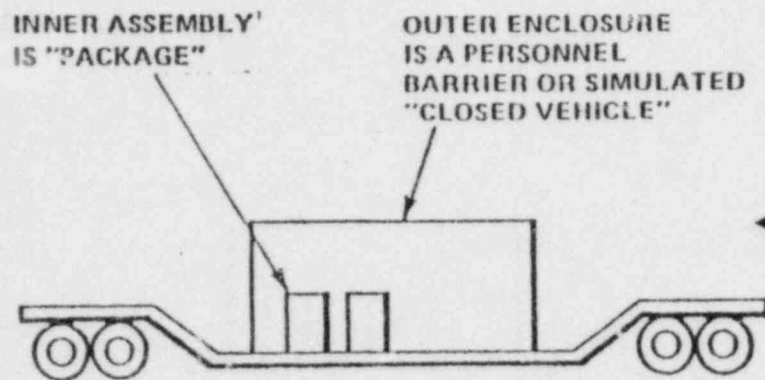
**49 CFR 173.393(i) AND (j)**

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## WHAT COMPRISES THE PACKAGE?

49 CFR 171.8 DEFINES PACKAGING SUCH THAT YOU MUST CONSIDER THE  
 "... ASSEMBLY OF ONE OR MORE CONTAINERS AND ANY OTHER COMPONENTS  
 NECESSARY TO ACHIEVE COMPLIANCE WITH THE MINIMUM PACKAGING  
 REQUIREMENTS...."

THEREFORE:



OR

IN THIS SCENARIO, THE INNER PACKAGINGS MAY BE CONSIDERED TO BE THE "PACKAGE", PROVIDED THE OUTER ENCLOSURE IS NOT NECESSARY TO ACHIEVE COMPLIANCE WITH THE RADIATION LEVEL LIMIT OF 173.393(j)(2); i.e., 200 mrem/hr. LEVEL OF RADIATION ON EACH INNER "PACKAGE" MAY NOT EXCEED 1 rem/hr AT 3 ft FROM ITS SURFACE.

IN THIS SCENARIO, THE ENTIRE ASSEMBLY (OUTER SHIELD PLUS INNER PACKAGINGS) MUST BE CONSIDERED AS THE "PACKAGE", SINCE THE OUTER SHIELD IS NECESSARY TO ACHIEVE COMPLIANCE WITH 173.393(j)(2). RADIATION LEVEL AT SURFACE OF "INNER" PACKAGINGS IS NOT LIMITED.

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RECENTLY ISSUED  
IE INFORMATION NOTICES

Information Notice No.	Subject	Date Issued	Issued to
80-31	Maloperation of Gould-Brown Boveri 480V-Type K-600S and K-DON 600S Circuit Breakers	8/27/80	All holders of a power reactor OL or CP
80-30	Potential for Unacceptable Interaction Between the Control Rod Drive Scram Function and Non-essential Control Air at Certain BWR Facilities	8/27/80	All holders of a BWR power reactor OL or CP
80-29	Broken Studs on Terry Turbine Steam Inlet Flange	8/7/80	All holders of a power reactor OL or CP
Supplement to 80-06	Notification of Significant Events at Operating Power Reactor Facilities	7/29/80	All holders of a power reactor OL and near term OL applicants
80-28	Prompt Reporting of Required Information To NRC	6/13/80	All applicants for and holders of a power reactor construction permit
80-27	Degradation of Reactor Coolant Pump Studs	6/11/80	All holders of a pressurized water power reactor OL or CP
80-26	Evaluation of Contractor QA Programs	6/10/80	All holders of a Part 50 License
80-25	Transportation of Pyrophoric Uranium	5/30/80	Material Licensees in Priority/Categories II-A, II-D, III-I and IV-DI; Agreement State Licensees in equivalent categories