

U. S. NUCLEAR REGULATORY COMMISSION
Region I

Report No. 50-309/83-04

Docket No. 50-309

License No. DPR-36

Priority --

Category C

Licensee: Maine Yankee Atomic Power Company

83 Edison Drive

Augusta, Maine 04336

Facility Name: Maine Yankee Nuclear Power Station

Inspection At: Barnwell, South Carolina

Inspection Conducted: December 17, 1982

Report Prepared By: P. Clemons
P. Clemons, Radiation Specialist

4/17/83
date signed

Approved By:

M. Shanbaky
M. Shanbaky, Chief, Facilities Radiation
Protection Section, Radiation Protection
Branch

date signed
4/17/83
date signed

Inspection Summary:

Inspection on December 17, 1982 by a representative of the South Carolina
Department of Health and Environmental Control

Maine Yankee Atomic Power Company was the originator of a waste shipment which
was inspected at the Chem-Nuclear Systems, Inc. burial site.

Results: No NRC violation was identified.

DETAILS

On December 14, 1982, the Maine Yankee Atomic Power Company dispatched a shipment of licensed material consisting of 10.02 curies in the form of solid metal oxides in compacted trash in a Chem-Nuclear Cask, Model No. 21-300-9. The shipment was made in an open exclusive use vehicle.

On December 17, 1982, a representative of the South Carolina Department of Health and Environmental Control inspected the shipment. The inspection consisted of a review of shipping papers, placarding, marking and labeling, radiation measurements, selective contamination surveys, and examination of the packages and the tractor-trailer.

A copy of the report prepared by the representative is attached. The report indicates that upon arrival, on December 17, 1982, an external radiation survey of the cask was performed, and at that time a dose rate of 400-470 millirem per hour was detected at the surface of the cask, about 4-6 inches from the bottom of the cask. This radiation level was reported to be in excess of the limits established by 49 CFR 173.393(c)(3).

The State of South Carolina identified a violation of the Department of Transportation (DOT) Regulations that resulted in the State assessing a Civil Penalty of \$2,500.00 against Maine Yankee, and their South Carolina Radio-active Waste Transport Permit No. 0040-18-82-X was suspended for a period of not less than 30 days. They were also required to assure that adequate measures had been implemented to ensure compliance with all applicable provisions of federal and state laws.

We are not issuing a Notice of Violation because of the inconsistency on the applicability of 49 CFR 173.393(i).

General Information:

Report No. 82-12-04

Name of Shipper: Maine Yankee Atomic Power Co.

Type Package/Cask Model:

Address: Wiscasset, Maine

21-300-9

Carrier: CNSICask containing: 21 steel drumsTractor# 33Trailer# 064Type low boy trailer

Shipping Documentation:

1. SSR# 31823 Vol. Allot.# 1282-153-L Permit# 0040-18-82-X
2. Shipping Name and Class: Radioactive Material, LSA, N.O.S. HM Id.# UN 2912 (172.202(a))
3. Total Volume: 157.5 ft³ (172.202(c)) Total Curies: 10.020 (172.203(d))
4. Radionuclides: Co-60, Cs-137 Labels LSA (172.203(d))
5. Description (chem/phy/media): Solid metal oxides on compacted trash (172.203(d))
6. Shippers Certification: State (48 hours) DOT (172.204)
7. Exclusive Use Instructions X (173.392(c))(173.393(j)) or Total T.I. NA (177.842(a))
8. Check for: (a) Radiation Survey ✓ (173.393(i)(j)) Contamination levels ✓ (173.397)
9. Compare: Radionuclides w/resin analysis NA Radiation/Contamination levels w/CNSI/BRH

Shipment Inspection Check List:

Packaging: Ltd. Qty/devices 173.391, LSA 173.392, General 173.393, Special form 173.394,
Normal form 173.395, Fissile 173.396

- ☒ Security Seals (173.393(b)) ☒ Lids (Drum, box, cask) secure (173.393(n)(6))
- ☒ Shipment Braced/Blocked (173.392(c))/177.842(d)) ☒ Visible Damage (173.393(d))
- ☒ Visible Leakage (173.392(c))/173.393(d)) ☒ Cask Defects/Missing parts (173.398)
- ☒ Package Labeling/Wh I, Yel II, III (172.403) ☒ Radiation Survey (173.393(j))
- or "Radioactive LSA" (173.392(c)) Cab/sleeper, trailer/truck
- ☒ Gross Weight marked (172.310) (LSA Ex. use Exempt) ☒ Contamination Levels (173.397)
- ☒ V/Type B package marked (172.310) ☒ Vehicle Placards (173.392(c))/172.512)
- ☒ Trailer/Tractor Defects ☒ Tiedowns secure/adequate
- ☒ Packages banded/ reinforced, palletized ☒ Offloading Discrepancies

Radiation/Contamination Survey: (transport vehicle or package)

(mR/hr) Surface: 50.0 2 meters: _____

Surface: _____ Surface: _____

2 meters: _____ 2 meters: _____

Surface: 420.0 mR/hr 2 meters: 8.0

Highest Contamination Detected: Arrival 0 adpm/100cm² Release _____ adpm/100cm²

7 Bydpm/100cm² _____ Bydpm/100cm²

Results of Inspection

Summary of violations and discrepancies (See Supplement Page)

(Use Supplementary Sheet if necessary)

Date: December 17, 1982Inspector's Signature s/ Richard S. Sappington

Radioactive Shipment Inspection Report
Supplement Information

SSR# 31823

Report No.: 82-12-04

Permit # 0040-18-82-X

F. Outline any additional information, facts, circumstances, etc., which has bearing on the inspection:

Upon arrival, a direct radiation survey performed on the shipping cask indicated the following radiation levels at the left surface of an approximate area of one square foot, 4 to 6 inches from the bottom of the cask:

SURFACE CONTACT

AT 1 INCH

400 - 470 mR/hr

250 - 280 mR/hr

These range of readings were taken with various instruments: Eberline R02 ion chamber and Eberline E520 with internal probe.

The radiation levels are in excess of the limits established pursuant to 49 CFR 173.392(c)(3).

Date: December 17, 1982 Inspector's Signature s/Richard S. Sappington

SSIN No.: 6835
Accession No.:
8107230047
IN 80-32, Rev. 1

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

February 12, 1982

IE INFORMATION NOTICE NO. 80-32 Rev. 1: CLARIFICATION OF CERTAIN REQUIREMENTS
FOR EXCLUSIVE-USE SHIPMENTS OF RADIO-
ACTIVE MATERIALS

This is a supplement to IE Information Notice No. 80-32, originally issued August 29, 1980. It is intended to clarify Question/Answer Numbers 1, 5 and 6 and Appendices A and B on which there have been numerous questions and inquiries. Those paragraphs and appendices are superseded as follows:

1. Q. What radiation limits would apply to shipments being transported on an open exclusive-use transport vehicle?
 - A. The constraints of 49 CFR §173.393(j)(3) and (4) would apply; e.g., 10 mrem/hr at 2 meters from the open planes projected by the outer lateral edges of the vehicle, and 2 mrem/hr in any normally occupied area of the vehicle (cab).

Note: As a matter of clarification, it is important to point out that, in its queries to the Department of Transportation (DOT) on the correct interpretation of §173.393(i) and (j), NRC has been advised that the existing language of §173.393(j) does not clearly reflect the original intent of the regulation; i.e., to limit the radiation level at the accessible exterior surface of a package on an open exclusive-use vehicle to 200 mrem/hr (such as the same limit applied to the surface of a closed transport vehicle). DOT has stated that it is currently taking steps to revise §173.393(j). In the interim, NRC licensees are urged and cautioned to adhere to a surface radiation level limit of 200 mrem/hr on a package transported on an open exclusive-use transport vehicle, as has been the practice and interpretation of most shippers in the past.

5. Q. If "packages," such as secondary inner drums, (as contrasted to a simple personnel barrier as discussed in Q.4 above), are enclosed within an outer shield, may this shield be considered to be an integral part of the "closed transport vehicle" when such a shield provides attenuation of the vehicle radiation levels to meet the 200 mrem/hr limit of §173.393(j)(2)? Further, what other considerations are there in such a situation in determining what constitutes the "package" as opposed to the "vehicle"?
 - A. This question of defining what constitutes the "package" has arisen frequently and has created much confusion. Generally speaking, the criteria to be considered, which are illustrated in Appendix B, include the following factors:

5.4 Barometer. Calibrate against a mercury barometer.

5.5 Temperature Gauge. Calibrate dial thermometers against mercury-in-glass thermometers.

5.6 Vacuum Gauge. Calibrate mechanical gauges, if used, against a mercury manometer such as that specified in Section 2.1.8 of Method 7.

5.7 Analytical Balance. Calibrate against standard weights.

6. Calculations

Carry out the calculations, retaining at least one extra decimal figure beyond that of the acquired data. Round off figures after final calculations.

6.1 Sample Volume. Calculate the sample volume V_s (in ml) on a dry basis, corrected to standard conditions, using Equation 7-2 of Method 7.

6.2 Sample Concentration of NO_2 as NO_2 . Calculate the sample concentration C (in mg/dscm) as follows:

$$C = \frac{\text{HSF} \times 10^4}{V_s} \quad \text{Eq. 7A-1}$$

Where:

H = Sample peak height, mm.

S = Calibration factor, $\mu\text{g}/\text{mm}$.

F = Dilution factor (required only if sample dilution was needed to reduce the concentration into the range of calibration).

10^4 = 1:10 dilution times conversion factor of $10^3 \mu\text{g}/\text{mg}$.

If desired, the concentration of NO_2 may be calculated as ppm NO_2 at standard conditions as follows:

$$\text{ppm NO}_2 = 0.5228 C \quad \text{Eq. 7A-2}$$

Where: 0.5228 = ml/mg NO_2 .

7. Bibliography

1. Mulik, J.D. and E. Sawicki. Ion Chromatographic Analysis of Environmental Pollutants. Ann Arbor Science Publishers, Inc. Vol. 2, 1979.
2. Sawicki, E., J.D. Mulik, and E. Wittgenstein. Ion Chromatographic Analysis of Environmental Pollutants. Ann Arbor Science Publishers, Inc. Vol. 1, 1978.
3. Siemer, D.D. Separation of Chloride and Bromide from Complex Matrices Prior to Ion Chromatographic Determination. Analytical Chemistry, 52(12:1874-1877), October 1980.
4. Small, H., T.S. Stevens, and W.C. Bauman. Novel Ion Exchange Chromatographic Method Using Conductimetric Determination. Analytical Chemistry, 47(11:1807), 1975.
5. Yu, King K. and Peter R. Westlin. Evaluation of Reference Method 7 Flask Reaction Time. Source Evaluation Society Newsletter, 4(4), November 1979, 10 p.

DEPARTMENT OF THE INTERIOR

Bureau of Reclamation

43 CFR Part 426

Acresage Limitation: Reclamation Rules and Regulations

AGENCY: Bureau of Reclamation, Interior.

ACTION: Notice of public hearing.

SUMMARY: A public hearing is hereby scheduled for October 28, 1982, in Salt Lake City, Utah. The complete address for the hearing place is given below. This hearing will be held to gather information and seek comments on the acresage limitation provisions of Federal Reclamation law, specifically the new legislation modifying existing law recently passed by Congress, for the purpose of scoping and preparing new rules and regulations to implement the new law. An opening statement briefly summarizing the new legislation will be made and suggestions will be welcomed on the content and focus of the implementing rules and regulations. The testimony taken at the hearing will be considered in preparing proposed and final rules.

Subsequent hearings are planned. Announcements will be made once dates and locations for them have been established.

DATE: The hearing to be held on October 28, 1982, will begin at 9 a.m. and continue until all comments have been heard.

ADDRESS: The hearing will be held at the Salt Palace, Room 220, 100 South West Temple, Salt Lake City, Utah.

FOR FURTHER INFORMATION CONTACT: Mr. Vernon S. Cooper, (303) 234-7195.

SUPPLEMENTARY INFORMATION: Hearing statements will be limited to 15 minutes. Speakers will not be permitted to trade their time to obtain a longer presentation; however, the hearing officer may allow any person additional time after all other comments have been heard. Speakers will be scheduled according to the time preference mentioned in their letter or telephone request, whenever possible. Any scheduled speaker not present when called, will lose his or her privilege in the scheduled order, but will be recalled after all the scheduled speakers have been heard. Speaker requests will be scheduled up to one working day preceding the hearing, any request received after the scheduling cutoff will be honored on a first-come-first-served basis.

Individuals or organizations wishing to speak at the hearing or who desire

additional information should contact: Regional Director, Upper Colorado Region, Bureau of Reclamation, 125 South State Street, P.O. Box 11568, Salt Lake City, Utah 84147 (303) 524-5435.

Those wishing to supplement their testimony with a written statement or those who prefer to submit only a written statement for the public hearing testimony should address them to: Mr. Vernon S. Cooper, Bureau of Reclamation, E&R Center, Code D-410, P.O. Box 25007, Denver, Colorado 80225.

Dated: October 1, 1982.

Robert N. Broadbent,

Commissioner, Bureau of Reclamation.

(FR Doc. 82-37544 Filed 10-6-82; 8:43 am)

BILLING CODE 4310-09-M

DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Part 173

[Docket No. HM166P; Notice No. 82-8]

Radiation Level Limits for Exclusive Use Shipments of Radioactive Materials

AGENCY: Material Transportation Bureau, Research and Special Programs Administration, DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Materials Transportation Bureau (MTB) proposes to amend a section of the Hazardous Materials regulations (HMR) to state more explicitly the external radiation level limitations applicable when radioactive materials are transported under provisions for exclusive-use shipments. The existing wording of § 173.393(j) has resulted in interpretations by shippers, carriers and others which are not consistent with regulatory intent and has contributed to some cases of noncompliance. The proposed amendment is intended to eliminate apparent inconsistencies in radiation safety that might result from misinterpretation of limitations for "open" and "closed" transport vehicles.

The maximum allowable radiation level for radioactive material packages transported under exclusive-use provisions is proposed to be reduced to 1000 millirem per hour at the surface of the package instead of at one meter from the package. This is consistent with international safety standards and changes MTB and the Nuclear Regulatory Commission proposed in 1979 (44 FR 1852 and 44 FR 48234, respectively). During transportation, it is

also proposed to establish radiation level limitations referenced to points on and near accessible external surfaces of the vehicle or load. They are, 200 millirem per hour at the surface and 100 millirem per hour at a distance of 2 meters. This would eliminate consideration of imaginary planes projected from edges of "open" transport vehicles. The proposed amendment would also clarify requirements applicable to private carriers when excepted from the radiation level limitation of 2.0 millirem per hour in normally occupied spaces, such as cabs or sleeper compartments of trucks.

The definition of "exclusive-use" in § 173.389(o) would be modified by adding radiological safety capabilities for qualification as a "designated agent" involved in loading and unloading operations under "exclusive-use" provisions.

DATE: Comments are due on or before December 6, 1982.

ADDRESS: Send comments to Dockets Branch, Materials Transportation Bureau, Department of Transportation, Washington, D.C. 20590, (202) 426-3148. Comments should identify the docket number, and five (5) copies should be submitted. The Dockets Branch is located in Room 8426, Nassif Building, 400 Seventh Street, SW., Washington, D.C. 20590. Office hours are from 8:30 a.m. to 5:00 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT: A. Wendell Carriker, Office of Hazardous Materials Regulation, Materials Transportation Bureau, 400 Seventh Street, SW., Washington, D.C. 20590, (202) 426-2311

SUPPLEMENTARY INFORMATION:

I. Basis for Proposed Rule

1. Background

The radiation level limitations for exclusive use, or full-load, shipments of radioactive materials have been a part of domestic and international regulatory standards for many years. MTE published a notice of proposed rulemaking (NPRM), Docket HM-169, in the Federal Register (44 FR 1852) on January 8, 1979, which includes a broad historical relationship between DOT and the International Atomic Energy Agency (IAEA) regulatory standards. Without extensive elaboration about radiation levels for exclusive-use shipments, HM-169 proposed changes which include restricting packages to 1000 millirem per hour at any point on the surface rather than 1000 millirem per hour at one meter from any point on the

package surface. Other minor proposals in HM-169 related to external radiation levels for exclusive-use shipments are mainly nonsubstantive, rewordings of existing provisions.

Subsequent to issuance of the NPRM in HM-169, there have been a number of requests for interpretation of § 173.393(j) with respect to "open vehicles" and "closed vehicles" operating under exclusive-use conditions. The meaning and application of § 173.393(i) have been difficult to interpret for purposes of compliance and enforcement. It was determined by both the Department of Transportation and the Nuclear Regulatory Commission (NRC) in meeting with representatives of the nuclear industry that even the wording of the changes proposed in Docket HM-169 does not adequately clarify the issues, and further consideration is needed.

Another area of confusion in interpretation involves the relationship between § 173.393(j) and § 177.842(a). Some carriers and shippers erroneously concluded that the exception in § 177.842(a) from the total transport index limitation of 50 per vehicle for packages complying with § 173.393(i) is applicable to their operation, provided the radiation levels on and around their vehicle are within the limits of § 173.393(j) (2), (3) and (4). That misinterpretation stems from a failure to consider the first sentence in § 173.393(j) as presently written, which excludes packages meeting limits of § 173.393(i).

2. Applications Concept

The provisions of § 173.393(j) are intended to apply to special conditions which consider radiation safety aspects of the shipment and the resulting radiation exposures. When package radiation levels exceed the limits of § 173.393(i), the package may be shipped if the shipper assumes certain carrier responsibilities and makes arrangements with the carrier to maintain the required exclusive-use conditions, wherein radiation levels of the vehicle and not just the packages are considered.

Similarly, shippers make arrangements with carriers for exclusive-use shipments of some packages of radioactive materials that are classified as fissile or low specific activity. For the more common non-exclusive use shipments, the primary mechanisms for controlling radiation exposure of carrier personnel are: (1) package radiation limits specified in § 173.393(i), (2) the total transport index of the packages in the vehicle, and (3) their separation distance from normally occupied spaces. However, when

reasonable radiation level reduction efforts do not achieve § 173.393(i) limits, packages may be transported in exclusive-use vehicles with radiation exposure controlled by limiting radiation levels on and near the vehicles, as well as the package, and by the imposed exclusive-use shipment controls.

Basically, the proposed radiation level limitations for packages and vehicles in § 173.393(j) would apply to shipments of radioactive materials only when the package surface radiation level or transport index limits exceed the § 173.393(i) limits and some other method of controlling radiation exposure is necessary.

3. Package Limits

The existing limitation of 1000 millirem per hour at one meter from the surface of the package is considered to be unsatisfactory. IAEA standards in effect since 1973 have set a limit of 1000 millirem per hour at the surface of the package, and the United States is the only major industrialized country that has not yet adopted the IAEA standards. A soon to be issued final rule under HM-169 is expected to impose the limit of 1000 millirem per hour at the package surface.

Without a package surface limitation, it is hypothetically possible for a package of minimum dimensions - (4" x 4" x 4") to have radiation levels near 400 rem per hour at the surface and still meet a limit of 1000 millirem per hour at one meter. In the interest of safety for carrier personnel, emergency services personnel, and the public, the 1000 millirem per hour at the surface is considered to be a more appropriate limit. At the present time, most exclusive-use shipments are probably restricted by vehicle radiation level limits rather than by package radiation level limits.

If a packaging design is such that it cannot be offered for transport as a package in full compliance with the HMR because the surface radiation level is too high, then the activity of its contents must be lowered, or the unit must be provided with additional shielding. The new configuration must satisfy all requirements of a package before it may be offered for transportation.

4. Accessible Surface Limits

It is proposed that external radiation level limits for vehicle and/or packages be established with respect to accessibility by personnel during transport. Establishing limits with respect to readily accessible surfaces

should eliminate most interpretative difficulties and discrepancies present in existing provisions for "open" and "closed" vehicles in the current regulations. The basic concern is to establish a maximum rate of exposure that might be received by any transport worker, or general public personnel, and that maximum rate need not be different for "open" and "closed" vehicles.

Controls established by the shipper for exclusive-use transport of a package with surface levels above 200 millirem per hour or a transport index above 10 would, in many cases, include the use of a "closed transport vehicle" (see § 173.389(q)) to achieve radiation levels on external surfaces at or below 200 millirem per hour. In some cases, in lieu of a permanently enclosed vehicle, the shipper may make arrangements with a carrier to use a flatbed trailer or other "open" vehicle and convert it to a "closed transport vehicle" by means of permanent or temporary personnel barriers. This conversion must be within the basic carrier safety requirements (such as tie downs, blocking and bracing, materials integrity, etc.). As proposed, the package radiation level limitation for a package within such a personnel barrier would be 1000 millirem per hour at the surface. All readily accessible external surfaces of the vehicle or the barrier could not exceed the 200 millirem per hour limit. Another example of such an arrangement is an "open" vehicle which employs barriers that do not result in the vehicle being converted to a "closed transport vehicle," but still it achieves radiation levels which do not exceed the 200 millirem per hour limit at readily accessible surfaces. An example of this is the use of shielded outer packages such as casks which are commonly used to transport drums of low specific activity (LSA) waste.

It is emphasized that the 200 millirem per hour is a maximum not a goal. In keeping with the principle of "as low as reasonably achievable" (ALARA), the radiation levels at all accessible surfaces (sides, ends, top, and bottom) should be kept ALARA.

In the existing regulations, the absence of a stated radiation level limit at the vertical planes projected from the lateral edges of a package being carried on an open transport vehicle is also believed to be a significant omission. The proposed revision should eliminate the problem and reduce misinterpretations.

5. Two Meters From Accessible Surfaces Limits

The proposed limitation of 10 millirem per hour at any point two meters from

any accessible external surfaces of the vehicle or load constitutes no significant change from existing rules for most conventional closed vehicles such as vans, but it would restrict slightly the presently allowed radiation levels for packages with surface levels less than 200 millirem per hour that are transported on vehicles like flatbeds. At present, the 10 millirem per hour limit is at the plane 2 meters from the lateral edges of the flatbed. In cases such as a package on an "open" flatbed, the proposed amendment would set the 10 millirem per hour limit at 2 meters from the package surface. The proposed revision also excludes the 10 millirem per hour limitations at 2 meters from the top and underside of vehicle surfaces. This is a practical consideration since it is uncommon for persons to be 2 meters above or below accessible surfaces of exclusive-use vehicles, and it would be an unreasonable burden in most facilities to obtain radiation measurements 2 meters below the underside of a vehicle and 2 meters above the top surface. The proposed revision would eliminate all reference to vertical planes projected from vehicle surfaces. Instead, the 10 millirem per hour limit would refer directly to readily accessible external surfaces.

The radiation level limitation at two meters is intended to control radiation exposure to personnel not associated with the shipment, such as people in other vehicles moving along side the shipment, persons nearby when the vehicle is stopped temporarily, or persons refueling or servicing the vehicle. In combination with the proposed accessible surface limitation, these revisions should improve controls on radiation exposure to members of the general public.

6. Occupied Spaces Limit

The proposed revision does not change the maximum radiation level for locations normally occupied during transport. The only change is to state more clearly the intended conditions under which a private carrier is excepted from the 2 millirem per hour limit. It was previously assumed that all personnel of a private carrier involved in transporting radioactive material under exclusive-use provisions would be operating under a regulated radiation safety program. Since this is not always the case, a qualifying requirement to assure radiation safety would be added to the regulations.

It is assumed that the carrier's personnel responsible for its regulated radiation safety program will assure that all exposures are kept as low as reasonably achievable, monitor

operations, and establish limits in line with appropriate radiation safety requirements.

This 2 millirem per hour limit does not apply to vehicles carrying radioactive materials packages under conditions controlled by the total transport index limit per vehicle and separation distance requirements between normally occupied areas and the nearest package. The 2 millirem per hour is not an unreasonably low upper limit for occupied spaces. It is noted that the existing transport index and separation distance tables in Parts 174 and 177 do not always result in such a limit. MTB plans to propose amendments in the near future which will assure better radiation exposure control via transport index and separation distance criteria.

7. Designated Agent Requirements

The carrier responsibilities assumed by the shipper for exclusive-use shipments include controlling certain aspects of the shipment from point of origin to destination.

As stated in the regulations, instructions provided by the shipper to the carrier for maintaining exclusive-use conditions must be included with the shipping papers. Part of the requirements in the definition of "exclusive-use" in § 173.389(o)(2) refer to initial, final, and intermediate loading and unloading by the consignor, consignee, or designated agent. Under these proposals, it would be made clear that a designated agent must have radiological expertise appropriate for handling the radioactive material being transported for the shipper. The assurance that the designated agent has the appropriate radiological capabilities must be the responsibility of the shipper when he establishes exclusive use controls.

Consignors and consignees in nearly all cases are licensed by the NRC or a State agency, to possess, use, or transfer the radioactive materials in a consignment. To be licensed, they must demonstrate necessary capabilities for handling the radioactive materials authorized by their license. It would be inappropriate for the HMR to require all initial, intermediate, and final loading and unloading of exclusive-use shipments by the consignor, consignee or their designated agent and then be silent on requirements for designated agents. As a minimum, the radiological capabilities should include knowledge of methods and procedures for minimizing radiation exposures when handling radioactive materials shipments, and the ability to recognize and control radiological emergencies