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Mattingly Testing Services, Inc.  
406-264-5471

## Fax Cover Sheet

Date: FEB 6, 1997Page: 817-860-8488To: MR BILL RADCLIFFE

Phone: ( )

Fax: ( )

Company: N.P.C.From: MARK MATTINGLYPhone: (406) 264-5471

Fax: ( )

Company: MATTINGLY TESTING SERVICES, INC.Regarding: TRAINING CONDUCTED OCT 11, 19965 PAGESATTACHMENT TO JANUARY 8, 1997  
RESPONSE LETTER.HARD COPY WILL BE SENT

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Doc # 30-20836

Lic # 25-21479-01

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Mattingly Testing Services, Inc.  
Radiation Safety Program Training

Training All Radiographers & Assistant Radiographers

Date 10/4/96 Location Bulldogs Office

Conducted by: [Signature]

Topics Covered:

49 CFR 173.403 TRANSPORTATION INDEX (HANDOUT)  
Sect 12 OVE PERMISSIBLE DOSE LIMITS PAGE 36 (HANDOUT)  
TRANSPORTATION Certificate (HANDOUT)  
10 CFR PART 20.1902 HgH RADIATION POSTING (HANDOUT)

Training Conducted by:

[Signature]  
Signature

Attendees (Print and Sign name)

TRAINING TIME 7:20 AM  
10-14-96  
1 Hr

[Signature]

Mike Leonard

Darin R. Hansen

Buck A. Thomas

TERRY A. CRASE

Rafael Smith

Steve Schubert

[Signature]

[Signature]

[Signature]

[Signature]

[Signature]

[Signature]

emitters.

Transport index (TI) means the dimensionless number rounded up to

the next tenth) placed on the label of a package to designate the degree of control to be exercised by the carrier during transportation. The transport index is determined as follows:

(1) For nonfissile material packages, the number determined by multiplying the maximum radiation level in millisievert (mSv) per hour at one meter (3.3 feet) from the external surface of the package by 100 (equivalent to the maximum radiation level in millirem per hour at one meter (3.3 feet)); or

(2) For fissile material packages, the number determined by multiplying the maximum radiation level in millisievert (mSv) per hour at one meter (3.3 feet) from any external surface of the package by 100 (equivalent to the maximum radiation level in millirem per hour at one meter (3.3 feet)) or, for criticality control purposes, the number obtained by dividing 60 by the allowable number of packages which may be transported together, whichever number is larger.

Type A quantity means a quantity of Class 7 (radioactive) material, the aggregate radioactivity which does not exceed  $A_1$  for special form Class 7 (radioactive) material or  $A_2$  for normal form Class 7 (radioactive) material, where  $A_1$  and  $A_2$  values are given in §173.435 or are determined in accordance with §173.433.

Type B quantity means a quantity of material greater than a Type A quantity.

Unilateral approval means approval of a package solely by the competent authority of the country of origin.

Unirradiated thorium means thorium containing not more than  $10^{-6}$  grams uranium-235 per gram of thorium-232.

Unirradiated uranium means uranium containing not more than  $10^{-6}$  grams plutonium per gram of uranium-235 and a fission product activity of not more than 9 MBq (0.24 millicuries) of fission products per gram of uranium-235.

Uranium—natural, depleted or enriched means the following:

(1) "Natural uranium" means uranium with the naturally occurring distribution of uranium isotopes (approximately 0.711 weight percent uranium-235, and the remainder essentially uranium-238).

49 CFR Ch. I (10-1-95 Ed.)

(2) "Depleted uranium" means uranium containing less uranium-235 than the naturally occurring distribution of uranium isotopes.

(3) "Enriched uranium" means uranium containing more uranium-235 than the naturally occurring distribution of uranium isotopes.

#### §173.410 General design requirements

In addition to the requirements of subparts A and B of this part, a package used for the shipment of Class 7 (radioactive) materials must be designed so that:

(a) The package can be easily handled and properly secured in or on conveyance during transport.

(b) Each lifting attachment that is a structural part of the package must be designed with a minimum safety factor of three against yielding when used to lift the package in the intended manner, and it must be designed so that failure of any lifting attachment under excessive load would not impair the ability of the package to meet the requirements of this subpart.

(c) Other structural part of the package which could be used to lift the package must be capable of being rendered inoperative for lifting the package during transport or must be designed to a strength equivalent to that required for lifting attachments.

(d) The external surface, as far as practicable, will be free from protruding features and will be easily decontaminated.

(e) The outer layer of packaging will avoid, as far as practicable, pockets or crevices where water might collect.

(f) Each feature that is added to a package will not reduce the safety of the package.

(g) The package will be capable of withstanding the effects of any acceleration, vibration or vibration resonance (see §178.608 of this subchapter) that may arise under normal conditions of transport without any deterioration in the effectiveness of the closing devices on the various receptacles or in the integrity of the package as a whole and without loosening or unintentionally releasing the nuts, bolts or other securing devices even after repeated use (see §§173.24 and 173.24a).



# MATTINGLY TESTING SERVICES, INC.

P.O. Box 3126

Great Falls, Montana 59403 • (406) 244-5471

P.O. Box 30316

Billings, Montana 59107 • (406) 248-3375

## TRANSPORTATION CERTIFICATE FOR RADIOACTIVE MATERIALS

Date \_\_\_\_\_ Time \_\_\_\_\_

Destination \_\_\_\_\_

EMERGENCY RESPONSE PHONE NUMBER 1-800-871-5471

| NATURE AND QUANTITY OF CONTENT   |   |  |  |                           | PACKAGE            |   |  |  |
|--|---|--|--|---------------------------|--------------------|---|--|--|
| PROPER SHIPPING NAME   | RADIOISOTOPE                                    | CLASS  | FORM   | ACTIVITY                  | NUMBER OF PACKAGES | CATEGORY  | TRANSPORT INDEX  | TYPE   |
| FOR U.S. SHIPMENTS   | NAME OR SYMBOL OR PRINCIPAL RADIOACTIVE CONTENT |  | CHEMICAL FORM AND PHYSICAL STATE (GAS, LIQUID, SOLID) OR SPECIAL FORM OR SPECIAL ENCLOSURE | NUMBER OF CURIES OR GBq's |                    | I - WHITE OR II - YELLOW OR III - YELLOW LABEL  | FOR YELLOW LABEL CATEGORY  | INDUSTRIAL OR TYPE A OR TYPE B                                   |
| RADIOACTIVE MATERIALS, SPECIAL FORM (I.O.S.)<br>IATA Article 82129 <b>R.Q.</b> | <b>IR 192</b>                                   | <b>CLASS 7</b><br><br><b>USA UN No. 9167</b> | <b>SPECIAL FORM</b>  |                           |                    | <b>CIRCLE ONE</b><br><b>YELLOW</b><br><b>II</b><br><b>OR</b><br><b>YELLOW</b><br><b>III</b> | <b>READ IN AT 1 METER</b><br><b>100 R/hr</b><br><b>100 R/hr</b><br><b>100 R/hr</b> | <b>CIRCLE ONE</b><br><b>TYPE A</b><br><b>OR</b><br><b>TYPE B</b> |

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, labeled and in proper condition for transportation according to applicable national government regulations.

SIGNATURE \_\_\_\_\_

Mattingly Testing Services, Inc.  
NRC License No. 25-21479-01

11.5 Inspection of Source Changers Shall Be Performed By the Radiation Safety Officer or the Assistant Radiation Safety Officer.

11.5.1 Survey the source changer for radiation levels. The radiation level at 6 inches from external surfaces of the source changer shall not exceed 50 mR/hr.

11.5.2 Inspect for damaged labels, fittings, and locking devices.

11.5.3 Remove safety plug, inspect and replace.

11.5.4 Complete the appropriate sections of the *Quarterly Inspection and Maintenance Report* and then file the report.

12.0 Permissible Dose Levels

12.1 An employee may receive a Total Effective Dose Equivalent (TEDE) dose of 5 Rem per year to the whole body. For ALARA administrative purposes each employee's dose is limited to 250mR per month. Prior to exceeding this dose the Responsible Radiographer is required to contact the Radiation Safety Officer to obtain authorization to extend this limit.

12.1.1 Unless a woman employee has declared that they are pregnant. In such case, the occupational exposure to a declared pregnant woman cannot exceed 0.5 rem.

**Note:** Immediately upon being informed that a female employee is declared pregnant, Mattingly Testing Services will remove the female employee from all radiographic operations which could expose her and/or her embryo/fetus to radiation. She will be assigned to other NDE methods for the duration of her pregnancy.

12.1.2 The Company has on file the employee's accumulated occupational dose to the whole body on N.R.C. Form 4 and 5.

12.2 If the company is unable to obtain a complete record of an individual's current and previously accumulated occupational dose, the company shall assume:

1. In establishing administrative controls, for the current year, the allowable dose limit for the individual is reduced by 1.25 Rems for each quarter for which records were unavailable and the individual was engaged in activities that could have resulted in occupational radiation exposure.
2. This employee shall not be used in any planned special exposures.
3. All the above required information will be recorded on NRC Form 4.

13.0 Planned Special Exposures

13.1 The company may authorize an employee to receive doses in addition to and accounted for separately from the doses received under the limits specified, in Section 12.0 of this Manual, provided that each of the following conditions is satisfied.

13.1.1 The company authorizes a planned special exposure only in an exceptional situation when alternatives that might avoid the higher exposure are unavailable or impractical.

13.1.2 The company specifically authorizes the planned special exposure, in writing, before the exposure occurs.



20.1901(a)

20.1906(a)

## PART 20 • STANDARDS FOR PROTECTION AGAINST RADIATION

- (1) Cross-hatched area is to be magenta, or purple, or black, and  
(2) The background is to be yellow.

(b) *Exception to color requirements for standard radiation symbol.* Notwithstanding the requirements of paragraph (e) of this section, licensees are authorized to label sources, source holders, or device components containing sources of licensed materials that are subjected to high temperatures, with conspicuously etched or stamped radiation caution symbols and without a color requirement.

(c) *Additional information on signs and labels.* In addition to the contents of signs and labels prescribed in this part, the licensee may provide, on or near the required signs and labels, additional information, as appropriate, to make individuals aware of potential radiation exposures and to minimize the exposures.

## § 20.1902 Posting requirements.

(a) *Posting of radiation areas.* The licensee shall post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA."

(b) *Posting of high radiation areas.* The licensee shall post each high radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA."

(c) *Posting of very high radiation areas.* The licensee shall post each very high radiation area with a conspicuous sign or signs bearing the radiation symbol and words "GRAVE DANGER, VERY HIGH RADIATION AREA."

(d) *Posting of airborne radioactivity areas.* The licensee shall post each airborne radioactivity area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, AIRBORNE RADIOACTIVITY AREA" or "DANGER, AIRBORNE RADIOACTIVITY AREA."

(e) *Posting of areas or rooms in which licensed material is used or stored.* The licensee shall post each area or room in which there is used or stored an amount of licensed material exceeding 10 times the quantity of such material specified in appendix C to §§ 20.1001-20.2401 with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL(S)" or "DANGER, RADIOACTIVE MATERIAL(S)."

## § 20.1903 Exceptions to posting requirements.

(a) A licensee is not required to post caution signs in areas or rooms containing radioactive materials for

periods of less than 8 hours, if each of the following conditions is met:

(1) The materials are constantly attended during these periods by an individual who takes the precautions necessary to prevent the exposure of individuals to radiation or radioactive materials in excess of the limits established in this part; and

(2) The area or room is subject to the licensee's control.

(b) Rooms or other areas in hospitals that are occupied by patients are not required to be posted with caution signs pursuant to § 20.1902 provided that the patient could be released from confinement pursuant to § 35.75 of this chapter.

(c) A room or area is not required to be posted with a caution sign because of the presence of a sealed source provided the radiation level at 30 centimeters from the surface of the source container or housing does not exceed 0.005 rem (0.05 mSv) per hour.

## § 20.1904 Labeling containers.

(a) The licensee shall ensure that each container of licensed material bears a durable, clearly visible label bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL." The label must also provide sufficient information (such as the radionuclide(s) present, an estimate of the quantity of radioactivity, the date for which the activity is estimated, radiation levels, kinds of materials, and mass enrichment) to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures.

(b) Each licensee shall, prior to removal or disposal of empty uncontaminated containers to unrestricted areas, remove or deface the radioactive material label or otherwise clearly indicate that the container no longer contains radioactive materials.

## § 20.1905 Exemptions to labeling requirements.

A licensee is not required to label—

(a) Containers holding licensed material in quantities less than the

quantities listed in appendix C to §§ 20.1001-20.2401; or

(b) Containers holding licensed material in concentrations less than those specified in table 3 of appendix B to §§ 20.1001-20.2401; or

(c) Containers attended by an individual who takes the precautions necessary to prevent the exposure of individuals in excess of the limits established by this part; or

(d) Containers when they are in transport and packaged and labeled in accordance with the regulations of the Department of Transportation,<sup>6</sup> or

(e) Containers that are accessible only to individuals authorized to handle or use them, or to work in the vicinity of the containers, if the contents are identified to these individuals by a readily available written record

(examples of containers of this type are containers in locations such as water-filled canals, storage vaults, or hot cells). The record must be retained as long as the containers are in use for the purpose indicated on the record; or

(f) Installed manufacturing or process equipment, such as reactor components, piping, and tanks.

## § 20.1906 Procedures for receiving and opening packages.

(a) Each licensee who expects to receive a package containing quantities of radioactive material in excess of a Type A quantity, as defined in § 71.4 and appendix A to part 71 of this chapter, shall make arrangements to receive—

(1) The package when the carrier offers it for delivery; or

(2) Notification of the arrival of the package at the carrier's terminal and to take possession of the package expeditiously.

<sup>6</sup> Labeling of packages containing radioactive materials is required by the Department of Transportation (DOT) if the amount and type of radioactive material exceeds the limits for an excepted quantity or article as defined and limited by DOT regulations 49 CFR 173.403 (m) and (w) and 173.421-424.