



**Fermilab**  
ES&H Section

November 8, 2004

TO: Jed Brown

FROM: Bill Griffing *Mary Logue*

SUBJECT: Revision to FRCM Chapters 2 "RADIOLOGICAL STANDARDS" and 4 "RADIOACTIVE MATERIALS" and FESHM Chapter 9020 "ONSITE HAZARDOUS MATERIAL TRANSPORTATION"

As a result of discussions carried out over the last several months, members of the Radiation Safety Subcommittee have concluded that more extensive use of the Material Move Request (MMR) form could possibly help prevent the inadvertent or unauthorized movement of radioactive materials between divisions and sections. This might also help prevent movements of unlabeled radioactivity materials due to the increased level of formality applied to such transactions. The principal feature of the proposal is to require that the MMR form be used for all such transfers of radioactive materials between divisions and sections carried out by the Business Services Section Transportation Services Department. The current provisions mandate the use of the MMR form for such transfers only if the materials are of Fermilab radioactivity Class 3 or higher. To accomplish this change, modifications to both FESHM Chapter 9020 and FRCM Chapter 4 are proposed, since these chapters cross-reference each other. In addition to this substantive change, editorial changes are proposed that correct and update some organizational designations. These revisions have been posted for comment and are now ready for approval and issue. We are also taking this opportunity to make an editorial change to FRCM chapter 2 to clarify a point of confusion result from our July 2004 modifications to that chapter.

After final approval, please return this approval page to Liz May at MS119 for posting on the web.

Encl.

**Recommended for Approval:**

*Jed Brown*  
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Jed Brown

*11/08/2004*  
\_\_\_\_\_  
Date

**Approved:**

*Mike Witherell*  
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Mike Witherell

*11/9/2004*  
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Date

Database login   
Sent for posting on web   
Date posted   
E-mail sent

## ONSITE HAZARDOUS MATERIAL TRANSPORTATION

### INTRODUCTION

Fermilab is a restricted-access site. Therefore, transportation of hazardous materials on Fermilab roads is exempt from State and Federal Department of Transportation (DOT) regulations.

This chapter provides a means of describing and documenting Fermilab's hazardous material packaging and transportation policies and procedures for onsite transfers.

### APPLICABILITY

This chapter applies to all onsite transfers of hazardous material conducted by Fermilab personnel. It includes all hazardous material transfers conducted via:

- any motorized vehicle,
- trailers towed by motorized vehicles,
- portable tanks towed by motorized vehicles, and
- cargo tanks towed by motorized vehicles.

### EXCEPTIONS:

- Liquid hazardous material (excluding radioactive material) in individual containers in a quantity  $\leq$  one (1) gallon or four (4) quarts -- *(multiple containers of these quantities in one outer container are also exempt -- e.g., a fiberboard box containing four - one gallon bottles of ethyl alcohol)*
- Solid hazardous material in a single container of  $\leq$  eight (8) pounds *(multiple containers of this quantity in one outer container are also exempt -- e.g., a fiberboard box containing four - eight pound cans of powdered caustic soda)*
- All aerosol spray cans
- Movements of hazardous materials within a division or section that does not require Transportation Services assistance
- Compressed Gas cylinders moved by Transportation Services
- Hazardous materials distribution by Transportation Services from outside vendors

*NOTE: See the following sections of this chapter for specific transportation requirements.*

- *Hazardous waste-Section 4.1*
- *Radioactive materials-Section 4.2*
- *Mixed radioactive waste-Section 4.3*
- *Hazardous materials-Section 4.4*

## DEFINITIONS

**Combination Packaging:** An outer packaging containing one or more inner packaging. For example: a fiberboard box containing a 2-gallon bottle of Isopropyl Alcohol.

**Hazardous Material:** Any material listed on the "Hazardous Materials Table" in 49 CFR 172.101. (NOTE: use this table only to determine if the material to be transported is hazardous for transportation -- DO NOT attempt to track the references to other parts of the CFR as contained in the table. Only reference other parts of the CFR when specifically required by this chapter.)

**Hazardous Waste:** Any hazardous material that is being transported for disposal purposes. It also includes any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR 262. (Note: if a Hazardous Waste Manifest is not required -- follow the transportation requirements contained in this chapter.)

**Single Packaging:** One container that does NOT contain any inner or outer packaging. For example: a 5-gallon can of gasoline.

## PROGRAM IMPLEMENTATION

### 1. Policy

It is Fermilab's policy to insure that all hazardous material and waste is packaged, identified, loaded and unloaded, and transported in a manner to assure:

- all on-site transfers are performed in compliance with this chapter;
- the safety and health of Fermilab and subcontractor employees, the general public, and the environment are protected.

### 2. Organizational Responsibilities

#### 2.1 *Business Services Section Transportation Services*

Fermilab's Transportation Services Department is responsible for:

- transporting incoming hazardous material from the receiving dock to its end-user, and

- operation and inspection of Transportation Services' vehicles used for onsite transfers of hazardous material, and maintaining them in a safe operating condition.
- moving hazardous materials onsite as requested by other divisions and sections, and
- maintaining Material Move Request (MMR) forms for a minimum of one (1) year.

## 2.2 *Environment, Safety and Health (ES&H) Section*

Fermilab's ES&H Section is responsible for programmatic oversight of onsite transportation of radioactive and regulated hazardous waste material. Many of these responsibilities are carried out by the Hazard Control Technology Team (HCTT).

## 2.3 *Division/Section*

Fermilab divisions/sections are responsible for:

- Documenting procedures (when more stringent than the requirements of this chapter) for hazardous material transported by their division/section personnel. (If transportation involves more than one division/section, the movement shall be performed according to the requirements of the division/section physically transporting the material.) Maintain MMR forms for a minimum of one (1) year.

## 3. Training

Each employee involved in hazardous material transportation covered by this section shall receive Hazard Communication and either DOT Hazardous Materials Regulations for Transportation Personnel or Hazardous Materials/Waste Transportation training prior to performing such work. This includes those who:

- load, unload, or handle hazardous material,
- test, recondition, repair, modify, mark, or otherwise represent containers, drums, or packaging as qualified for use in the transportation of hazardous material,
- prepare hazardous material for transportation, or
- operate a vehicle used to transport hazardous material.

## 4. Procedures for Hazardous Material Transportation

Each division/section is responsible for ensuring that hazardous material is transported in accordance with this chapter. The Business Services Section, Transportation Services Department is available for division/section assistance.

#### 4.1 *Hazardous Waste*

Hazardous waste is picked up from the point of generation or satellite accumulation area and transported to the Hazardous Waste Storage Facility (HWSF) by or under the direction of HCTT personnel. Large quantity (containers > 5 gallons) waste pickups are completed by Transportation Services personnel using their transport vehicle, while small quantity (containers  $\leq$  5 gallon) waste pickups are completed by HCTT personnel using their own transport vehicle. HCTT procedures and requirements for on-site waste pickups are documented in the HCTT Procedures Manual (Available for review at Site 40).

#### 4.2 *Radioactive Materials*

Radioactive materials transported by the Transportation Services shall be initiated using the MMR form in accordance with Article 423 of the Fermilab Radiological Control Manual. Procedures for proper use of the MMR form are included in the Technical Appendix A at the back of this Chapter.

#### 4.3 *Radioactive Mixed Waste*

The transportation of RCRA mixed waste will be performed by representatives from the HCTT and transported to the Hazardous Waste Storage Facility at Site-55.

#### 4.4 *Hazardous Materials*

All on-site movement of hazardous materials between divisions and sections by Transportation Services, other than waste and items being received from and delivered offsite, shall be initiated with the MMR form. Procedures for proper use of the MMR Form are included in the Technical Appendix A at the back of this Chapter.

#### 4.5 *Radioactive Waste*

Radioactive waste is picked up from the point of generation or satellite accumulation area and transported to the Hazardous Waste Storage Facility (HWSF) by or under the direction of HCTT personnel. HCTT procedures and requirements for on-site waste pickups are documented in the HCTT Procedures Manual (available for review at Site 40).

5. Reporting Hazardous Material Transportation Incidents

Incident reporting and emergency response for hazardous material and transportation incidents shall be done by immediately calling the Communication Center at x3131.

6. Packaging

6.1 *Onsite Transportation*

Packaging of hazardous material for vehicular transportation within the Fermilab site boundaries shall be conducted in accordance with the procedures provided below.

6.2 *Single Packaging*

a. All single packaging shall:

- be identified,
- be chemically compatible with their contents, and
- not be used for transportation if damaged; this includes rust, holes, dents, creases, crushed or compacted areas, wet spots or stains, improper closures, general corrosion, and any other condition posing a hazard during transportation. *NOTE: each division/section shall be responsible for determining if a package is suitable for transportation.*

6.3 *Combination Packaging*

The following types of containers may only be used as inner receptacles:

- glass or earthenware receptacles, and
- glass ampoules

All inner receptacles must:

- be packed so that closures are positioned upright,
- be secured and surrounded by cushioning materials,
- be packed within an outer packaging that does not contain sharp objects such as nails or staples protruding into the interior of the outer packaging,
- be chemically compatible with their contents,
- contain only mixed contents that are compatible,
- be identified.

7. Separation & Segregation of Hazardous Materials

During storage in preparation of transportation, and during transportation, hazardous material shall be separated/segreated as prescribed by 49 CFR - 177.848 (Segregation Table For Hazardous Material).

8. Driver Requirements

8.1 *Commercial Driver's License (CDL)*

Employees shall possess a valid CDL if their job duties require driving a vehicle transporting hazardous material in quantities  $\geq 1,000$  lbs., including the weight of the packaging. This requirement applies only to Facilities Engineering Services Section and Business Services Section personnel. All other employees are prohibited from transporting hazardous material in quantities greater than 1000 lbs.

8.2 *Prolonged Periods of Driving*

Employees transporting hazardous material shall follow DOT prescribed hours of work rules.

8.3 *Drug & Alcohol Testing*

Employees possessing a CDL as required by this chapter shall receive drug & alcohol testing as prescribed in the Fermilab Drug & Alcohol Program maintained in the Medical Department (Wilson Hall, GF-West).

8.4 *Training Requirements*

In addition to Hazard Communication, employees shall receive any additional training identified through the Individual Training Needs Assessment (ITNA) process.



## Fermilab 's Material Move Request Form Policy

The Fermilab Material Move Request Form is used for many purposes including movement, long term storage, and excessing of materials. It is used for all hazardous and non-hazardous offsite shipments, as well as certain onsite transfers of hazardous or radioactive materials. Below are instructions on how to fill out the form correctly and completely.

**Section 1** of the form provides the driver and receiver of the material with the requestor's name should there be any questions about the material being delivered. In addition, the information lets the driver and receiver know if any special handling requirements are necessary based upon the material's dimensions and weight.

DATE	REQUESTED BY	ID #	MS #	PHONE EXT.	BUDGET CODE
EXACT LOCATION OF MATERIALS		DIMENSIONS			APPROXIMATE WEIGHT
BLOG OR SITE #	AREA OR FLOOR #				

Complete all fields in this section.

**Section 2** of the form informs the driver and receiver of the specific hazardous nature of the material possesses. This aids the driver and receiver in insuring that the material is being properly package and handled.

**Special Instructions for Requester/Originator:** The requester is responsible for insuring that all Division/Section requirements for off-site Material Move Request Forms are met. Requirements may be obtained from Division/Section ES&H Offices. The Requester must arrange with authorized personnel to complete any required radiation check. Questions concerning the identification of other hazards should be referred to your Division/Section ES&H Office or the Shipping Dept. at x3470. (Hazardous material shipping requirements apply to on-site transfers.)

Contains Radioactive or Hazardous Material?  Yes  No

If Yes, Check Hazard Type(s) Below:

	Yes	No	Answered By (PRINT)	ID No.	Signature
<input type="checkbox"/> Radioactive - Nature & Extent					

Authorized Surveyor (PRINT)	ID No.	Signature	Survey Instrument / No.
<input type="checkbox"/> Explosive	<input type="checkbox"/> Flammable Gas	<input type="checkbox"/> Non-Flammable Gas/Cryogen	<input type="checkbox"/> Flammable Liquid
<input type="checkbox"/> Oxidizer	<input type="checkbox"/> Poison/Infectious	<input type="checkbox"/> Corrosive	<input type="checkbox"/> Flammable Solid
			<input type="checkbox"/> Other _____

Begin by first determining whether the material is either Radioactive or Hazardous by checking either the "Yes" or "No" box, and providing your name (Both printed and signed) and Fermilab ID number. If you answered "No", continue on to Section 3. If you answered "Yes", check the types of hazard(s) the material posses. Please note that

if the material is radioactive, the nature and extent of the radioactive hazard (Radiation class and dose rate) must also be provided with the Authorized Radiation Surveyor's name (Both printed and signed), their Fermilab ID number, and the Survey Instrument's name and number.

**Section 3** gives detailed information about material or equipment that will be sent off-site or moved within Fermilab.

POLINE ITEM #	QUANTITY	DESCRIPTION	PROPERTY NO.	SERIAL NO.

The description of the material or equipment should be as detailed as possible to insure that potential hazards are conveyed. For example, if "lead bricks" are to be moved, do not simply write in "bricks or miscellaneous debris." In addition, if more than one item is part of the same material move request, be sure to indicate this in the description. Writing the Material Move Request Number on all parts of the item to be moved is another effective way to prevent the likelihood of experiencing misplaced or lost items.

**Section 4** provides information on who to contact when a shipment is returned to Fermilab.

When Material is returned to Fermilab, deliver to:

Name \_\_\_\_\_ Ext. \_\_\_\_\_ Location \_\_\_\_\_

This section is only required if the material will be returned to the requestor.

**Section 5** provides delivery location and address information needed to insure that the shipment reaches the appropriate destination. In addition, the procurement method plus the mode and reason for shipment are also indicated.

SHIP TO _____	PURCHASE ORDER NO. _____
ADDRESS _____ <small>(Do not use P.O. Box No.)</small>	RETURN AUTHORIZATION NO. _____
CITY _____	PROCUREMENT APPROVAL _____ <small>(Shipments involving Purchase Orders require Procurement approval)</small>
STATE & ZIP CODE _____	LOAN OR EXPERIMENT NO. _____
ATTENTION _____ <small>(Required Information)</small>	DATE REQUIRED AT DESTINATION _____
AREA CODE & TELEPHONE NO. _____ <small>(Required Information)</small>	MODE OF SHIPMENT: <input type="checkbox"/> PREPAID <input type="checkbox"/> COLLECT <input type="checkbox"/> NORMAL <input type="checkbox"/> OVERNITE <input type="checkbox"/> VENDOR PICKUP
REASON FOR SHIPMENT:	
<input type="checkbox"/> IN WARRANTY REPAIR	<input type="checkbox"/> OUT OF WARRANTY REPAIR
<input type="checkbox"/> RETURN FOR REPLACEMENT / CREDIT	<input type="checkbox"/> RETURN FOR REPLACEMENT / DEBIT
<input type="checkbox"/> RETURN FOR CREDIT	<input type="checkbox"/> RETURN OVERAGE
<input type="checkbox"/> FABRICATION	<input type="checkbox"/> LOAN
<input type="checkbox"/> OTHER NOTES	<input type="checkbox"/> RETURN OF LOAN
<input type="checkbox"/> RETURN FOR REPLACEMENT	

This information makes it possible to track Fermilab property from shipment to return.

**NOTE:** At a minimum, the requestor should provide the SHIP TO, ATTENTION, and the DATE REQUIRED AT DESTINATION for on-site movement of hazardous and radioactive materials.