

# **Railhead Storage Area (Railhead)**

## **Section V – Chapter 1**

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### **Revision History**

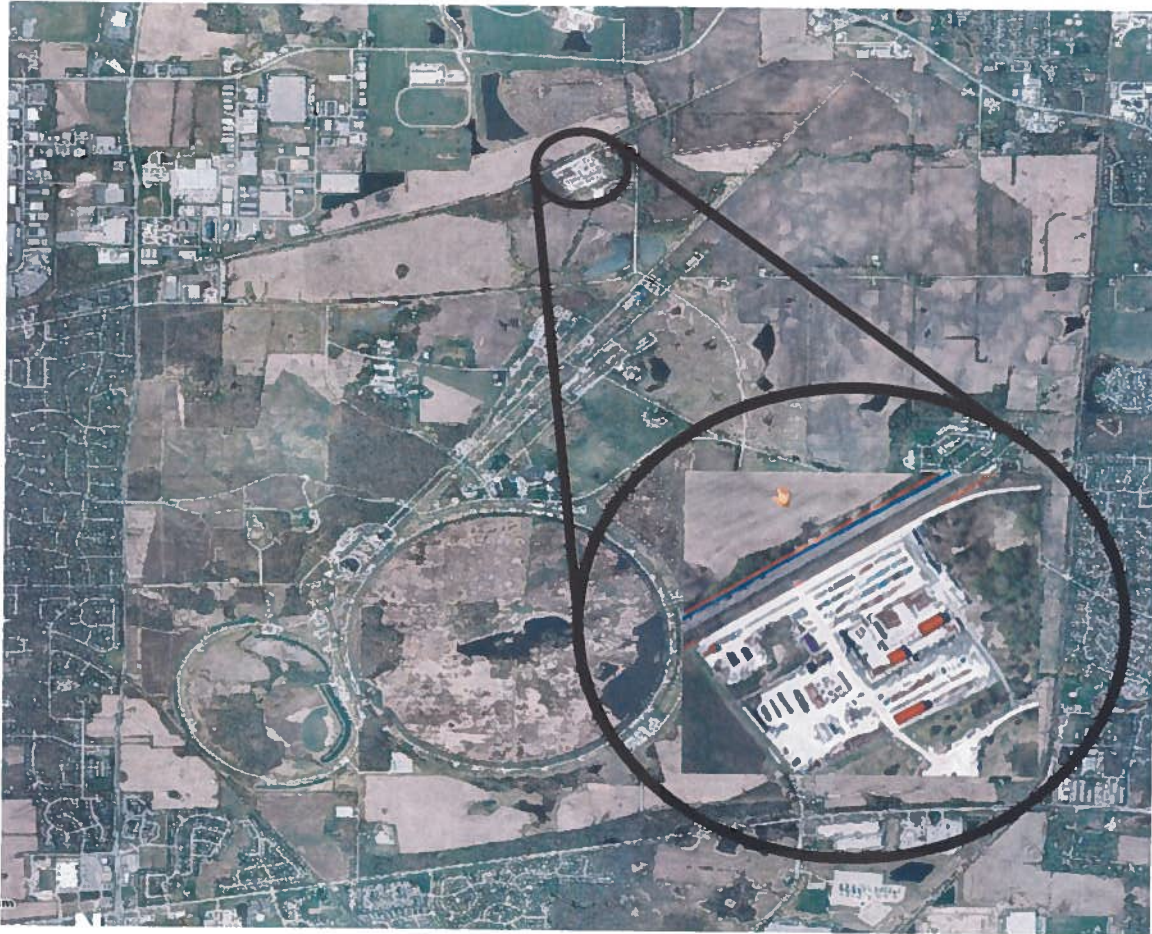
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**V – 1 Railhead****V – 1.1 The Railhead Storage Area at Fermilab (Railhead)**

The Railhead is located at the Northwest corner of the laboratory. The Railhead is operated by the Property and Inventory Control Department within the Facility Engineering Services Section (FESS). The map below shows the location on the Fermilab site.



## V - 1.2 Inventory of Hazards

The following table lists the identified hazards found at the Railhead. All hazards with an \* have been discussed in Section I, Chapters 1-10 of this document and are not covered further in this section.

<b>Radiation</b> Residual component activation Radioactive Waste*	<b>Kinetic Energy</b> Power tools*
<b>Toxic Materials</b> Lead* Beryllium*	<b>Potential Energy</b> Compressed gases*
<b>Flammable &amp; Combustible Materials</b> Flammable Liquids* Propane Torch* Acetylene Torch*	<b>Mechanical Energy</b> Motorized Vehicles*
<b>Electrical Energy</b> High voltage exposure*	<b>Nuclear Materials</b> Deuterium

## V - 1.3 Introduction

Section V, Chapter 1 of the Fermi National Accelerator Laboratory (Fermilab) Safety Assessment Document (SAD) covers the Railhead Storage Area (Railhead).

### V - 1.3.1 Purpose of Railhead

The Railhead accepts materials for storage at the laboratory. Items stored in the Railhead are received from all organizational elements of the laboratory. Stored items are classified as restricted storage for future use, excess to the requirements of the laboratory or scrap materials or equipment pending sale or other disposition.

### V - 1.3.2 Description of Railhead

The Fermilab Property and Inventory Control Department operates the Railhead Storage Area (Railhead), located at the Northwest corner of the laboratory. This facility has three separate areas, the North Hardstand, the South Hardstand and the Radiation Physics "Boneyard". The North and South Hardstands are managed by, and under the control of the Property and

Inventory Control Department. The Radiation Physics Boneyard is under the management and control of the Fermilab Environment, Safety, Health and Quality (ESH&Q) Section.

The North Hardstand is enclosed by a lockable cyclone fence that is 6 feet high and is topped by three strands of barbed wire overlaid with a coil of razor ribbon. The area is well lit and routinely patrolled by the site security force. Within the North Hardstand are three enclosed structures, Lundy Barn, the NEVIS Building and the scrap operations building. Lundy Barn, for which FESS is the landlord, is unheated and has no electricity. Lundy Barn, and the surrounding fenced area, is available to store materials that are Fermilab Radioactivity Class 3 or higher. Lundy Barn area is also used to store materials that have additional inventory control requirements, such as beryllium and deuterium. A Radiological Work Permit has been issued for working in Lundy Barn.

The NEVIS building, for which the Particle Physics Division is the landlord, is unheated, but has electricity. This structure is also intended to store selected materials, specifically this building is used to store the NEVIS blocks, some of which are also radioactive. The remainder of the North Hardstand provides outdoor storage with little or no protection from the elements.

The third enclosure, within the North Hardstand, is the Scrap Operations Building. This building is a heated shop building with full electrical service. It is used for overnight storage of operating equipment assigned at the Railhead.

The South Hardstand is an unfenced area used for the storage of items which are NOT radioactive and which are, due to size and weight, not susceptible to theft.

The Boneyard is dedicated to Radioactive Waste Operations. Radioactive and hazardous waste handling and management are conducted in accordance with the Fermilab Environment, Safety and Health Manual (FESHM)<sup>1</sup> Chapter 8000, *Environmental Protection*, and requirements set forth in the Fermilab Radiological Control Manual (FRCM)<sup>2</sup> Chapter 4, *Radioactive Materials*, Part 4, *Radioactive Waste Management*. All radioactive material that is no longer needed presently or in the probable future should be disposed of as radioactive waste. Specific procedures for management of radioactive waste is addressed in the Low-Level Waste Certification Program and division/section/center radioactive and hazardous waste handling procedures.



## **V – 1.4 Safety Assessment**

The radiological hazards at the Railhead are analyzed in this section. These hazards include nuclear materials and residual activation from beamline components or experimental areas.

### ***V – 1.4.1 Radiological Hazards***

#### ***V – 1.4.1.1 Nuclear Materials***

Nuclear materials at the Railhead in the form of deuterium gas are stored and used in accordance with FRCM policies and the Fermilab Nuclear Materials Control and Accountability (MC&A) Plan<sup>3</sup> policies.

#### ***V – 1.4.1.2 Residual Activation***

The Railhead is not physically connected to the accelerator complex, as a result, there is no residual activation produced at Railhead. Activated materials are brought to Railhead for storage and labeled appropriately. Work at the Railhead is performed according to approved FESS procedures including requisite safety precautions that include consideration of radiation protection and an approved Radiological Work Permit (RWP) for Lundy Barn. Radiological hazards are not directly associated with accelerator operations and are managed in accordance with the requirements of the FRCM that implement 10 CFR 835.

#### ***V – 1.4.1.3 Radioactive Waste***

Radioactive waste is not taken to the Railhead, with the exception of the “Boneyard”. If radioactive materials that are already present at the Railhead are declared waste, they are again handled and managed in accordance with FESHM Chapter 8000, *Environmental Protection*, and requirements set forth in FRCM Chapter 4, *Radioactive Materials*, Part 4, *Radioactive Waste Management*.

## **V – 1.5 Assessment of Potential Credited Controls**

### ***V – 1.5.1 Passive Controls***

There are no passive credited controls that qualify for inclusion in the Accelerator Safety Envelope (ASE).

### ***V – 1.5.2 Active Controls***

There are no active controls that qualify for inclusion in the ASE.

### ***V – 1.5.3 Administrative Controls***

Administrative controls at the Railhead include an outer fence on McChesney Road and an inner fence around the North Hardstand. Both are locked when Railhead personnel are not present. Only Property and Inventory Control Department personnel, and members of the security force possess keys to the Railhead. All work at the Railhead is performed according to approved Railhead procedures<sup>4</sup> and a Radiological Work Permit. Additionally all materials delivered to the Railhead must be accompanied by a fully completed Material Move Request (MMR) form. This ensures that all materials brought into the Railhead are accounted for and stored properly. There are no administrative controls that qualify for inclusion in the ASE.

Access controls for nuclear materials are described in section 8 of the Fermilab Site Security Plan<sup>5</sup>. Access to deuterium gas tanks and cylinders is controlled by a fence with a locked gate. Only a limited number of people are authorized to have access to deuterium in storage at the Railhead.

## **V – 1.6 Summary & Conclusion**

Specific hazards associated with the Railhead operations are identified and assessed in this chapter of the Fermilab Safety Assessment Document. The designs, controls, and procedures to mitigate Railhead specific hazards are identified and described. In addition to these specific safety considerations, the Railhead is subject to the safety requirements, controls and procedures outlined in Section I of this Fermilab Safety Assessment Document.

Within the specific and generic considerations of this assessment the Railhead can be operated with a level of safety that will protect people and property, and is equal to or exceeding that currently prescribed in DOE orders and Fermilab regulations as put forth in the FESHM and FRCM.

## V – 1.7 Acronyms

ESH&Q	Environment, Safety, Health and Quality
FESHM	Fermilab Environment, Safety, and Health Manual
FESS	Facilities Engineering Services Section
ITNA	Individual Training Needs Assessment
MC&A	Materials Control and Accountability
MMR	Material Move Request
FRCM	Fermilab Radiological Control Manual
PPD	Particle Physics Division
RWP	Radiological Work Permit
SAD	Safety Assessment Document
SSP	Site Security Plan

## V – 1.8 References

<sup>1</sup> Fermilab Environment, Safety, and Health Manual. – The current web link is:  
<http://esh.fnal.gov/xms/FESHM>

<sup>2</sup> Fermilab Radiological Control Manual. - The current web link is:  
<http://esh.fnal.gov/xms/FRCM>

<sup>3</sup> Fermilab Nuclear Materials Control and Accountability Plan. – The current web link is:  
<https://esh-docdb.fnal.gov:440/cgi-bin/ShowDocument?docid=2024>

<sup>4</sup> Operating Procedure – Fermilab Property Inventory Control, Railhead Storage Area; Radiation Surveys and Documentation.

<sup>5</sup> Fermilab Site Security Plan. – The current web link is:  
<https://esh-docdb.fnal.gov:440/cgi-bin/ShowDocument?docid=2761>