

Accessing the MINOS Underground Area

Why We Have Access Permits:

Work permits are necessary to go underground in order to keep track of what jobs are going on and ensure jobs don't conflict with each other, or with beam conditions. When a work permit is submitted this lets the coordinator know what materials people are working with, what areas they are working in and what, if any, consequences of the jobs being done. In this way the coordinator can look out for conflicting jobs.

When you indicate a permit number in the key log, this lets the shifter know what work will be going on underground. This is especially important if the job includes switching off any utility systems, and/or affecting any of the detectors underground. Indicating your intentions in the log also indicates the understanding of the permit system.

Tour Permits are in place to insure all tourists are given the proper safety briefing by a qualified individual, and no one enters the areas without being aware of the hazards. The tour permit also insures tourists are properly escorted.

Types of Access Permits:

Tours (TP):

- 1 Tour Guide per tour
- 1 Tour Escort for every 5 untrained tourists
 - **Tour Guide:**
 - A Tour Guide is
 - approved by the Underground Coordinator
 - responsible for the tourists receiving the Safety Briefing
 - explains how to use an Ocenco M20 to the tourists
 - very familiar with the Underground Area and (in most cases) has walked the Decay Pipe Escape Passageway
 - meets the training requirements below
 - **Tour Escort:**
 - A Tour Escort is anyone who has up-to-date
 - NuMI/MINOS Underground Training
 - GERT, Radworker, or RCT
- Keys are only given to trained personnel
- EVERYONE badges in/out, and wears a hard hat
- Take a large flashlight with you

Finite Work Permit (FWP):

- Work for a specific job
- Issued with an expiration date
- Will determine if HA or any other permit is needed
- Required for work on:
 - Electrical work
 - Work at heights above 4 ft
 - Work with Chemicals:
 - Flammables
 - Combustibles
 - Hazardous
 - Lead
 - Cryogenics work
 - Mechanical work:
 - Shaft crane
 - Hall Crane
 - Fork truck
 - Lifts
 - Welding
 - Networking or Control systems
 - Ethernet Service
 - ACNET service
 - Phone System
 - Water or cooling systems work:
 - LCW skid
 - Cooling water pumps
 - Sump pumps
 - Fan coil units
 - Safety Systems¹
 - Elevators
 - Lighting system
 - Fire protection system
 - Ventilation System

[Underground Coordinator:](#)

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¹ Fire Dept has leave to go down at their disposal

Standing Work Permit (SWP):

- A work permit will be issued to each experiment and FESS² such that work can be performed by a predetermined list of people to their own equipment (resetting electronics, etc.)
- This DOES include turning off power to a rack or crate or High voltage power supply to make repairs or replacements
- This does NOT include any work on services, such as:
 - Power (no flipping of breakers)
 - Water systems (LCW, or Ground)
 - Air systems
 - Networking or control system

Standing Work Permits:
(For General Maintenance)

<i>MINOS</i>	<u>SWP 95</u>
<i>MINOS TOF</i>	<u>SWP 166</u>
<i>MINERvA</i>	<u>SWP 101</u>
<i>DAMIC</i>	<u>SWP128</u>
<i>FESS</i>	<u>SWP 100</u>
Fire Personnel	<u>FIRE</u>
<i>Volk</i>	<u>SWP 111</u>
<i>AD Mech</i>	<u>SWP 154</u>

Visual Inspections (VI):

- Inspections include taking pictures or notes (keep your hands in your pockets)
- Inspections do NOT include:
 - Manipulating breakers
 - Resetting electronics
 - Manipulating valves
 - Turning on/off magnets

To enter the Underground Areas you must have:

- ✓ An Approved Permit Number
- ✓ Up-to-date NuMI Underground Safety training
- ✓ Valid GERT, Radworker or RCT
- ✓ Hard hat
- ✓ Flashlight
- ✓ Closed-toed, flat shoes
- ✓ Buddy

Notes:

- Maintenance Issues will be divided between Standing Work Permits and Finite Work Permits
- Long term keys could be issued for the length of the finite work permit, with Underground Coordinator approval.
- **Override is available in case of emergency, contact the Underground Coordinator.**

Upstream Absorber Areas:

- The area upstream of the Elephant Doors is under Accelerator Division supervision.
AD personnel needing to access this area should inform Mike Andrews, and indicate AD in the key log.
- Standing Permit for AD Mechanical Support to make access to Absorber Area: SWP154.

² FESS already has a system in place to notify the Underground Coordinator when they access the underground to perform work. It's easier to give them a standing work permit.

In the Future:

- The shifter would input Key#, ID #, and permit # into a program which would check:
 - o Training of the ID#
 - o Approval status of the permit
 - o The ID# matches the permit#, where applicable
- If permission returns false, shifter should contact the Underground Coordinator.
- Program should allow for multiple work permits.
- Permission will be denied if
 - o All keys allowed by the WP have already been signed out (for FWP)
 - o ID is not in WP allowed list. (for SWP)
 - o WP or TP is not Approved (or has expired)
- When a WP expires any keys logged out under that permit will be brought to shifter's attention.
- Finite WP and TP need only list a number of people
- Standing Work Permits should contain lists of personnel able to use the permit number.
- **Override should be available in case of emergency**