

Integrated Safety Management For the MINERvA Project

1.0 Line Management Responsible for Safety

1.1 Fermilab Policy

Responsibility for environment, safety, and health (ES&H) is defined in the Fermilab ES&H Manual (FESHM) Chapter 1030. It states:

“The Laboratory Director is ultimately responsible for safety, but each person at Fermilab is responsible for establishing knowledgeable control of the hazards encountered at the Laboratory. The necessary level of knowledgeable control is established by a combination of formal training and common sense.”

Other documents which support this policy include:

1.2 MINERvA Project Management Plan

1.3 MINERvA Project Execution Plan

2.0 Clear Roles and Responsibilities

It is important that roles and responsibilities be clearly understood. Roles and responsibilities for those organizations involved in the NuMI project are discussed in various references, such as Director’s Policy Manual, FESHM, and the MINERvA Project Management Plan. The key roles and responsibilities are discussed here:

2.1 Fermilab Roles and Responsibilities

2.1.1 MINERvA Project Manager/Deputy Project Manager

The position’s roles and responsibilities are incorporated into the MINERvA Project Management Plan. These individuals are responsible for administering, planning, organizing, and controlling the MINERvA project technical, cost, schedule and ES&H objectives. All ES&H follows line management up to the Project Manager and the Deputy, who therefore has the responsibility to assure that the appropriate competence and training exists at all levels, and that the appropriate processes consistent with the ISM five core functions are in place.

2.1.2 MINERvA Project ES&H Coordinator

The MINERvA Project ES&H Coordinator has been assigned to assist the MINERvA Project Management Team in constructing/fabricating, installing, commissioning, and operating all aspects of the MINERvA project by providing ES&H oversight of these activities. He keeps the MINERvA Project Manager informed of current potential upcoming ES&H issues. The MINERvA Project ES&H Coordinator is responsible for completing reports such as ORPS and CAIRS.

2.1.3 MINERvA Project Mechanical Engineer

The MINERvA Project Mechanical Engineer is responsible for coordination of mechanical aspects of the design, fabrication and installation phases of the project. He/she is also works with the MINERvA ES&H Coordinator to implement Fermilab's policy of Integrated Safety Management (ISM) in the project and resolve any ES&H issues that may arise.

2.1.4 MINERvA Project Electrical Engineer

The MINERvA Project Electrical Engineer is responsible for coordination of electrical aspects of the design, fabrication and installation phases of the project. He/she is also works with the MINERvA ES&H Coordinator to implement Fermilab's policy of Integrated Safety Management (ISM) in the project and resolve any ES&H issues that may arise.

2.1.5 MINERvA Level 2 Managers

L2 Managers are responsible for implementing the Project Execution Plan in conjunction with all applicable ESH standards and policies including FESHM. They are also responsible for applying the Integrated Safety Management principles to their subsystems

2.1.6 MINERvA Task Managers

MINERvA Task Managers are responsible for direct implementation of all ESH policies and standards to the tasks being performed on a daily basis. The Task Managers serves as the point of contact between the all subcontractors and Fermilab. The Task Managers are responsible for all the tasks defined for a Fermilab Task Manager as found in FESHM 7011. They are responsible for assuring that the subcontractor(s) are complying with applicable ES&H requirements. Specific activities include: develop hazard analysis's and provide to MINERvA ESH Coordinator for review and comment, complete inspections, communication with the Project ESH

Coordinator and Project Manager for addressing identified ES&H concerns.

2.1.7 ESH Section Oversight

The ESH Section is responsible for providing laboratory oversight of the MINERvA Project. This is done through the assignment of a construction safety coordinator who conducts regular site inspections with the MINERvA Project ESH Coordinator to observe MINERvA Project management is compliance with all ESH standards and requirements.

Any concerns identified are brought to the attention of the MINERvA ESH Coordinator. They are also documented to assure appropriate level of tracking.

3.0 Competence Commensurate with Responsibilities

It is important that each one of these key individuals have the expertise to effectively complete their assignment. Each has brought a wealth of technical and ES&H expertise to the project.

In addition, special training has been provided as appropriate. All have taken the NuMI/MINOS Underground Safety Training and the appropriate level of Radiation Safety Training. Additional training will be required dependent on the hazards. The MINERvA Project Manager, the MINERvA Deputy Project Manager, the MINERvA Project ESH Construction Coordinator have taken the appropriate safety Course as dictated by their ITNA and the TRAIN database to successfully complete this project in a safe manner.

All MINERvA Task Managers have taken the 24 hour Fermilab Construction Safety Course. They have also all received training in incident investigation and scene preservation as well.

4.0 Balance Priorities

The key to balancing priorities is assuring the decision makers, in this project the NuMI Project Manager and Deputy Project Manager are provided accurate information about the work activity, schedule, costs, hazards, risks, and controls. These are discussed with Level 2 Managers during the weekly progress meeting. This is also achieved through work planning meetings.

5.0 Identification of Safety Standards and Requirements

5.1 Work Smart Set

The Work Smart (formerly Necessary and Sufficient) Standards Set itemizes all the ES & H laws, regulations, and standards to which Fermilab, including the MINERvA Project must adhere. The standards set is part of Fermilab's contract with the Department of Energy and can be found at <http://www-lib.fnal.gov/library/worksmart/worksmart.html>.

5.2 FESHM

The FESHM is Fermilab's document that describes how Fermilab implement's its ES&H Program. Various chapters have requirements for subcontractors included within them. For example, Chapter 7010 describes requirements for subcontractors and identifies roles and responsibilities of the line manager. Chapter describes Fermilab's confined space program and sets forth requirements for subcontractors entering into our previously identified confined spaces.

6.0 Hazard Controls Tailored to Work

6.1 Hazard Analysis

Fermilab has a defined hazard analysis (HA) process. The workers have been trained in its use. During the daily pre-job briefings the hazard analysis applicable to the planned work is reviewed within each individual workgroup. Changes or new hazard analyses may be developed at that time as well. When hazard analyses are changes, or a new HA is developed, the workers review and sign to indicate acceptance of the requirements within the HA.

6.2 Personal Protective Equipment

MINERvA Project Management has determined that all individuals entering the construction site must wear hard hats, safety glasses with side shields, and safety shoes. Those individuals who enter the underground facilities must also wear hearing protection were defined. All visitors to the site must be escorted and receive the MINOS Visitor Safety Briefing and Self Rescuer Field Training.

6.3 Training

The MINERvA installation workforce is required to complete General Employee Radiation Training (GERT) and NuMI/MINOS Underground Safety Training prior to accessing the underground facility. Additional required training will be dictated by a employee or users ITNA, which should be kept up to date. Fermilab requires all subcontractors to take Fermilab Subcontractor Orientation. This course sets forth to the worker Fermilabs' expectation that they will work safely. It also provides information for raising concerns if their management is not responsive to safety issues.

7.0 Operations Authorization

7.1 Work Notification

At the start of the installation phase of the project, a work permit and notification was issued, per FESHM 2020. A WPN is a work planning tool intended to provide timely notification of a proposed construction project or work activity that will have impact beyond a particular organizational group and/or the specific system or area affected by the work. It lists (identifies) applicable permits, site-specific training requirements, and organizations that need to be notified prior to the commencement of on-site work activities. The use of this form will serve as a reminder and as a checklist to identify hazards or other aspects of the work activity that are controlled by practices or requirements specific to Fermilab, as well as documenting the authorization to commence work by the landlord division/section.

7.2 Daily Huddles/Job briefings/Hazard analysis review

MINERvA Management begins each work shift with a job briefing. It starts with a big meeting, and then the individual work groups meet to discuss their individual work group activities. Details of the work expected to be conducted that day are shared with the workers. The hazard analysis is reviewed/revised/prepared based upon input from the workers.

7.3 Monitoring by MINERvA Project Management

7.3.1 Weekly Scheduled Inspections

There is a scheduled MINERvA ES&H Management walkthrough of the MINERvA construction/installtion sites. Representatives from DOE-FAO, MINERvA Project Management, and ESH Section. Observations are documented and ES&H deficiencies are noted.

7.3.2 Unscheduled Inspections

The MINERvA Management, Task Managers and ESH Oversight personnel conduct unscheduled inspections throughout the week to assure compliance with applicable ES&H standards. Results are documented and discussed in MINERvA Project Management progress meetings.

7.3.3 Progress Meetings

MINERvA conducts weekly progress meetings. ES&H issues are the first item on the agenda. Minutes are kept and are part of the project file.

7.3.4 Daily Consultation

The ES&H support personnel are available on a daily basis to consult with the construction coordinator on ES&H issues. These individuals are available to assist construction coordinator with items such as hazard analysis review, ES&H issue resolution, and training.

7.3.5 Incidents/Investigations

Should an incident occur, all employees, users, and subcontractors are instructed to dialing 3131 to activate the Fermilab Emergency Response Plan.

The Task Manager and Project ESH Coordinator are responsible for investigating the incident. If the incident involves a recordable injury, MINERvA ESH Coordinator is expected to generate a CAIRS within 48 hours. The MINERvA ESH Coordinator reviews the CAIRS report for completeness. Direct, root, and contributory causes are expected to be identified. Corrective actions are expected to be determined and quickly implemented. The NuMI Project ES&H Coordinator is responsible for entering information into the Fermilab injury/illness database.