

## Memorandum

February 22, 2008

**To:** Bruce Chrisman  
**From:** William Griffing   
**Subject:** Revised FESHM Chapter 7010 – ES&H Program for Construction – Fixed Price

FESHM chapter 7010, ES&H Program for Construction – Fixed Price has been revised. The changes that were made to this chapter are listed below.

- 1) Adds a definition for government property.
- 2) Corrects a definition for personal property.
- 3) Added a reference to 10CFR Part 851.
- 4) Changes the title "Associate Head for Operations Support" to "Chief Operating Officer" throughout the document.
- 5) Adds two additional duties to the list for construction managers to keep in line with ISM principles.
- 6) Adds additional duties to the list for construction coordinators and edits some other bullets to make them read better.
- 7) Adds an additional bullet under the duties of the ESH-SEP group to be an advisor regarding the review of ESH Plans rather than the principal.
- 8) Re-enters the Experience Modification Rate to the qualification of subcontractors that was inadvertently left off from the prior issue.
- 9) The ES&H Plan Review and Acceptance process is changed to reflect the change in responsibilities from ES&H-SEP to the construction manager.
- 10) Under "Hazard Analysis"- a clarification statement is entered.
- 11) Under Training of Construction Coordinator- A requirement to have scaffold training if a scaffold erection is part of the project and similar clarification if an excavation is part of the project.
- 12) Under "Delivery Personnel- entered clarification statements regarding PPE.
- 13) Under "Work Clothing on Construction Sites- Added a statement to control a hazard when a construction employee hair exceeds normal lengths.
- 14) Under "Electrical Safety"- Added clarifying information regarding PPE and verification of training. Also a prohibition of Relocatable power taps in construction areas to meet an OSHA Interpretation on their use.

- 15) Under "Loaning of Fermilab Tools"- Added clarifying information regarding the officer who can sign the certifications on behalf of the construction company.
- 16) Multi-Organizational Safety Walk Flow Diagram- Redrawn using MS Word instead of Filemaker Pro.
- 17) Renumbered major topics down to two levels for ease of reference.

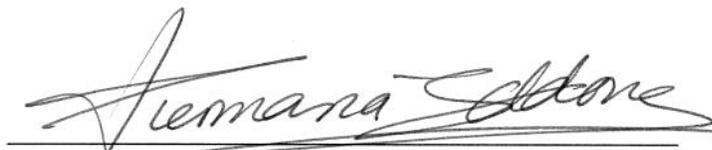
After final approval, please return this approval page to Elizabeth Bancroft at MS119 for posting on the web.

Encl.

**Recommended for Approval:**

  
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Bruce Chrisman Date 2/25/08

**Approved:**

  
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Piermaria Oddone Date 3/5/08

## ES&H PROGRAM FOR CONSTRUCTION – FIXED PRICE

### 1.0 INTRODUCTION

At Fermilab the health and safety of all who work here is paramount. We believe that the most effective and least costly way to accomplish our goals is to do so safely, without injury to workers, the public, or the environment. We believe that the most effective, well-managed businesses are those that share our view of the importance of working safely. Working safely and in an environmentally sound manner is simply good business. We will only engage subcontractors and their sub tier contractors to work on the Fermilab site who share the view that working safely can not be an after thought or an added cost.

This chapter describes Fermilab's program, procedures and safety requirements for all fixed price construction work. Construction tends to have greater exposures to hazards and thus higher injury and property damage rates. However, experience has shown that careful planning and review can reduce the rate at which accidents occur.

This chapter also describes requirements for Fermilab employees who will be entering construction areas or who oversee subcontractor construction activities.

Although subcontractor safety is a line responsibility, the ES&H Section will provide support to the construction manager, project manager and construction coordinator upon request, as well as oversight of the construction safety management for construction projects awarded greater than \$25 K in labor cost. For projects less than \$25K in labor costs, support and oversight will be negotiated between the division/section Senior Safety Officer (SSO) and ESH-Safety & Environmental Protection group (ESH-SEP).

### 2.0 REFERENCES

29 CFR 1926- Construction Industry Regulations  
NFPA-70E (2004)- Standard for Electrical Safety in the Workplace  
10 CFR Part 851- Worker Safety and Health Program

### 3.0 DEFINITIONS

**Competent Person-** The subcontractor who by virtue of formal training and/or experience can recognize existing and predictable safety hazards and has the authority to take prompt corrective action. The competent person must be on the Fermilab site at

all times when work activities are ongoing. For those activities where OSHA specifically calls out for a competent person; i.e., scaffolding and excavations, the project competent person may act in that capacity provided the OSHA training requirements for that activity are met.

**Construction** – means construction, alteration, demolition, or repair (including dredging, excavating, and painting) of buildings, structures or other real property. For purposes of this definition, the terms “buildings, structures, or other real property” include, but are not limited to, improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, cemeteries, pumping stations, railways, airport facilities, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, canals, and channels. Construction does not include the manufacture, production, furnishing, construction, alteration, repair, processing or other kinds of personal property.

**Construction Coordinator (CC)** - A person specifically assigned to oversee the work of a fixed-price construction subcontract for conformance to the subcontract documents.

**Construction Manager (CM)** - The individual with overall responsibility for the construction phase of the project, including baseline, schedule, budget, quality, and ES&H. The CC assumes the responsibilities of the CM if a CM is not assigned to the project.

**ES&H Audit** - a formal review of a line management and subcontractor’s activities, documentation, and management systems to verify compliance with the ES&H program as defined by their accepted ES&H Plan and the contract.

**ES&H Inspection** – an on-site review of construction work activities using the established subcontractor ES&H plan and the contract as review criteria.

**ES&H Construction Oversight** – Activities of ES&H personnel aimed at assessing a project to verify compliance with laws and regulations as well as Fermilab policies and procedures, contract requirements and the accepted subcontractor’s ESH plan. Oversight includes audits of the activities of all line management in support of Fermilab's safety efforts.

**Excavation** – Any man made cut, cavity, trench, or depression in the earth’s surface formed by earth removal, where employee exposure can be reasonably anticipated and employee entry into the excavation is a requirement of the work activity.

**Government Property** - Property that is owned by the government, in custody of the Laboratory, both equipment and expendable, exclusive of plant equipment (i.e. utilities) and real property (i.e. roads, buildings, land).

**Hazard Analysis (HA)** - The process by which hazards are identified for all anticipated phases of work.

**Imminent Danger** - any condition or practice that could reasonably be expected to cause death or serious physical harm (permanent or prolonged impairment of the body or temporary disablement requiring hospitalization) to employee or the public, or irreparable environmental harm unless immediate actions are taken.

**Integrated Project Team (IPT)** - Multi-organizational team of staff members brought together to manage a specific project through design, procurement, and construction. Formally established for a plant-funded project in the Project Execution Plan.

**Landlord** - The division/section responsible for the space.

**Mobile Crane** - A crane consisting of a rotating superstructure, operating machinery, and operator's station and boom; mounted on a crane carrier equipped with axles and rubber-tired wheels for travel, a power source(s), and having either a single or separate stations for operating and driving. Its function is to lift, lower and swing loads with boom raising and lowering capabilities and a superstructure that can rotate 360 degrees.

**Personal Property** - Something tangible or intangible that the employee owns and has legal title to it.

**Pre-Construction Meeting** - The meeting chaired by the Procurement Department with the subcontractor, CM, CC, Project Manager, ESH-SEP, Security, and any interested Laboratory personnel.

**Procurement Administrator (PA)** - The Business Services Section procurement representative, with Laboratory signature authority, who is responsible for the negotiation and administration of subcontract terms and conditions.

**Project ES&H Support** - Individual(s) designated to provide ES&H support services to the Project Manager and the Integrated Project Team. If no Project ES&H Support is assigned in the Project Execution Plan, the responsibilities of this individual revert to the ESH Section.

**Project Execution Plan (PEP)** - A document created by the Project Manager in which the roles and responsibilities for the Integrated Project Team, including ES&H management are identified. Expectations for inspections, reports, etc. are addressed in this report.

**Project Manager (PM)** - The line management individual directly involved and accountable for overall project control and the application of specific control measures to ensure successful completion of project objectives.

**Real Property** - Includes all land, land improvements, permanent structures and the utilities, fixed plant equipment and components to service the structure for its intended use.

**Reviewing Official (RO)** - The individual who has the final signature authority on the subcontractor performance evaluation. That signature authority is given to the Head, Business Services Section.

**Senior Safety Officer (SSO)** - An individual who is assigned duties as the principal ES&H advisor to the division/section head.

#### 4.0 RESPONSIBILITIES

The Chief Operating Officer is responsible for updating the TM list on an annual basis.

The Division/Section (D/S) Head is responsible for ensuring implementation of the requirements of this chapter for those construction activities managed by his/her staff. The D/S head is also responsible for ensuring a qualified CC is assigned.

The Project Manager (PM) is responsible for:

- Completing scope of project on time, within budget, safely, and in an environmentally responsible manner.
- Assembling the IPT.
- Developing the PEP.
- Arranging for the Project ES&H Support personnel, as appropriate.
- Reviewing incident reports.

The Construction Manager (CM) is responsible for:

- Reviewing/accepting the subcontractor ES&H plan, including revisions, on behalf of the Laboratory.
- Acting as the single point of communication with the subcontractor on safety issues.
- Monitoring subcontractor and sub-tier contractor ES&H performance, including elements of the subcontract that address Integrated Safety Management.
- Participating in the Preconstruction Meeting to establish ES&H expectations for the project.
- Approving the Notice to Proceed.
- Monitoring the Construction Coordinator's Deficiency log.
- Reviewing the subcontractor's excavation work plan.
- Making weekly safety inspections of projects and documenting the inspection results.

- Identifying the need for and schedule of the Multi-Organization Walk-through (TA 7010-1).
- Issuing noncompliance memos to the subcontractor.
- Chairing weekly meeting with the subcontractor to review progress, including ES&H performance.
- Developing a call tree for incident reporting.
- Issuing the incident report.
- Participating in the subcontractor performance review at completion of the contract.

The Construction Coordinator (CC) is responsible for:

- Serving as first line of contact with the subcontractor field organization.
- Ensuring the subcontractor is following their ES&H Program.
- Reviewing and accepting the subcontractor hazard analysis.
- Ensuring that no work is performed by the subcontractor or sub-tier contractor until the hazard analysis has been accepted, and reviewed and signed off by each subcontractor and sub-tier contract employee on the job.
- Obtaining the required work permits.
- Preparing and distributing the Work Permit/Notification form.
- Participating in Preconstruction meetings to establish ES&H expectations.
- Ensuring that all subcontractor and sub-tier contractor employees attend Fermilab's Subcontractor Orientation and other Fermilab-provided training.
- Assuring that the subcontractor provides and documents a site/job specific orientation to subcontractor employees and sub-tier contractor employees.
- Monitoring and enforcing compliance with ES&H requirements in the contract, ISM Plan (if project requires), and hazard analysis. Documenting noncompliance in a daily log.
- Drafting noncompliance memos for the Construction Manager.
- Participating in weekly meeting with subcontractor.
- Ensuring that goods and services meet specifications.
- Initiating call tree upon subcontractor report of an incident.
- Obtaining incident report from the subcontractor.
- Preparing independent incident report for the Construction Manager.
- Tracking and reporting to ESH-SEP subcontractor and sub-tier contractor work hours by the seventh day of the month following the end of the quarter.
- Attending the subcontractor's daily planning meetings, weekly toolbox meetings, and monthly ES&H training.
- Participating in subcontractor performance review at end of the contract.
- Reviewing the condition of mobile crane used as part of the project, using the guidance in TA 7010-2, "Mobile Crane – Safe to Operate Review Items".
- Maintaining the deficiency log.

- Verifying the training of those involved in confined space entry (contractor provided) and radiation work (Fermilab provided) before work begins.
- Verifying training for subcontractor employees engaged in electrical work, excavations, scaffold erection/use and respiratory protection. Additional training verification as defined by the phase of work.

The Project ES&H Support, if assigned, is responsible for providing consultation and interpretation support to the Integrated Project Team. If no project ES&H Support is identified in the Project Execution Plan, these responsibilities will be carried out by the ESH-SEP. These include:

- Assisting in the preparation of the PEP, as requested.
- Participating in proposal conferences, as requested.
- Participating in Preconstruction meeting, as requested.
- Assisting the CC with the review of the hazard analysis, as requested.
- Providing field ES&H consultation to the CC, as requested.
- Attending weekly construction meetings, as requested.
- Participating in weekly project team meetings, as requested.
- Reviewing investigation reports for completeness. Assist as requested.
- Notifying the Medical Department of any subcontractor or sub-tier contractor injuries with 24 hours of being informed of the incident.
- Inputting incident investigation information into Computerized Accident Investigation Reporting System (CAIRS) as required.
- Developing Lessons Learned and submitting them to ESH-SEP for posting on web page.
- Conducting ES&H inspections as requested by the Integrated Project Management Team.
- Participating as a team member in the evaluation of the subcontractor

The Senior Safety Officer (SSO) is responsible for:

- Reviewing purchase requisitions to ensure appropriate safety requirements are identified (See FESHM 5010).
- Providing support and oversight of construction projects under \$25, 000, including communicating observations to the CC.
- Negotiating with the ESH Section as to oversight and support responsibilities for projects under \$25K. Notifying the CC of the negotiation.
- Assisting the CC with the review of the HA, as requested.
- Reviewing and approving the Work Permit and Notification form (see FESHM 2020).
- Assisting the CC in conducting incident investigations, as requested.
- Participating as a team member in the evaluation of the subcontractor.

The ESH-SEP Group is the authority for construction safety policy. Responsibilities include:

- Proposing construction safety policy.
- Evaluating/accepting the subcontractor safety submittal as part of the initial proposal.
- When requested, reviewing the subcontractor ES&H plan for the construction manager and making recommendations regarding compliance with 10 CFR 851 Subpart C,
- Maintaining file copies of the subcontractor ES&H plan.
- Providing Subcontractor Orientation, including the principles and core functions of Integrated Safety Management to subcontractor and sub-tier employees and providing proof of attendance.
- Providing other Fermilab-specific training to subcontractor and sub-tier contractor personnel, as requested by the CC. This includes hazard analysis training.
- Conducting documented ES&H inspections and audits of construction activities on site. Observations will be provided verbally and in writing to the CC for disposition. Construction activities include weekly construction meeting with subcontractor, work planning meetings, toolbox and monthly ES&H meetings, preconstruction meetings, reviewing incident investigation reports and lessons learned documents.
- Interpreting OSHA requirements for construction work, as requested.
- Assisting the construction coordinator in the review of the hazard analysis, as requested.
- Participating in subcontractor performance reviews as necessary.
- Providing additional field support when requested.

The Procurement Administrator (PA) is responsible for:

- Administering all contractual requirements.
- Obtaining the Fermilab Subcontractor Safety Information Questionnaire Form from potential bidders and submitting it to ESH-SEP for review and acceptance.
- Obtaining from the subcontractor a minimum of two copies of their ES&H Plan for distribution to the ESH Section and the CM.
- Incorporating the Subcontractors ES&H Plan as part of the contractual requirements.
- Issuing the Notice to Proceed after all safety and contractual requirements are satisfied.
- Notifying subcontractors of the requirement to attend the construction safety orientation and any other Fermilab required training.
- Chairing pre-construction meetings.

- Completing the applicable section of the Subcontractor Performance Evaluation form (ESH Admin Form #15).
- Coordinating, and chairing the meeting to complete the Subcontractor Performance Evaluation process.
- Notifying the subcontractor of issues and concerns.
- Closing out the Subcontract.

## 5.0 PROCEDURE

### 5.1 Qualification of Subcontractors

The subcontractor must have their past safety performance evaluated and accepted before any construction contract can be awarded. The subcontract documents shall prescribe which submittals are required. Specifically, the subcontractor's past safety performance will be evaluated against any or all of the following criteria when the information is available;

- a. Fermilab Subcontractor Safety Information Questionnaire form, and/or;
- b. Subcontractor experience modification rate (EMR), and/or;
- c. On-site safety performance as documented. See the "Subcontractors Evaluation" procedure in this document.

The PA sends the completed form (Fermilab Subcontractor Safety Information Questionnaire Form ES&H Admin Form #16 - [http://www-esh.fnal.gov/FESHM/7000/7010\\_Form16.doc](http://www-esh.fnal.gov/FESHM/7000/7010_Form16.doc)) and supporting documentation to ESH-SEP for review and acceptance. ESH-SEP will review and provide comments and acceptance to the PA within 3 working days.

The subcontractor must show an experience modification rate (EMR) of less than one (1) and a three-year safety record equal to or less than 85% of the most current U. S. Department of Labor-Bureau of Labor Statistics General Construction statistics for Total Recordable Case Rate (TRC) and Days Away, Restricted, or Transferred (DART) Case Rate as reported in the BLS Occupational Injury and Illness Data. The subcontractor's on-site performance, as documented in formal evaluations provided to Procurement, will be considered as well. ESH-SEP will contact Procurement to review any evaluations they may have on file.

### 5.2 ES&H Plan Review and Acceptance

If requested in the subcontract documents, the subcontractor shall submit two (2) copies of a plan that describes the company's ES&H Program for evaluation to determine if the subcontractor safety policies and procedures meet the expectations of Fermilab management. If no ES&H program is requested the subcontractor shall submit a document that include;

- a. The name of the Competent Person for the project and his/her qualifications.
- b. The name of the competent person and qualifications for excavations if an excavations is part of the activities, or;
- c. The name of the competent person for scaffold construction and qualifications if scaffolds are to be used.
- d. A list of the project activities for which hazard analyses will be written and submitted.

*Note: For small simple jobs an HA may be all that is required to meet requirements. For larger or complex projects, multiple HAs may be required as discussed in the "Hazard Analysis" section below. In those cases, a listing of all activities for which separate HAs will be submitted is required.*

The PA shall not issue a Notice to Proceed (NTP) until the subcontractor has submitted an acceptable plan if one is needed or, in lieu of a plan the information in (a) to (d) above.

When ESH-SEP notifies the PA and CM of acceptance of the subcontractor's safety record, the requirement for a written ES&H program plan will be identified. If a written plan is not required, the CM may proceed directly to the HA requirement.

The PA distributes the plans to the CM and ESH Admin. The copy of the plan distributed to the CM is for review and acceptance purposes. ESH Admin Form #18 is used for this purpose.

Plans submitted to the ESH Section Administrative Assistant will be stamped with date/time of receipt and filed for reference. This plan copy will be used by ESH-SEP to perform a review upon request from the CM and make recommendations and to verify compliance during oversight visits to the construction project. Acceptance of the ES&H Plan is for a three-year period; however the CM will review the plan for completeness with each new project.

ESH-SEP shall keep the subcontractor ES&H Plan during the construction phase, or for three years, whichever is longer. The copy provided to the CM will be filed with the project files when construction is completed.

There may be conditions under which a modification to the subcontractor ES&H Plan is justified. Examples include, but are not limited to:

- Change in work scope not addressed in the accepted plan;
- A new OSHA standard has become effective;
- New equipment has come to market with better technology; or
- A best practice not previously considered.

In any of these cases, the subcontractor shall submit a written memo to the PA. This memo must state the section of the plan proposed for revision, justification for the change, supporting documentation available and the proposed wording to be inserted in the plan. The PA will forward a copy of the memo to the CM and ESH-SEP. If the modifications are accepted, the CM will issue an acceptance letter to the PA with a copy to ESH-SEP. ESH-SEP will keep a copy of the request and documentation with the subcontractor's ES&H plan.

### 5.3 Hazard Analysis

A written HA ([http://www-esh.fnal.gov/FESHM/7000/7010TA\\_Form17.doc](http://www-esh.fnal.gov/FESHM/7000/7010TA_Form17.doc)) is required for all construction work, regardless of who performs the work. The HA document shall identify all hazards associated with each phase of work, and the work processes to be employed to eliminate or reduce those hazards. Each identifiable feature within a project requires a written hazard analysis. Work will not proceed on that feature until the task manager/construction coordinator has accepted the hazard analysis. New or unanticipated hazards encountered with each project phase or change in specific operations within that phase must be addressed and added to the HA as the project develops.

The CC must assure that the subcontractor understands the HA process and is able to conduct a thorough hazard analysis. HA training is required for subcontractor supervisory personnel and will be provided by the ESH-SEP Group. The CC shall arrange for this training. Training is meant for subcontractors on fixed price contracts who will be operating for more than thirty (30) days. Similar training for subcontractor employees is also available upon request from the construction coordinator.

HAs are submitted by the subcontractor or sub-tier contractor (via the Subcontractor), and are reviewed and accepted by the CC. It is recommended that the CC consult with the Project ES&H Support and/or the ESH-SEP. Section. The PA will not issue the Notice to Proceed (NTP) until the CM sends notification of the hazard analysis acceptance to the PA. For large projects, only the initial HA is required to be accepted prior to NTP.

Change orders give rise to new hazards for the workers or may cost the Laboratory greatly if property damage is the end result of an accident. The HA must be reviewed due to the additional risks that may be introduced. If new hazards are present due to new work activity, the HA must be revised and reviewed/accepted by the initial reviewers.

If there will be two or more groups (subcontractors and/or employees) working in the same area, and yet operating under different HAs, the CC must coordinate activities with the other TM/CC/supervisor. Any conflicts between the two HAs must be

resolved before work begins. Both working groups must review and sign each other's HA.

For projects involving only electrical work less than 600 volts, the Electrical Hazard Analysis/Work Permit form found in FESHM Chapter 5042 ([http://www-esh.fnal.gov/FESHM/5000/5042\\_Permit.doc](http://www-esh.fnal.gov/FESHM/5000/5042_Permit.doc)) is sufficient as long as all hazards including electrical hazards are identified and dealt with.

The completed HA form with the signature page must be posted at the jobsite. This can be accomplished through a variety of means, including use of the subcontractor's bulletin board or a clipboard. If posting is not feasible, due to the location of the work, the HA should be located in a place so that it is easily available to all affected employees (subcontractors, sub-tier employees, Fermilab employees). If the jobsite conditions are such that the HA could get destroyed, the original should be saved and a copy posted.

**HA records are to be retained by the CM in the project construction files until the dismantlement or disposal of the facility, equipment, system, or process.**

#### **5.4 Pre-Construction Meeting**

All construction projects equal to or greater than \$100,000 require a pre-construction meeting. For projects under \$100,000, a meeting may be held at the request of the CM or CC chaired by the PA. The ESH-SEP group representative will attend this meeting in an advisory capacity to the CM. The Project ES&H Support personnel and/or division/section Senior Safety Officer will attend to ensure that local ES&H considerations are conveyed to the subcontractor. The subcontractor's competent person or owner must attend as well. The CM will use ESH Admin Form #19 - Pre-Construction Checklist ([http://www-esh.fnal.gov/FESHM/7000/7010TA\\_Form19.pdf](http://www-esh.fnal.gov/FESHM/7000/7010TA_Form19.pdf)) to review contractual ES&H requirements with the subcontractor.

#### **5.5 Training of Construction Coordinator**

Assignment of a CC is an important link in the subcontractor safety program. The CC is the ES&H presence in the field, as well as the quality control and field technical representative to the CM. Before assignment as a CC, an employee must, at a minimum, complete training as follows:

- FN000303- Construction Management & Safety (mandatory)
- Excavation Competent Person (mandatory if an excavation is part of the construction activities).
- Training required by the areas where the work will be performed and/or the nature of the activity (e.g. Radiation Worker, ODH, Controlled Access).
- Scaffolding Competent Person (mandatory if a scaffold erection is part of the construction activities).

For additional information on availability of courses contact the ESH Section.

## **5.6 Task Manager/Construction Coordinator Qualification Criteria**

The table below compiles the qualification criteria and maintenance of qualifications requirements for employees involved in construction management under the construction specialties.

**Table 1  
TM/CC Qualification Criteria**

Category	Education/Experience	Training	Mentoring	Continuing Education
General Construction	- 2 yr. Degree in construction related field; or, - 3 yrs. Experience in construction related trade	- OSHA 30-Hr - Modified Construction Management and Safety - LOTO II (See ITNA) - NFPA 70E	Yes, mentor discretion on length	- 8 hours/yr Seminars, class or trade shows - Quarterly updates
Excavation	Manage 1+ excavation Per year	- OSHA 30 Hr - Modified Construction Management & Safety - OSHA Competent Person for excavation	Yes (mentor discretion on length)	- 8 hours/yr Seminars, class or trade shows - Quarterly updates
Rigging	BS Engineering or 5+ years of experience	- OSHA 30 HR - Modified Construction Management & Safety - Rigging course	Yes (mentor discretion on length)	- 8 hours/yr Seminars, class or trade shows - Quarterly updates
Piping	BSME, BSCE Or 5-years experience	- OSHA 30 Hour - - Modified Construction Management & Safety - Pressure vessel orientation	Yes (mentor discretion on length)	- 8 hours/yr Seminars, class or trade shows - Quarterly updates
HVAC	BSME Or, 5-years experience	- OSHA 30 Hour - Modified Construction	Yes (mentor discretion on length)	- 8 hours/yr Seminars, class or trade shows

		Management & Safety - NFPA 70E (See ITNA)		- Quarterly updates
Electrical	BSEE or 5-years exp.	- OSHA 30 Hour - Modified Construction Management & Safety - LOTO II (See ITNA) NFPA-70E (See ITNA)	Yes (mentor discretion on length)	- 8 hours/yr Seminars, class or trade shows - Quarterly updates

### 5.7 Training of Subcontractor Personnel

All subcontractor employees who will not be escorted by a trained Fermilab employee are required to attend a safety orientation before start of work. The ESH-SEP Group will provide this orientation daily at 0730 AM. The training will be documented with an attendance sheet and a card that the subcontractor employee must carry at all times while working at Fermilab. If the subcontractor employee is unable to produce the card, the employee will be required to stop work until the card can be produced or until the subcontractor employee attend the orientation again. The orientation expires two (2) years from the date of attendance.

CC whose subcontractor need to enter radiological controlled areas or radiation areas must coordinate training in advance by sending an e-mail to GERT@fnal.gov with the number of people needing training, date training needed, and company affiliation. This information must be sent one working day in advance for GERT (no later than 3 pm), and 1 week in advance for Radiological Worker.

The subcontractor shall be responsible to assure that employees (including sub tier contractor employees) are able to understand Fermilab's ES&H requirements. ESH-SEP has produced a spanish version of both Subcontractor Orientation and GERT. It is up to the CC to arrange for this specialized training, either through their division/section or through ESH-SEP.

All subcontractors and sub-tier contractors performing work on Fermilab shall provide safety training, medical surveillance, and safety equipment, including personal protective equipment (PPE) for their employees. Exceptions involve hazards that are unusual due to the nature of work at Fermilab. In particular, the Laboratory will provide training, medical surveillance, and equipment for subcontractors working in

radiation areas or in buildings/spaces designated as oxygen deficiency hazard (ODH) areas. Additional training, surveillance and equipment will be provided as stipulated in the contract documents.

All subcontracts shall contain a statement formally notifying the subcontractor and all sub-tier contractors that they are required to maintain records of training completed by all personnel working on the Fermilab site. Training needs shall be based upon statutory requirements, Fermilab requirements, the nature and complexity of the work, and/or the associated hazards. These training and associated medical records will be subject to audit and verification by Fermilab. Training records for certain high hazard activities shall be inspected prior to exposing employees to the respective hazard. The activities that require verification of training prior to execution of work are:

- Entry into a permit-required confined space (provided by the subcontractor)
- Entry into a facility or area classified as ODH (provided by Fermilab)
- Entry into a radioactive or controlled work area. (provided by Fermilab)
- Lead and asbestos work
- Use of respiratory protection when potential exposure levels will be above established limits (provided by the subcontractor- verify medical clearance, fit testing and training).
- Fall Protection
- Lockout/Tagout
- Electrical activities that require compliance with NFPA 70E

The CC should audit other types of ES&H training such as erecting and using scaffolding, excavations and other training at random.

### **5.8 Work Permit and Notification (WPN)**

The CC is responsible for completing the WPN and submitting it for review and approval as described in FESHM 2020 (<http://www-esh.fnal.gov/FESHM/2000/2020.pdf>). The CC is responsible for securing all permits required for the activity.

### **5.9 Delivery Personnel**

Delivery personnel coming to construction sites are required to use PPE applicable to their own activities. When outside their vehicle, they must wear PPE as specified in the HA when within the construction designated area. Subcontractors are responsible for notifying delivery personnel of PPE requirements or providing delivery personnel with the personal protective equipment required by the hazard analysis.

### **5.10 Emergency Services**

Occasionally, it is necessary for subcontractors to provide emergency repair services on site, but timing may not allow the subcontractor to submit a safety program. In these cases, an HA is required to be prepared by the CC with the subcontractor and the CC or by another responsible Fermilab employee who is familiar with the scope of work. This may be accomplished in the field. The subcontractor must agree to comply with Fermilab ES&H regulations for the duration of the subcontract. Under no circumstances shall an emergency serve as exemption from complying with safety requirements.

### **5.11 Inspection of and Visitors to Construction Sites**

All persons entering a construction site must notify the CM or CC and immediately review and sign the HA. All persons entering a construction site must wear the work clothing as well as the PPE defined in the HA.

The CM/CC is responsible for conducting and documenting ES&H inspections of the work activity and monitoring the subcontractors' performance to verify compliance with the ES&H plan and adherence to the HA. The frequency of these visits should be sufficient to regularly identify and correct safety concerns. The frequency will be based upon the complexity of the project or specific activities, hazard level, and the subcontractor's demonstrated level of compliance. Regardless of the frequency of inspections, the CM/CC must contact the subcontractor daily to review the work planned for the day.

The CM will determine whether a formal evaluation/assessment process is an appropriate tool to use for conducting oversight inspections of the construction activities. The CM will follow the Multi-Organization Construction Site Safety Walkthrough procedure (TA 7010-1). This requirement shall be documented in the PEP.

ESH-SEP, the project ES&H Support personnel (if assigned), and/or the landlord D/S SSO will perform oversight inspections of construction sites as well. The frequency of inspections shall be determined based upon the complexity of the project or specific activity, hazard level, and the subcontractor's demonstrated level of compliance. Inspection of the jobsite should include a review of site conditions, work activities, review of subcontractor's inspection results, follow-up (site and equipment inspections for themselves and sub-tier activities), and spot-checking of equipment, including heavy equipment. All inspection activities must be documented, discussing both good and less than adequate work practices. Copies of the documentation shall be distributed to the CC, the ES&H oversight personnel, CM, PM, and PA.

### **5.12 ES&H Audits of Subcontractor's Program**

For most projects, conducting an audit of the subcontractor's ES&H program is not necessary. However, for projects that are scheduled to last more than 12 months, an ES&H audit is required at six-month intervals. The ESH-SEP group will conduct these audits. Additional audits may be conducted at PM or CM request. Commitment to these audits should be incorporated into the PEP.

### **5.13 Stop Work Activity Authority**

Fermilab employees have the authority to stop construction activities if an imminent danger condition is noted or perceived. After the work activity is stopped, whoever stopped the work activity shall contact the CC; who will gain consensus from the subcontractor on restart conditions. This is an informal process designed to stop work, quickly abate the hazard, and restart the work.

Occasionally, a more formal work stoppage process must be invoked. If exposure to the hazard cannot be abated quickly, or if consensus cannot be reached as to the corrective action, the CM/CC shall stop the associated work using the Subcontractor ES&H Stop Work Order Form ([http://www-esh.fnal.gov/FESHM/7000/7010TA\\_Form5.pdf](http://www-esh.fnal.gov/FESHM/7000/7010TA_Form5.pdf)). Refusal by the subcontractor to stop the work activity when requested may result in termination of the subcontract. It must be noted that the stop work activity authority is to stop a specific activity within a project and not an entire project.

Authority to restart an activity after a formal Stop Work Order has been issued resides with the D/S head after consultation with other appropriate organizations and individuals, such as the PM, CM, CC, D/S SSO, ESH, and PA. The Subcontractor ES&H Stop Work Order ([http://www-esh.fnal.gov/FESHM/7000/7010TA\\_Form5.pdf](http://www-esh.fnal.gov/FESHM/7000/7010TA_Form5.pdf)) will be used to restart work.

Just as Fermilab employees have a duty to safely resolve dangerous conditions, so do subcontractor employees. This duty should be addressed in the subcontractor ES&H plan.

### **5.14 Work Clothing on Construction Sites**

Anyone entering a construction area must wear sturdy work type shoes or boots that cover the ankle. Tennis or canvas shoes, sandals, shoes with open toes or heels, or shoes with narrow high heels cannot be worn on the job site. Long trousers and short sleeve shirts covering the ball of the shoulder must be worn as well. Tank tops, mesh shirts, cutoff shirts, and sleeveless shirts are not allowed. Clothing must not hang loose to the point where it may be caught in moving machinery, or snag onto dangerous objects.

For construction personnel who perform welding and cutting, operate rotating machinery, or are exposed to chemicals, fire or other such hazards, must contain their hair to a point where there is no danger of their hair catching fire, dipping into toxic chemicals, acids, or being caught in rotating machinery.

Besides the mandatory work clothing stipulated above, the HA must specify other types of PPE that may be needed to address hazards. Hardhats, safety glasses with rigid plastic side shields, gloves and any other personal protective equipment needed to protect workers and employees must be identified in the HA. When hardhats are specified as mandatory in the hazard analysis these hats must be worn with the brim in a forward position. Hats resembling other types of head wear; for example, cowboy hats are not acceptable. The construction hard hat must be easily recognized as such.

### 5.15 Electrical Safety

Fermilab is required to follow NFPA 70E and has flowed these requirements down to their subcontractor through contract documents. Subcontractor employees who may be exposed to energized conductors within the flash protection boundary must meet the training requirements stated in Art. 110.6 of NFPA-70E and wear FR clothing and protective equipment suitable for the exposure. Proof of training in the form of a training certificate shall be provided to the construction coordinator prior to any energized work or work under lockout/tagout.

Relocatable power taps (RPTs) also referred to as “power taps” are not allowed in a construction area or similar locations.

Ground Fault Circuit Interrupters (GFCIs) are the only accepted method to protect construction workers from the hazard of electrocution when hand held power tools are used. Subcontractors and their sub-tier contractors shall supply portable GFCIs for the use of their work force if GFCI protected circuits are not available at the point of use.

### 5.16 Excavations

Excavations shall be carried out in compliance with 29 CFR 1926.650, FESHM 7030, “Utility Identification and Permit Program” (<http://www-esh.fnal.gov/FESHM/7000/7030.pdf>), and FESHM 8012, “Sedimentation and Erosion Control Planning” (<http://www-esh.fnal.gov/FESHM/8000/8012.htm>). The subcontractor’s competent person must be present at all times when the ground is being excavated. Daily inspections are required and must be documented.

### 5.17 Loaning of Fermilab Tools and Tool Inspections

Fermilab does not loan tools and equipment unless the tool or equipment is specifically authorized in the subcontract. Excluded from this policy are non-powered hand held tools and lockout/tagout locks and tags.

Conditions may arise where a CC finds it absolutely necessary to loan power tools or a piece of equipment. In these instances the tool or equipment may be loaned but under very strict conditions. To loan a tool or equipment:

- a. There must be a compelling reason.
- b. The subcontractor and the CC must inspect the loaned item.
- c. The subcontractor superintendent whose employee will be using the tool or equipment must certify in writing that the employee had training in the use of the tool or equipment.
- d. The subcontractor superintendent releases Fermilab in writing of any liability if an injury occurs to the subcontractor employee while using the tool or equipment owned by Fermilab.
- e. The subcontractor superintendent accepts the tool for the intended use.

ES&H Form #20 ([http://www-esh.fnal.gov/FESHM/7000/7010\\_Form20.pdf](http://www-esh.fnal.gov/FESHM/7000/7010_Form20.pdf)) shall be used for this purpose. The original shall be sent to the PA after the tool is returned to Fermilab control.

### **5.18 Tool Inspections**

Tool inspections of subcontractor owned tools are the responsibility of the subcontractor. Random inspections to verify compliance may be conducted by the CC and ES&H-SEP group construction safety personnel.

Heavy equipment such as mobile cranes are unique pieces of equipment whose maintenance and operation are covered by the ANSI standards which are part of the Laboratory's Work Smart Set of standards. This equipment must be inspected by the subcontractor or sub-tier contractor before use on site. The CC is responsible for assuring this inspection has been completed and any corrective actions taken before the equipment is used.

If a crane is being used on site, the CC must also review the condition of the crane, using the guidance, "Mobile Crane – Safe to Operate Review Items" (TA 7010-2). ESH-SEP is available to assist the CC with these inspections

### **5.19 Tool Box Meetings**

Subcontractors will conduct, as minimum, weekly and monthly toolbox meetings. It is intended that the subcontractor and sub-tier contractors use these meetings to address safety issues of the current construction phase of work. The weekly five-minute safety meeting discussion shall be documented with an attendance sheet and a thorough description of the topic. The monthly meeting shall be approximately one hour long and shall be used to emphasize special job conditions, procedures and applicable standards. The monthly meeting will be documented in the same fashion as the weekly

meeting. Minutes of the meetings will be submitted to the CC for filing in the construction project file.

## **5.20 Accident Investigation and Reporting**

All incidents and near misses will be reported to the CC who will in turn notify the CM, PM, Project ES&H Support personnel or the D/S SSO, the ESH-SEP Group, and PA. Subcontractors are expected to conduct a thorough investigation and submit a report within two working days of the occurrence or near miss. The subcontractor will use their internal accident/incident report forms found in their ES&H Plan. The subcontractor will identify root causes and corrective actions in the report.

The CM shall have the report submitted to the project ES&H support personnel for entry into CAIRS within six (6) calendar days of report of the incident.

All incident and near miss reports shall be sent to ESH-SEP within six (6) calendar days of generation of the report.

The Project ES&H Support personnel or the D/S SSO is responsible for the development of lessons learned. All incidents entered into the CAIRS database, must have lessons learned determined. Development of lessons learned for near misses is at the discretion of the project ES&H support personnel or the D/S SSO. Any lessons learned developed shall be sent to ESH-SEP for information and possible distribution site wide.

## **5.21 Close Out of Subcontracts**

The PA will retain funds until the subcontractor has satisfied all terms and conditions of the subcontract, which includes submittal of any ES&H related documents or reports.

## **5.22 Subcontractor Evaluations**

Each completed project equal to or greater than \$100,000 in labor costs shall be reviewed for quality of work, adherence to the schedule and cost, and the effectiveness of the subcontractor's ES&H program. This overall assessment will be used as a basis for future solicitations. Subcontractors will be informed at the pre-construction meeting that they are responsible for safety performance and that an evaluation will be performed at the completion of the contracted work.

The PA will chair the meeting and bring all interested parties together to complete the evaluation. As a minimum, invited personnel will include the CM, PM, CC, D/S SSO, and ESH-SEP. Fermilab Subcontractor Performance Evaluation Form- Construction ([http://www-esh.fnal.gov/FESHM/7000/7010\\_Form15.pdf](http://www-esh.fnal.gov/FESHM/7000/7010_Form15.pdf)) will be used for this purpose. Completed evaluations forms shall be retained in the Procurement Section and a copy sent to ESH-SEP.

Projects less than \$100,000 in labor costs may be evaluated at the discretion of the interested parties using ESH Form #21. If an evaluation is requested, the PA will conduct the meeting as described above.

The PA may issue an interim Subcontractor Evaluation any time performance is determined to be less than satisfactory.

## ES&H PROGRAM FOR CONSTRUCTION – FIXED PRICE TECHNICAL APPENDIX 1

### Multi-Organization Construction Site Safety Walkthrough

#### 1.0 Background and Purpose

**Background:** The vast majority of incidents happen when barriers are bypassed, procedures are not followed or there are departures from safe behaviors by workers. Unsafe conditions have historically been a small percentage of the causes of accidents whereas behaviors or unsafe acts are the bulk of the causes. In order to eliminate these incidents from the workplace we must concentrate our efforts to those actions that will have the biggest return on “investment” such as the elimination of unsafe behaviors and the evaluation of work processes and barriers to determine conformance with accepted practices.

**Purpose:** To establish a process for conducting formal safety program evaluations and field assessments through site safety walkthroughs for construction activities. These assessments should consider management systems, employee behaviors, conformance to the subcontractor safety plan, and performance to Fermilab requirements as expressed in contractual documents, pre-bid and pre-construction meetings.

#### 2.0 Scope

This procedure applies to all active construction activities that require a multi-organizational scrutiny as designated by the Chief Operations Officer.

#### 3.0 Responsibilities

##### 3.1 Construction Manager

- Determine the frequency of walkthroughs based upon input received from the Chief Operations Officer and the Project Manager. Frequency should be identified in the Project Execution Plan (PEP).
- Identify walk-through team members. The team should be kept to a reasonable size and may include the Construction Manager, Construction Coordinator, Subcontractor Superintendent, a representative from the Fermilab ESH Section, a representative from the Department of Energy Fermi Site Office if requested, and Project ESH Support, if one is assigned.
- Conduct a closeout meeting as described below.

### 3.2 Construction Coordinator

Assist the Construction Manager in the walkthrough process as requested. Such requests may include:

- Transmit all concerns to the Sub-Contractor for resolution and provide copies to all team members.
- Review corrective action responses from the Sub-Contractor and provide feedback to the Construction Manager and the Project ES&H Support.
- Track responses to action items (in a formal database, daily/weekly logs or construction meeting minutes).
- Document & distribute closeout-meeting minutes.

### 3.3 ES&H Section Representative

- Provide technical support relative to safety issues.

### 3.4 Project ES&H Support

- Participate in walkthroughs focusing on safety issues that would impact installation and operational activities that will follow construction.
- Provide feedback from walkthroughs and closeout meetings directly to the Project Manager.

## 4.0 Procedure

4.1 The Construction Manager (CM) will identify the time and frequency of the walkthrough.

4.2 The CM will develop an agenda for the walk-through and identify any specific areas to focus on using Appendix A as guidance. Trying to cover a broad spectrum of programs or activities may result in specifics being missed. This is especially true for a larger project, or one covering more than one work site. Interviews with subcontractor employees are encouraged.

*Note: Field observations from one visit may give rise to focused assessments at a future date or provide justification for a formal audit.*

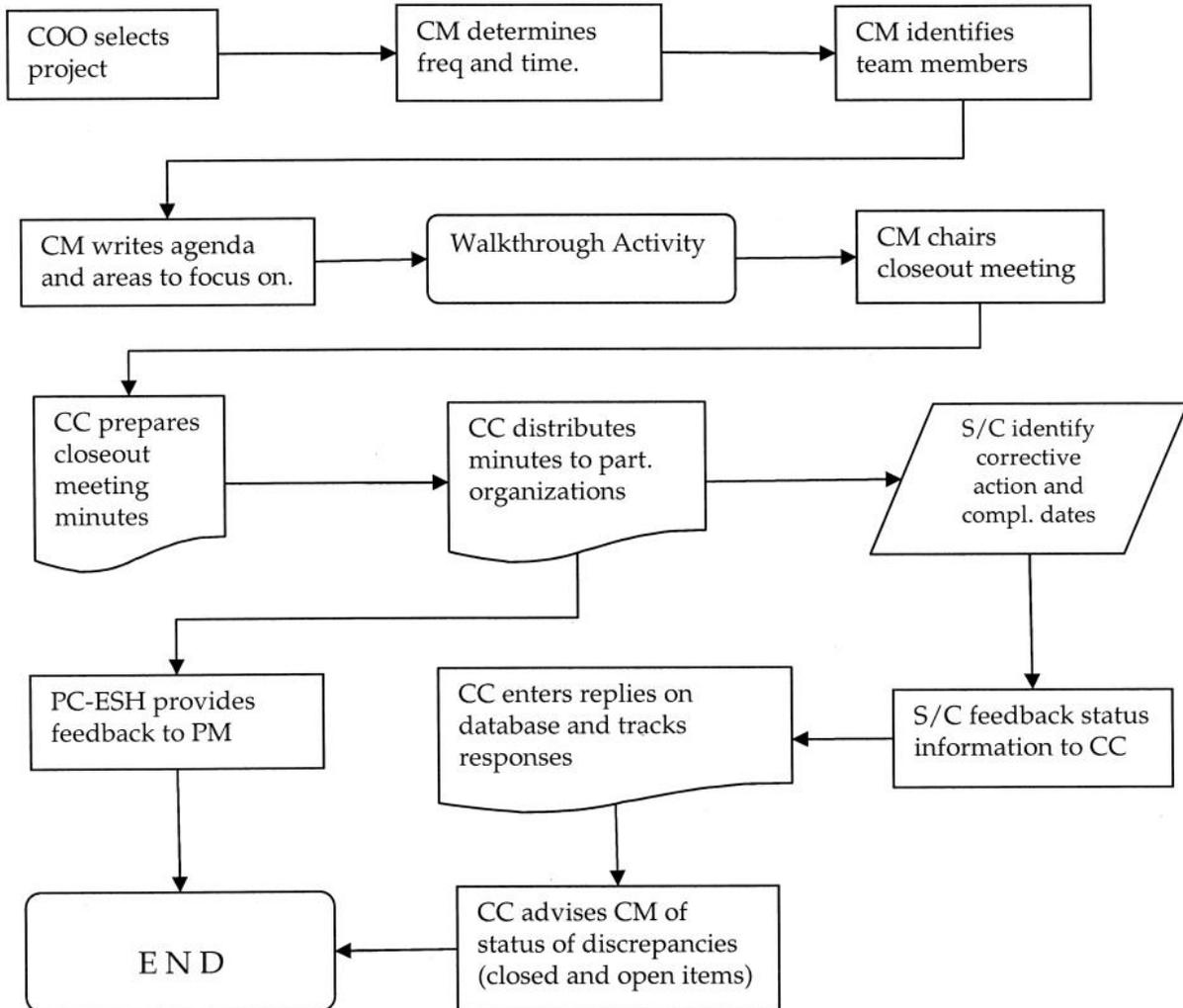
4.3 CM will complete a closeout meeting with all participating organizations to discuss results of the walkthrough and to discuss suggestions for possible corrective actions.

- 4.4 Document walkthrough results through meeting minutes that will be distributed to all participating organizations.
- 4.5 Enter concerns and corrective actions into a database created for the specific project.

## 5.0 Corrective Actions

- 5.1 The walkthrough report shall be provided to the subcontractor for action.
- 5.2 The subcontractor shall identify corrective actions and completion dates. Corrective actions shall be completed as quickly as possible.

## Multi-Organizational Safety Walkthrough Flow Diagram



### Abbreviations:

COO	Chief Operating Officer
CM	Construction Manager
CC	Construction Coordinator
PC-ESH	Project ES&H Support
PM	Project Manager
S/C	Subcontractor

## ESH Assessment Guidance- Areas of Inquiry

### Injuries or Illnesses

1. General
  - Housekeeping
  - •Garbage Containers
  - •Emergency Phone #s Posted
  - •Emergency Communication
  - •Fence Condition
  - •Gates
  - •Signage on Fences and Gates
  - •Whip Checks
  - •Electrical Cords
  - •GFCI's
  - •Gas Test Log
  - •Machine/Equipment Guards
  - •Lighting
  - •Ladders
  - •Explosive Storage
  - •Oxy/Acetylene Storage
  - ••Scaffolding
  
2. Traffic Control
  - Barricades
  - Traffic Signs
  - Flag Person
  - Vests
  - Flag
  
3. Shafts & Tunnels
  - Hand held lights/Miners Lights
  - Lighting
  - Communication
  - Ventilation
  - Self Rescuers Present
  - Housekeeping
  - Air/Noise Testing
  - Signage
  - Barricades

4. Emergency Equipment
  - Fire Extinguishers

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## Appendix

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### ESH Assessment Guidance- Areas of Inquiry (Continued)

- First Aid Kits
  - Oxygen
  - Blankets
  - Eye Wash
  - Infection Control
  - Medical Emergency Teams
  - Rescue Teams
5. Personal Protective Equipment
    - Hard Hats
    - Eye Protection
    - Hearing Protection
    - Foot Protection
    - Respiratory Protection
    - Hand Protection
    - Fall Protection Harness/Lanyard
    - Face Protection
    - Barrier Cream
  6. Cranes
    - Inspections
    - Certifications
    - Anti-Two Blocks
    - Hook Latches
    - Perimeter Barricades
    - Glass
    - Horn
    - Fire Extinguisher
    - Rigging Equipment
  7. Equipment
    - Daily Inspections
    - Glass
    - Back-Up Alarm
    - Fire Extinguishers
    - Hydraulic Oil Leaks

8. Work Planning
  - H/A for Tasks Performed
  - Daily work Planning Meeting

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## Appendix

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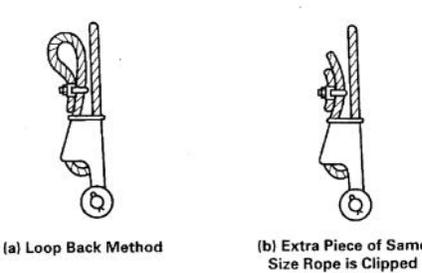
### ESH Assessment Guidance- Areas of Inquiry (Continued)

- Tool Box Meetings
- Monthly ESH Meetings
- Records/Log Reviews
- LOTO

ES&H PROGRAM FOR CONSTRUCTION – FIXED PRICE  
TECHNICAL APPENDIX 2

Mobile Crane – Safe To Operate Review Items

<b>Third Party Inspection</b>	This inspection can be verified by looking in the cab (drivers or operator's) for a metal plate that will show the name of the inspecting company, the serial number of the crane and the date it was inspected in accordance with ANSI B30 standard. If this plate cannot be found, have the operator show the paperwork from the third party that proves that the crane was inspected in the last 12 months from the date it is in operation at Fermilab. <i>Note: Pay particular attention to the paperwork to see it has not been altered with white out Some crane rental companies have been caught doing just that.</i>
Operator's Qualifications <ul style="list-style-type: none"> <li>▪ City of Chicago Operator's License, or</li> <li>▪ Local 150 card</li> </ul>	<ul style="list-style-type: none"> <li>▪ Best gauge of the operator's skills. The City of Chicago makes operator's take a written exam and a practical test. If they have a license to operate in Chicago that is good enough for Fermilab work.</li> <li>▪ If they are a Journeyman from local 150 of the Operating Engineers Union it means that they have undergone an apprenticeship and journeyman training that is suitable for Fermilab.</li> <li>▪ If neither of the two conditions above is met the subcontractor must provide documentation of training and qualifications for evaluation by the CC and/or the ES&amp;H Section. Call Safety for assistance (J. Cassidy Ext 8223 or Bob Arnold Ext 8001).</li> </ul>
<b>Condition of Equipment</b>	<b>Some of these checks are performed by climbing in the operator's cab and looking around. They are identified by an asterisk (*)</b>
Anti-two block device installed	This is a safety device that prevents the block from bringing the boom over the maximum vertical angle and breaking or damaging the load.
Hook and Latch	Look for visible deformation.

<p>Wire rope in wedge socket (Becket) installed correctly</p>	<p>Nothing should be attached to the load side. The operator may loop the dead side around and attach it to itself with a Crosby clip or may take a piece of wire rope and attach it to the dead side with a Crosby clip. (As shown in the illustrations below).</p> <div style="text-align: center;">  <p>(a) Loop Back Method                      (b) Extra Piece of Same Size Rope is Clipped to Main Rope</p> </div>
<p>Wire rope for gross damage or distortion</p>	<p>Just look at the wire rope for broken strands. If it does not look right it probably is not. Consult with Safety personnel.</p>
<p>Windshield free of cracks and clean</p>	<p>You need to check only the cab where the operator controls the clean crane while lifting. The windshield must be free of cracks, clean and free of distortion.</p>
<p>Operators Manual onboard and in readable condition.</p>	<p>Look at the manual and make sure it is readable and that pages are in readable condition not torn off the book. If in bad condition reject the crane. The operator needs the book as a reference and it should be readable and in good condition.</p>
<p>Load charts onboard and in readable condition</p>	<p>These charts are normally placed on the operator's cab fixed to the walls. They are laminated or printed on metal. Again, they must be readable. If unreadable, reject the crane and <b>DO NOT OPERATE</b>.</p>
<p>Operating controls clearly marked regarding their function.</p>	<p>Each control must be clearly marked as to the type of action that will happen when moved. Each degree of movement must be clearly and understandably marked. You must make a subjective decision if the markings are not legible or scratched</p>
<p>* Equipment fire extinguisher on board and charged.</p>	<p>Look at the fire extinguisher in the cab and check the gauge. It <b>MUST</b> be in the green arc. If there is no fire extinguisher you have a decision to make.</p>
<p>Crane boom angle device operating and readable.</p>	<p>Look outside on the boom to see the boom angle indicator. When the crane arrives and the boom is horizontal it must read zero. When the boom is lifted it must show something other than zero. Some newer crane designs have a digital readout on the operator's panel. If the angle indicator is not working <b>DO NOT OPERATE THE CRANE. DO NOT LIFT OUR PROPERTY.</b></p>
<p>Check rope reeving in drum.</p>	<p>As you walk behind the crane look up at the drum. The wire rope should be reeving smoothly and each lay of the wire rope should be spooling next to the previous one and in the grooves</p>

	of the layers below. Any crossovers mean trouble. Reject the crane.
Hand signal placard on the outside of the crane cab	Self-explanatory. If the operator is not using the standard signals, the operator and signalman must get together and agree on the signals.
Visual indications of hydraulic leaks from hydraulic hoses, particularly those that flex in normal operation.	If you see a lot of hydraulic fluid chances are there is, a problem when the crane is loaded. Again, this is subjective on your part.

### During Operation

Tire inflation	Make sure that all the tires look the same regarding inflation. Only take action if a tire is under-inflated and you are operating "on the rubber". If using outriggers do not be concerned about the tire inflation.
If on outriggers, check they are fully extended	Normally crane manufacturers mark the full extension of the outrigger. If the operator is on outriggers and you cannot see the indicator STOP the lift. The crane lifting capacity is predicated on outriggers fully extended. There are no tables made for operating at less than full extension.
If on outriggers, check that all tires are completely off the ground	If any tire is even barely touching the ground, the operator must use the "on the rubber" charts. Once the crane is lifted check that there is empty space between the tire and the ground.
Check that loads are not swung over personnel	Any operator who swings loads over people "IS NOT" a good operator. This is grounds for stopping the lift and getting someone else because this is an accident waiting to happen. A well trained and experienced operator WILL NEVER swing over people.