

## FESHM 3020: INCIDENT INVESTIGATION AND ANALYSIS

### Revision History

<b>Author</b>	<b>Description of Change</b>	<b>Revision Date</b>
John P. Cassidy	<ul style="list-style-type: none"><li>• Added HPI language to Sections 1, 4, 5.4, 5.6, and 6.0.</li><li>• Added the Incident Reporting Process Flowchart.</li><li>• Added requirement to conduct and document HPI evaluations for recordable, first aid and near miss cases.</li><li>• Updated the IIP Subcommittee duties.</li><li>• Updated the Investigation and Analysis Procedure to include the documentation of reports.</li></ul>	July 2013
John P. Cassidy	Employees will only have to report to medical after a motor vehicle incident if there is an injury.	July 2011
Nancy Grossman	Definitions and terms were standardized between each of the FESHM chapters and the CAPA procedure. Particularly Corrective Action, Preventive Action, Root Cause Analysis, ESHTRK became iTrack, Causal analysis was replaced with root cause analysis and carried forward. Also added reference to (1004.1001 Fermilab Corrective & Preventive Action Procedure) and (1004.1002 Fermilab Root Cause Analysis Procedure) if not already present. In 5.6, added items from the Injury and Illness Subcommittee charter.	March 2011

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## 1.0 INTRODUCTION

This chapter outlines the incident/near miss reporting, investigation, and root cause analysis procedures. There are many benefits from an incident and near miss investigation, with one ultimate purpose – **Prevention of injuries and future incidents.** For this reason, Human Performance Improvement (HPI) reports (i.e. incident evaluations) should be written so that persons not familiar with the activity may understand and gain knowledge from the report.

Incident/near miss prevention is most effective when all incidents and near misses are promptly reported, thoroughly investigated, the root causes identified, and corrective and preventive actions developed. An HPI incident evaluation report must be completed within a reasonable amount of time following knowledge of an incident. This will allow for accurate and effective trending analysis on a lab-wide basis.

## 2.0 DEFINITIONS AND ABBREVIATIONS

Corrective Action - Action to eliminate the cause of a nonconformity or undesirable situation.

*Note: There can be more than one cause for a nonconformity. Corrective action is taken to prevent recurrence whereas preventive action is taken to prevent occurrence.*

Incident - An unplanned event that interrupts the completion of an activity or causes injury and/or property/vehicle damage or near miss. Sometimes referred to as an "accident".

CAIRS - Computerized Accident Incident Reporting System

Human Performance Improvement (HPI) - A set of concepts and principles associated with a performance model that illustrates the organizational context of human performance. HPI is a system that comprises a network of elements working together to produce repeatable outcomes. The system encompasses organizational factors, job-site conditions, individual behavior, and results.

HPI Incident Evaluation Form – A form used to document incidents using HPI principles.

Lessons Learned (LL) – A “good work practice” or innovative approach that is captured and shared to promote repeat application. A lesson learned may also be an adverse work practice or experience that is captured and shared to avoid recurrence.

Near Miss - An unplanned event that did not result in injury, illness, or damage but had the potential to do so. Only a break in the chain of events prevented an injury, fatality or damage. Other familiar terms for these events is a "close call", or in the case of moving objects, "near collision".

Nonconformity - Non-fulfillment of a requirement.

*Note: A nonconformity can be any deviation from work standards, practices, procedures, legal requirements, or applicable code of federal regulations.*

Investigation Team – Team responsible for conducting and documenting the incident investigation. The team shall include the DSO as lead, the employee involved in the incident, and the supervisor.

OSHA - Occupational Safety and Health Administration. An agency under the US Dept. of Labor.

OSHA Recordable Injury/Illness - Any occupational injury or illness resulting in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid.

Preventive Action - Action to eliminate the cause of a potential nonconformity or other undesirable potential situation.

*Note: There can be more than one cause for a potential nonconformity. Preventive action is taken to prevent occurrence whereas corrective action is taken to prevent recurrence.*

Root Cause - An identified reason for the presence of a defect or problem. The most basic reason, which if eliminated, would prevent recurrence. The source or origin of an event. Root Cause is also known as the system cause.

SME - Subject Matter Expert

Motorized Vehicle - For the purpose of this chapter, a motorized vehicle is any conveyance that transports people or objects. This includes automobiles, trucks, mobile cranes, fork trucks, golf carts, tow motors, magnet movers, riding lawn mowers, tractors and electric carts.

## 3.0 RESPONSIBILITIES

### 3.1 Employees

- Report to their supervisor any injuries/illnesses or any involvement in an incident regardless of how minor it may initially appear.
- Report motorized vehicle incidents and near-miss events.
- Deliver the [Form-5 Injury/Illness Evaluation](#) to the supervisor immediately upon return from the Occupational Medical Office. A Form-5 is used to inform the supervisor of any medical restrictions placed upon the employee.
- Complete an [Incident Involvement Form](#) as soon as possible for any incident or near miss in which they were involved or witnessed.
- Participate in the investigation as directed by the supervisor.

### 3.2 Supervisors

- Direct injured employees to the Occupational Medical Office. Dial x3131 if necessary.
- Immediately report any incident or near miss to your line manager and Division Safety Officer (DSO).
- Complete the [Incident Investigation and Analysis Form](#) and submit to the DSO. This form must be completed within a reasonable amount of time after the incident.
- Review the Form-5. If restrictions have been identified, determine if such restrictions will affect the employee's ability to perform normally assigned duties.

- Complete and sign the Form-5 and forward it to the DSO for signature.
- Ensure the preventive and corrective actions identified by the incident investigation are implemented.

### 3.3 Division/Section Heads and Project Managers (D/S/P)

- Immediately report any incident or near miss to the Chief Operating Officer and Chief Safety Officer in accordance with the [Incident Reporting Process Flowchart](#).
- Ensure investigations are completed within a reasonable amount time.
- Review the final incident investigation report to ensure that the root, direct and contributing causes and the corrective and preventive actions are appropriate.

### 3.4 Division Safety Officer (DSO)

- Lead the investigation team.
- Review the Form-5 and provide signature. If medical restrictions have been placed on the employee, the DSO signature on the Form-5 signifies concurrence with the supervisor's assessment of whether the restrictions are job limiting. The DSO then forwards the Form-5 to the Occupational Medical Office.
- For OSHA Recordable cases, enter investigation report containing all the information required by the OSHA 300 into CAIRS database as soon as practicable.
- For OSHA Recordable Cases, complete an HPI Incident Evaluation assuring a root cause analysis is performed using the [Causal Analysis Tree](#) found in FESHM 3010 and Human Performance Improvement (HPI) fundamentals. [QAM 12050](#) "Root Cause Analysis" can also be used as a tool to assist in the root cause analysis. Assure that corrective and preventive actions are sufficient to address these causal factors.
- For first aid cases, enter pertinent information into the CAIRS database. The extent of the information required will be proportional to the potential for the injury having been more serious. A root cause analysis review using the HPI Incident Evaluation form may be warranted depending on the nature of the first aid case.
- For near misses, enter into the CAIRS database a summary of the incident, root cause(s), findings if applicable, and any corrective and preventive actions taken. Root cause analysis via the HPI Incident Evaluation form may be warranted depending on the nature of the event.
- Monitor cases with continuing lost or restricted time to ensure restrictions are accommodated. Update CAIRS database as necessary to reflect accurate days lost or restricted, or other new information.
- Enter into iTrack the corrective and preventive actions and link the iTrack report to the CAIRS report.

### 3.5 Chief Safety Officer (CSO)

- Maintain a staff of formally trained investigators to provide investigation technical assistance when requested.
- Develop and maintain incident investigation/analysis policies.
- Ensure notification of the Laboratory Director, Office of Public Affairs, and the Legal Office of any incident that may result in an independent DOE investigation.

- Review all completed incident investigation forms.
- Submit completed CAIRS forms and hours worked to DOE, as required by DOE M 231.1-1a.
- Maintain the OSHA 300 form.
- Maintain CAIRS database for trending, training, and statistical data such as incident rates.
- Review incident reports for adverse programmatic trends that should be reported to DOE through the Noncompliance Tracking System ([FESHM 3030](#)).
- Support the Directorate by taking the lead on the investigative readiness effort in the event that an incident is severe enough to warrant an independent DOE investigation (Refer to DOE Order 225.1B). Control of the incident scene will be given to the ESH&Q Section. Maintain close coordination with the DOE investigation board chairperson to ensure efficient transfer of information and continued support of DOE activities.

### 3.6 Incident Prevention Subcommittee

- Review incident reports for the purpose of ensuring a complete investigation including:
  - Inputting the necessary data into CAIRS
  - Completion of the Causal Analysis Tree
  - Application of HPI fundamentals
  - Identifying corrective and preventative actions
  - Add the necessary HPI information into the CAIRS Report
  - Enter any improvements or lessons learned to their respective databases
- Share information lab-wide from investigations, including root causes, corrective and preventative actions
- Identify trends to the Fermilab ES&H Committee (FESHCom)
- Identify and recommend changes in policies and procedures to FESHCom in order to enhance lab-wide safety performance

### 3.7 Occupational Medical Office

- Assess occupational injuries and illnesses to determine extent of injuries, provide for treatment, and place medical restrictions, when necessary, to ensure quick and complete recovery.
- Inform the supervisor and DSO of each employee who has reported to the Occupational Medical Office with an injury or illness. This is normally done through electronic mail.
- Enter incident information into the CAIRS database if,
  - the incident resulted in an occupational injury, or
  - the incident is alleged by the employee to be the result of an occupational injury or illness.
- Provide the Incident Involvement Form to the employee for completion.
- Provide the employee with a Form-5 to document the visit to the Occupational Medical Office.
- Retain all completed Form-5's in the employee file.
- Maintain injury/illness database (for worker's compensation purposes.)

## 4.0 PROGRAM DESCRIPTION

All incidents and near misses shall be investigated, analyzed, and recorded. This also applies to property damage and vehicle incidents. The depth of a near miss investigation is dependent on its

potential to cause severe damage or personal injury should the incident occur. Those incident reports that meet the DOE reporting criteria will be submitted to DOE.

#### **4.1 Lessons Learned**

The ESH&Q Section will review incident reports to identify whether there are lessons learned to be shared throughout the Laboratory or externally with other US DOE Laboratories. Each D/S/P will develop the written lessons learned and enter the information in the [Lessons Learned Database](#). The ESH&Q Section will review CAIRS and other investigation and lessons learned reports to identify trends. The results will be shared with D/S/P representatives in the Incident Prevention Subcommittee and other subcommittees of FESHCom. Other forms of communication may be used as well.

### **5.0 INVESTIGATION and ANALYSIS PROCEDURE**

Incident investigations and analyses are conducted to identify unsafe acts and conditions and then formulate corrective and preventive actions to prevent recurrence. Besides a root cause investigation, CAIRS reports must also state corrective and preventive actions identified during the investigation. The process described below is to be applied to all incidents, first aid cases and near misses:

- Preserve the incident scene, if necessary
- Photograph the incident scene, if necessary
- Supervisor completes [incident report](#)
- Interview witnesses
- Collect evidence
- Using the HPI Incident Evaluation Form:
  - Analyze incident, consulting with SMEs as needed.
  - Identify causes (root-direct-contributing)
  - Determine needed actions (corrective-preventive)
- Make CAIRS data entry
- Enter the final HPI Incident Evaluation Report and all issues where there are corrective and preventive actions into iTrack
- Identify lessons learned

### **6.0 REFERENCES**

[DOE M 231.1-1A - Environment, Safety and Health Reporting Manual](#)

[DOE O 225.1B – Accident Investigations](#)

[Contractor Assurance Lessons Learned Program](#)

[Fermilab Corrective & Preventive Action Procedure](#)

[Fermilab Root Cause Analysis Procedure](#)