

PI Health & Safety Basic Check List

Earth Science and Engineering 2018 (V7)

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Introduction

Below is a list of **BASIC MANDATORY** health and safety requirements / responsibilities that all PI's must be compliant with. This is not an exhaustive document and further mandatory requirements may apply depending on the activities being undertaken.

Training Courses a PI must complete

1. H&S for principle investigators (also referred to as Health and Safety Responsibilities for Academic Supervisors).
2. Risk Assessment Foundation Training - "RAFT".
3. Fire Prevention and Fire Safety at Work (includes practical extinguisher training).
4. If you, or someone you supervise, use hazardous substances you should have completed the "Control of Substances Hazardous to Health (COSHH)" course.
5. All safety courses necessary to understand and supervise the activities you manage. E.g. if you, or one of your students, are using liquid nitrogen you should have completed the Laboratory Gases and Decanting Liquid Nitrogen courses.

A full list of safety courses provided by ICL can be found at:

<http://www3.imperial.ac.uk/staffdevelopment/safety/index#fni-1>

PI responsibilities-laboratory based focus

1. A PI must ensure that a documented Standard Operating Procedure (SOP) is available for all relevant activities. These activities will primarily be laboratory based although certain field based activities, such as core drilling, will also require an SOP.

The purpose of an SOP is two-fold. Firstly an SOP describes the procedure and what it entails, this in turn provides the necessary information required to produce a valid risk assessment. Secondly, it provides a documented procedure following steps that have been risk assessed. If an operator does not follow an SOP the activity they are undertaking will not have been risk assessed.

2. PI's must ensure that all activities are properly risk assessed and all risks have been mitigated. This should be documented in Risk Assessment and COSHH forms; field work RA's should be documented in an FW1 form. Relevant forms and examples can be found on the departmental H&S website:

(<http://www3.imperial.ac.uk/earthscienceandengineering/local/safety/>).

Risk assessments are now documented online and can be found at:

<https://share.imperial.ac.uk/foe/ESE/ESEHealthandsafety/SitePages/General%20Risk%20Assessment.aspx>

3. PI's must ensure that if cryogenic or compressed gases are used, they complete and return a "Risk assessment for an activity involving compressed gases / cryogenic liquids" form. This form can be downloaded from the safety department web site.
4. PI's must review and authorise all risk assessment documentation. An online RA form can be found at:

https://imperiallondon.sharepoint.com/sites/foe/ESE/HealthandSafety/_layouts/15/FormServer.aspx?XsnLocation=https://imperiallondon.sharepoint.com/sites/foe/ESE/HealthandSafety/General%20Risk%20Assessments/Forms/template.xsn&SaveLocation=https%3A%2F%2Fimperiallondon%2Esharepoint%2Ecom%2Fsites%2Ffoe%2FESE%2FHealthandSafety%2FGeneral%20Risk%20Assessments&ClientInstalled=true&DefaultItemOpen=1&Source=%20https://imperiallondon.sharepoint.com/sites/foe/ESE/HealthandSafety/default.aspx

5. All PI's must ensure that work does not commence until all necessary RA's are completed, authorised and published on the sharepoint site.
6. PI's must ensure that all people working under them are trained and competent to carry out any required activities. This can include formal training courses run by the safety department or informal training given by the PI.

Example of hypothetical training requirements:

*A new student starting a research degree will be carrying out independent experiments using **Liquid Nitrogen, Compressed Gases and Hazardous Chemicals**. In this situation the student must complete, at a minimum, the following training:*

- **RAFT training.** This allows the student to identify Risks and to draft their own Risk Assessments for PI's to review and authorise.

- **Control of Substances Hazardous to Health (COSHH).** This trains the student how to assess and mitigate the risks of working with hazardous chemicals and other substances.
- **Laboratory Induction.** A new student entering a laboratory for the first time will be unaware of any inherent risks within the room. The purpose of the induction is to show the student what risks are present and how they have been mitigated. This will include showing the students fire exits and explaining what action to take if a warning alarm sounds (this will include oxygen depletion alarms etc). The student should also be shown where to store chemicals, flammables, acids and bases etc. The location of spill kits and PPE should also be identified along with where to locate RA's and COSHH forms. **The induction course content must be documented.**
- **Laboratory Gases and Decanting Liquid Nitrogen.** As the student will be using LN₂ they must complete the LN2 handling course.
- **Connecting Gas Regulators and Manual Handling of Cylinders.** As the student will be moving gas bottles and changing regulators, they must complete this course.

Note. As the PI has to approve all Risk Assessments, the PI should have also completed the same courses as the student.

7. **Training Records.** The PI should maintain a full training record for all individuals they have responsibility for. This should include the individuals name, the training they have received, who gave the training, the date training was completed and will expire and the competence of the individual. Competence can be recorded in a number of ways, one example is shown below:

Example of a training record

Student Name	Safety Course Title	Training Given By	Date Completed	Expiration Date	Competence Level
Jane Smith	B270 Lab induction	Peter Edwards	5/8/2012	5/8/2014	2
John Smith	Use of Rock Drill	Jane Edwards	2/3/2011	2/3/2015	1

Competence level 1 = Competent to carry out the activity under supervision

Competence level 2 = Competent to carry out the activity unsupervised

Competence level 3 = Competent to carry out the activity unsupervised and train other students

8. Lone and Late working. All PI's must ensure that all work conforms to the college lone and late working policy:
<http://www.imperial.ac.uk/safety/safety-by-topic/lone-working/>
 If lone or late working is required, the PI must ensure a lone and late working application is completed and approved (url as above).
9. **Personal Protection Equipment (PPE).** The PI must ensure that all individuals working under them have the correct PPE and that it is functioning correctly. All necessary PPE will normally be identified in the RA's, Material Safety Data Sheets, COSHH forms and FW1's.

10. **Correct Labelling of Chemicals and Gases.** The PI must ensure that all equipment has been appropriately labelled. This includes hazard warning labels and any other signs or postings identified in the RA and COSHH forms.
11. **Servicing and Safety Checking.** The RA and COSHH forms will identify service and safety check intervals for equipment, PPE and monitors. All servicing must be recorded.
12. **Storage of hazardous substances.** It is the PI's responsibility to ensure that all hazardous substance must be stored in the correct manner. For example, all acids must be stored in an acids cabinet and flammable liquids in a flammables cabinet.
13. **Material Safety Data Sheets (MSDS).** Free access must be available to MSDS sheets for all chemicals used in any activities. These can be downloaded from VWR at:

https://uk.vwr.com/app/GenericPage?page=/search/msds.jsp?en_GB_msds

From this page select "Power Search", then type in the chemical name or formula and select "Start Search". The results from the search will displayed, identify the chemical you are looking for and click on the green first aid icon:

METHANOL FOR HPLC LC-MS GRADE 1 * 2,5 l
(VWR, BDH Prolabo)

£34.50    83638.320

Click icon to obtain
MSDS sheet



Finally, PIs should be mindful of the extent of their knowledge, and seek advice from the Departmental, Faculty and College Safety Officers as and when necessary.

PI responsibilities – Fieldwork based focus

1. The FW1 form makes clear the responsibilities of the PI when they check the box in Section 9 of the FW1 form. They are responsible for the safety of all persons itemised and they assure the information in the form is valid and all reasonable practicable measures have been put in place to manage the risks. In most cases of properly planned fieldwork the FW1 should be emailed to the Field Work Officer (JP Latham) 6 weeks before the excursion, who will endeavour to suggest improvements and when finally satisfied, will initial the filename and forward to HOD.
2. The FW1 form is designed as a 'one stop shop' with all the key information and contact details readily available. As such, the field trip leader, normally the PI (or Person in Charge delegated by the PI) will take a hardcopy of the FW1 document into the field.
3. FW1's will be required for excursions for Taught UG and MSc Field Trips, Research Project Fieldwork Trips (MSci, PhD, PDRA, Res Fellow, Academic staff). The current 2011-12, 2012-13 FW1 forms are logged on the share point site under the PI's name, this can be found at: (<https://share.imperial.ac.uk/foe/ESE/ESEHealthandsaftev/SitePages/Fieldwork%20Documents.aspx?WikiPageMode=Edit&InitialTabId=Ribbon.EditingTools.CPEditTab&VisibilityContext=WSSWikiPage>)
A few example FW1 files from previous trips are available:
<http://www3.imperial.ac.uk/earthscienceandengineering/local/esefieldworksafety/fw1.example.files>
4. Other documentation that is to be readily available to the fieldtrip leader will include:
 - a. Next of Kin details of all persons, obtained from the Undergraduate Office team, (these also exist on ESE SIS)
 - b. Summary of any exceptional personal health and fitness details of personnel, and of exceptional allergies and dietary requirements, obtained from Tanya Chong.
5. Further useful documents to take as a reminder of what to do in an emergency are:
 - a. Emergency Response Aide-Memoire:
https://workspace.imperial.ac.uk/earthscienceandengineering/Internal/Fieldwork%20Safety%20Data/Incident%20Management%20Card2_rev.doc
 - b. Carry Card:
<https://workspace.imperial.ac.uk/earthscienceandengineering/Internal/Fieldwork%20Safety%20Data/Emergency%20Carry%20Card%2012.doc>
6. The Fieldwork leader (i.e. PI or designated PIC) must report any accidents and near misses using **SALUS** <http://www.imperial.ac.uk/safety/safety-by-topic/accidents--incidents> as soon as reasonably possible (remote access) and in any event on the day of returning to College, and comply with **RIDDOR**.
7. **Fieldwork First Aid and Safety Training Register**. Tanya Chong is responsible for first aid kits and first aid training. Registers are kept for all training sessions of Undergraduates, MSc students. Staff (Academic, Research Fellows, PDRAs) and PhD students undertaking fieldwork based research, or acting as field-work safety trained demonstrators, or field trip leaders, are required to have a current qualification for the two-day fieldwork first aid course run by Stuart Marshall (Marlin Training Course).
8. **Ratio of first-aid trained**. ESE requires PIs to consider the ratio of not qualified personnel on the trip to first-aid trained and qualified personnel - in relation to the logistics and groupings

during the trip. When the ratio exceeds 15:1, the PI will normally be required to have this number reduced before FW1 approval.

- 9. Independent Mapping by students.** Typically, 6 or 8 mapping students, mapping in pairs, will be assigned to a group. Each group has a PI who visits and assists the students in the field. The mapping group PI is responsible for the FW1 associated with each mapping group. However, each mapping student will have undertaken their own individual Risk Assessment each having been considered in preparing the composite FW1 for the group.

The [ESE Fieldwork safety website](#)

<http://www3.imperial.ac.uk/earthscienceandengineering/local/esefieldworksafety> contains responsibilities and further guidance, structured for different users including undergraduates and postgraduates.

PI's and Managers Responsibility to Report Accidents According to College Policy

It is incumbent on all members of staff and visitors that accidents are reported promptly and through the correct channels. It is the PI's and Manager's responsibility to ensure that they are familiar with the policy and that this knowledge is passed on to all individuals below them for which they have a responsibility.

All Accidents must be reported online through SALUS, the link for SALUS can be found at:

https://salus.imperial.ac.uk/AIR2/Incbook/incbook_tab_begin.aspx?First=1

Details of the reporting policy and procedure can be found at:

<http://www3.imperial.ac.uk/safety/subjects/reportingaccidents>