|  |
| --- |
|  |
|  |
|  |
| WSCP ion source safety fence |
|  |

|  | Name | Role/Title |
| --- | --- | --- |
| **Owner** | Øystein Midttun | ESS System Leader of Ion source and LEBT |
| **Authors** | Øystein Midttun  Per Andersson | ESS System Leader of Ion source and LEBT  Contractor Representative of Pamako AB |
| **Reviewers** | Michael Plagge  Dennis de Wit | ESS Safety Representative  ESS Area Supervisor of G01 |
| **Approver** | Håkan Danared | ESS Linac Group Leader |

**Diffusion list (for information):** Edgar Sargsyan, Richard Bebb.

|  |  |  |
| --- | --- | --- |
| **Work and Safety Coordination Plan (WSCP)** | | |
| **ESS accelerator installation**  **Ion source safety fence** | | |
| **Purpose:**  This Work and Safety Coordination Plan (WSCP) is the contractual binding document and shall be implemented by the ESS staff, their relevant In-Kind Contribution (IKC) partners and/or contractors.  The main purpose of that document is to identify the list of preparatory and organizational measures required prior to the start-up of the installation activity to be carried out by the contractor, as well as the list of associated hazards and safety control measures to be implemented.  The WSCP shall be subject to adjustments and updates adapting to the on-going ESS accelerator installation activity. | | |
| **TRACEABILITY** | | |
| **Role** | **Signature** | **Date** |
| **Group Leader**  Håkan Danared |  | yyyy/mm/dd |
| **ESS Safety Representative(s)**  Michael Plagge |  | yyyy/mm/dd |
| **Area Supervisor**  Dennis de Wit |  | yyyy/mm/dd |
| **ESS System Leader**  Øystein Midttun |  | yyyy/mm/dd |
| **Contractor Representative**  Per Andersson, Pamako AB |  | yyyy/mm/dd |
| The ESS System Leader is responsible for the redaction of the WSCP, its update relevant to the system of his/her responsibility, and its distribution to the signatories of this document.  Note that the WSCP shall be filled in English.  The ESS System Leader shall also archive and update this WSCP in CHESS[[1]](#footnote-1).  The Contractor Representative is responsible for the distribution of this WSCP:   * To the Health and Safety responsible of his company/institute; * To his sub-contractors; * To all relevant bodies that the company/institute shall report to. | | |

At the initiative of European Spallation Source ERIC and in order to ensure coordination and safe execution of the contract or activity, this WSCP is established:

**Between:**

|  |  |
| --- | --- |
| European Spallation Source ERIC |  |
|  |  |
| * Address: | Box 176, 221 00 Lund, Sweden |
|  |  |
| * Represented by: | Håkan Danared |
| Division/Group: | Linac |
| Acting as: | Group Leader on behalf of the Division Head |
|  | Tel: +46 46 888 3046  Mobile: +46 72 179 2046 |
|  | E-mail: [Hakan.Danared@esss.se](mailto:Hakan.Danared@esss.se) |
|  |  |
| * ESS System Leader: | Øystein Midttun |
|  | Tel: (+46 46 888 3299)  Mobile: (+46 72 179 2299) |
|  | E-mail: [Oystein.Midttun@esss.se](mailto:Oystein.Midttun@esss.se) |
|  |  |
| * Area Supervisor(s) | Dennis de Wit |
| *(To be repeated if different areas are involved)* | Mobile: +46 72 207 3683 |
|  | E-mail: [Dennis.deWit@esss.se](mailto:Dennis.deWit@esss.se) |
|  |  |
| * Electrical Operation Leader | First/Last Name |
|  | Tel: (+46 46 888 xxxx)  Mobile: (+46 72 179 xxxx) |
|  | E-mail: ([FirstName.LastName@esss.se](mailto:FirstName.LastName@esss.se)) |
|  |  |

**And:**

|  |  |
| --- | --- |
| Contractor | Pamako AB |
|  |  |
| * Address: | Landsvägen 536,  235 41 Vellinge |
| * Represented by: | Per Andersson |
| Title: | fill in |
|  | Tel: +46 70 424 5660 |
|  | E-mail: per@pamako.se |
|  |  |
| * Safety representative of the contractor: | Per Andersson |
|  | Tel: +46 70 424 5660 |
|  | E-mail: per@pamako.se |
|  |  |
| * Contract/Agreement: | number or reference |
|  |  |

|  |  |
| --- | --- |
| Table of content | Page |

1. Purpose 5

2. Introduction 5

3. Commitment 5

4. Applicable documentation and regulatory framework 6

5. Work Coordination Plan 6

5.1. General information 6

5.1.1. Installation/implantation map 7

5.1.2. Information concerning the contractor 7

5.1.3. Sub-contractors 7

5.2. Preparatory measures 7

5.2.1. Pre-work visits 7

5.2.2. Declaration of works and services 8

5.3. Organizational measures during the installation activity 8

5.3.1. General organizational measures 9

5.3.2. Participation of ESS to the work 10

5.3.3. Preliminary measures taken/to be taken by ESS 11

6. Safety Coordination Plan 12

6.1. Assessment of occupational hazards and control measures 12

6.1.1. Hazards related to the work environment, facilities and activities of ESS (Area Hazard Analysis) 12

6.1.2. Hazards related to the interference of activities (parallel works) 12

6.1.3. Hazards related to the work activities of the contractor 13

6.1.3.1. Job Hazard Analysis (JHA) provided by the contractor 13

6.1.3.2. Specific supplements and ESS requirements following the analysis of the activity of the contractor 13

6.1.4. Control documents to be submitted to the Area Supervisor 13

6.2. Arrangements for information and training of personnel 13

6.2.1. Safety awareness/training related to the activities on the ESS site 13

6.2.2. First aid training 14

6.2.3. Provisions for training and information of contractor personnel 14

6.3. Site map (worksite/area layout) 14

6.4. Reporting in case of an accident/incident 14

7. references 31

8. Document Revision history 31

# Purpose

This WSCP is the contractual binding document and shall be implemented by the ESS staff, their relevant In-Kind Contribution (IKC) partners and/or contractors.

The main purpose of that document is to identify the list of preparatory and organizational measures required prior to the start-up of the installation activity to be carried out by the contractor, as well as the list of associated hazards and safety control measures to be implemented.

The WSCP shall be subject to adjustments and updates adapting to the on-going ESS accelerator installation activity.

# Introduction

European Directives & Regulations, Swedish national regulations as well as European Spallation Source ERIC Safety rules apply on the entire site of the ESS facility and shall be respected by the contractors and In-Kind Contributors (IKC). For easiness of use, in the current document the term *contractor* shall refer to contractors, IKC or any other ESS collaborating party.

The present WSCP is prepared in accordance with the applicable ESS safety rules for the coordination of Safety aspects and is specific to the contract mentioned at the front page.

# Commitment

The Contractor Representative, signatory of this document, is committed to:

* Enforce the application of the provisions of this document by its personnel; justify in writing that its staff has been trained in all of these provisions;
* Forward this WSCP and all related documents, for application, to all its sub-contractors and any person or entity intervening on his behalf on the ESS site in the context of the contract subject of this document;
* Collaborate in the Safety process within the framework of the implementation of the contract on the ESS site by:
* Informing the ESS System Leader of any changes in operating methods associated with the contract/activity;
* Participating in regular meetings related to the contract/activity;
* Enforcing specific requirements notified through amendments or pre-work visits;
* Reporting risk observations (accidents and/or near misses);
* Contributing to the update of this document as often as necessary.

# Applicable documentation and regulatory framework

The following regulations and documents related to Safety in the context of the contract execution on the ESS site by the contractor shall be followed:

**Swedish regulations**

* [Swedish Work Environment Act (AML), Reference No.: SFS 1977:1160](http://www.government.se/government-policy/labour-law-and-work-environment/19771160-work-environment-act-arbetsmiljolagen/);
* [Swedish Work Environment Regulations (AFS)](https://www.av.se/en/work-environment-work-and-inspections/publications/foreskrifter/);
* [Swedish Posting of Workers Act, Reference No.: SFS 1999:678](http://www.government.se/government-policy/labour-law-and-work-environment/1999678-posting-of-workers-act/);
* [Building and Civil Engineering work (AFS 1999:3)](https://www.av.se/en/work-environment-work-and-inspections/publications/foreskrifter/building-and-civil-engineering-work-afs1999-3eng-provisions/).

**ESS & Skanska regulations and applicable documentation**

* ESS-Skanska Health and Safety Plan [1];
* ESS-Skanska Guidelines for ESS Stakeholder Access [2];
* General conduct and safety rules ESS – Conventional Facilities Worksite [3];
* ESS Rules for Electrical Safety (ESS Rules for Electrical Safety) [4];
* Procedure for Authorizing Work in ESS workspaces [5];
* General information for contractors coming on the ESS site [6];
* Installation responsibility matrix [7];
* ESS accident/incident reporting form [8].

# Work Coordination Plan

## General information

**General information regarding the activity**

|  |  |
| --- | --- |
| **Start date of the activity:** 2018/04/09 | **End date of the activity:** 2016/04/12 |

**Description of the activity (summary):**

Produce a detailed summary of the information in the tender including:

1. System deliverables (e.g. DTL, RFQ, RF distribution system, etc.) – see Annex 5.
2. Equipment list (e.g. lifting equipment, analyzation equipment, etc.) – see Annex 6.
3. Installation processes & milestones and deliverable documentation – see Annex 7.

**Working hours:**

Normal working hours on the ESS site are from 07:00 to 16:00 from Monday to Friday - working days.

**Arrangements for organizing the work outside normal working hours:**   
to be completed if necessary

Note: An authorisation shall be completed and (See [15]) addressed to the Area Supervisor for any work performed outside normal working hours and working days. This notice has to be further approved by the Skanska ESS construction site management.

### Installation/implantation map

The installation/implantation map shall be available (and up-to-date) by the contractor, after the approval of the System Leader.

The installation/implantation map shall include patterns and detailed information for the drilled holes/threaded inserts or other fixations of the system with the floor, with its exact location with respect to the physical plant (walls etc.).

The alignment strategy of the contractor, including the relevant fiducialization procedure of the components (when applicable), shall include the verification of the installation/implantation map.

### Information concerning the contractor

All the information (such as personnel list, operational procedures, provisions for training, etc) concerning the contractor, its sub-contractors can be found in Annex 4 of this document.

### Sub-contractors

|  |  |  |
| --- | --- | --- |
| Will the contractor sub-contract any activities? | YES | NO |

Table 1 - List and type of sub-contracted work

|  |  |  |
| --- | --- | --- |
| **Sub-contractor name** | **Type of work sub-contracted** | **Contact person on site/ tel.** |
| fill in | fill in | fill in |
| fill in | fill in | fill in |
| fill in | fill in | fill in |

\* Personnel list can be found in Annex 4.

Note: more details regarding the duration of the activities sub-contracted can be found in the installation schedule from the contractor.

## Preparatory measures

### Pre-work visits

A pre-work visit of workplaces, facilities and equipment made available to the contractors and their sub-contractors is carried out prior to the execution of the work in the presence of all the intervening stakeholders (see Annex 8). The main purpose of this visit is to validate on-site the safety measures as defined in the WSCP.

Minimum participation: ESS System Leader and Contractor Representative, Area Supervisor, Work Leader(s)/Supervisor(s) (if any) and Safety Representative(s) (ESS & SEC).

### Declaration of works and services

Certain types of works and services might be subject to a request for authorization before the start-up of the intervention. The work and services can be realized only after obtaining all the necessary signatures. It is important to note that in all sectors (such as the Accelerator Tunnel (AT), Klystron Gallery (KG), Target area, etc.) the access is subject to specific access procedures and regulations.

## Organizational measures during the installation activity

### General organizational measures

Table 2 - General organizational measures

|  |  | **Action to be taken by** | **Remarks** |
| --- | --- | --- | --- |
| **Delivery to site** | | | |
| Delivery of system/equipment to site | Yes  No | AS  SL  CR  Other | Any delivery to site shall be coordinated with the transport & logistics group ([logistics@esss.se](mailto:logistics@esss.se)) |
| **Workplace** | | | |
| Identification of the area of intervention | Yes  No | AS  SL  CR  Other | See site map (Annex 1) |
| Physical delimitation of the area of intervention | Yes  No | AS  SL  CR  Other |  |
| Access roads to the area of intervention | Yes  No | AS  SL  CR  Other | See site map (Annex 1) |
| **Risk associated with parallel works** | | | |
| Identification of these areas. | Yes  No | AS  SL  CR  Other | See AHA (Annex 2) |
| Physical delimitation of these areas | Yes  No | AS  SL  CR  Other | See AHA (Annex 2) |
| **Storage (lay-down) areas** | | | |
| Identification of those locations | Yes  No | AS  SL  CR  Other | See site map (Annex 1)  We need to lay down the material to be installed next to the ion source, e.g. in the drop hatch. Maximum 10 m2 is needed. |
| Marking of the storage areas | Yes  No | AS  SL  CR  Other |  |
| **Waste management** | | | |
| Needs for dumpsters | Yes  No | AS  SL  CR  Other | To be coordinated with Skanska during the waste management training |
| **Equipment or machines used** | | | |
| Equipment/machines used by the contractor | Yes  No | AS  SL  CR  Other | For installing the mesh close to the ceiling, we need to use a scissor lift. |
| Other | Yes  No | AS  SL  CR  Other |  |
| **REMINDER**  Any modification of general organization shall be reported immediately to the ESS System Leader and Area Supervisor.  AS: Area Supervisor  SL: ESS System Leader  CR: Contractor Representative | | | |

### Participation of ESS to the work

Table 3 - Participation/provisions of ESS to the work

|  |  | **Action to be taken by** | **Remarks** |
| --- | --- | --- | --- |
| **Provision of services by ESS** | | | |
| Electricity | Yes  No | AS  SL  CR  Other | 220 V AC |
| Water | Yes  No | AS  SL  CR  Other |  |
| Lighting | Yes  No | AS  SL  CR  Other | Portable lights |
| Drainage | Yes  No | AS  SL  CR  Other |  |
| Compressed air | Yes  No | AS  SL  CR  Other |  |
| Changing rooms, toilets and shower | Yes  No | AS  SL  CR  Other | To be coordinated with Skanska |
| **Provision of staff by ESS** | | | |
| Staff provided by ESS | Yes  No | AS  SL  CR  Other | Crane operator. |
| **Provision of equipment /machines by ESS** | | | |
| Equipment/machines provided by ESS | Yes  No | AS  SL  CR  Other | Crane, trolley for heavy transport, scissor lift. |
| Other | Yes  No | AS  SL  CR  Other |  |
| **REMINDER**  Any modification of the participation of ESS to the work shall be validated by written agreement between the ESS System Leader and the Contractor Representative.  AS: Area Supervisor  SL: ESS System Leader  CR: Contractor Representative | | | |
|  | | | |

### Preliminary measures taken/to be taken by ESS

Table 4 - Preliminary measures taken/to be taken by ESS

|  |  | **Action to be taken by** | **Remarks** |
| --- | --- | --- | --- |
| **Worksite safety measures**  Lock-out/tag-out of electricity, water, gas, cryogenic fluids, etc. | Yes  No | AS  SL  CR  Other | There are no hazards of this type in the installation area. |
| Lock-out/tag-out of mechanical installations/equipment | Yes  No | AS  SL  CR  Other |  |
| **Preparatory work**  Extraction of equipment, area delimitations, signage, etc. | Yes  No | AS  SL  CR  Other | See site map (Annex 1) |
| **Other** | Yes  No | AS  SL  CR  Other |  |
| Please note that all lock-  AS: Area Supervisor  SL: ESS System Leader  CR: Contractor Representative out/tag-out activities shall be performed in accordance with the ESS rule for lock-out/tag-out (ESS rule for lock-out/tag-out (LOTO)). | | | |

# Safety Coordination Plan

## Assessment of occupational hazards and control measures

The risk assessment shall identify the work situations that are dangerous and/or likely to cause interference between activities, facilities and equipment.

### Hazards related to the work environment, facilities and activities of ESS (Area Hazard Analysis)

Hazards inherent to the work environment, facilities and activities of ESS as well as compensatory measures have to be identified and evaluated prior to the start-up of the work activity by the Area Supervisor. This Area Hazard Analysis (AHA) shall be included in Annex 2 of the present document.

### Hazards related to the interference of activities (parallel works)

Table 5 - Hazards related to the interference of activities

| **Interference type** |  | **Description of the mitigation measure** | **Action to be taken by** |
| --- | --- | --- | --- |
| Overlapping works | Yes  No | Daily coordination. | AS  SL  CR  Other |
| Adjacent works | Yes  No | Daily coordination. | AS  SL  CR  Other |
| Transport/handling | Yes  No | Daily coordination. | AS  SL  CR  Other |
| Sharing of specific access/passages | Yes  No | Daily coordination. | AS  SL  CR  Other |
| Other types of interference | Yes  No |  | AS  SL  CR  Other |
| AS: Area Supervisor  SL: ESS System Leader  CR: Contractor Representative | | | |

Note: more information regarding the hazards related to parallel works can be found in the minutes of the weekly coordination meetings on site.

If cases of parallel works other than the ones mentioned in the AHA (Annex 2) are revealed during the works, the contractor shall:

* Temporarily stop the activity,
* Immediately report the unplanned co-activity to the Area Supervisor.

The ESS System Leader shall, in collaboration with the contractor and the other intervening entities performing parallel works, decide on additional measures to be implemented.

Each intervening entity shall bear the protections or the measures to be put in place to minimize the risks generated by its activities with respect to other intervening entities.

### Hazards related to the work activities of the contractor

#### Job Hazard Analysis (JHA) provided by the contractor

Hazards inherent to the contractor’s work activities as well as compensatory measures are to be identified and evaluated prior to the start-up of the work by the ESS System Leader and the Contractor Representative. This Job Hazard Analysis (JHA, [5]) shall be included in Annex 3 of the present document.

#### Specific supplements and ESS requirements following the analysis of the activity of the contractor

To be completed or specified that there are no additional requirements.

### Control documents to be submitted to the Area Supervisor

Control documents to be provided to the Area Supervisor prior to the start-up of the work are listed below:

|  |  |  |
| --- | --- | --- |
| YES | NO |  |
|  |  | Lock-out/tag-out permit: electrical, mechanical, fluids, etc. |
|  |  | Fire/hot work permit (including alarm inhibition) |
|  |  | Confined space work procedure |
|  |  | Work authorization for specific areas |
|  |  | Authorization for the use of lifting equipment |
|  |  | Other: |

## Arrangements for information and training of personnel

### Safety awareness/training related to the activities on the ESS site

The contractor must continuously ensure that its personnel working on the ESS site has followed appropriate Safety training and awareness as well as associated refresher courses.

Regardless of its activity, and before working on the ESS site, each member of the contractor personnel must follow the awareness sessions mentioned below:

ESS site Safety induction (contact [site.reception@esss.se](mailto:site.reception@esss.se) to book a training session)

ESS site waste management (contact [site.reception@esss.se](mailto:site.reception@esss.se) to book a training session)

In addition, the contractor personnel\* must follow specific awareness sessions depending on the areas to be accessed and/or the type of activity to be performed:

Radioprotection

Electrical Safety - Awareness

Cryogenic Safety – Awareness

Interventions in confined spaces

Work at height

Safety harness

First-aid training

Lifting equipment

Hot work

Other:

\* These provisions also apply to sub-contractors as well as to any person intervening on a temporary or ad hoc basis.

Note: all applicable control documents and training certificates referred in 6.1.4 and 6.2.1 shall be attached to the present WSCP.

### First aid training

It is requested by ESS that the minimum number of first-aiders at the worksite corresponds to one per working team. In addition, ESS recommends that all contractors performing electrical works on site, follow a First Aid Training (AED) including Electrical Injuries.

### Provisions for training and information of contractor personnel

See Annex 4.

## Site map (worksite/area layout)

A site map prepared by the Area Supervisor shall be provided to the contractor prior to the start-up of the work. The site map shall contain at least the following information (see Annex 1):

* perimeter of the activity to be carried out;
* lay-down areas for equipment and materials;
* location of the emergency exits and assembly points;
* location of the fire extinguishers, first-aid kits, etc;
* location of entrances/exits for personnel and equipment;
* location of utilities (e.g. waste container, toilets, etc.);
* access routes for personnel and equipment.

An editable version of the digital document can be found at ESS construction site layout [10].

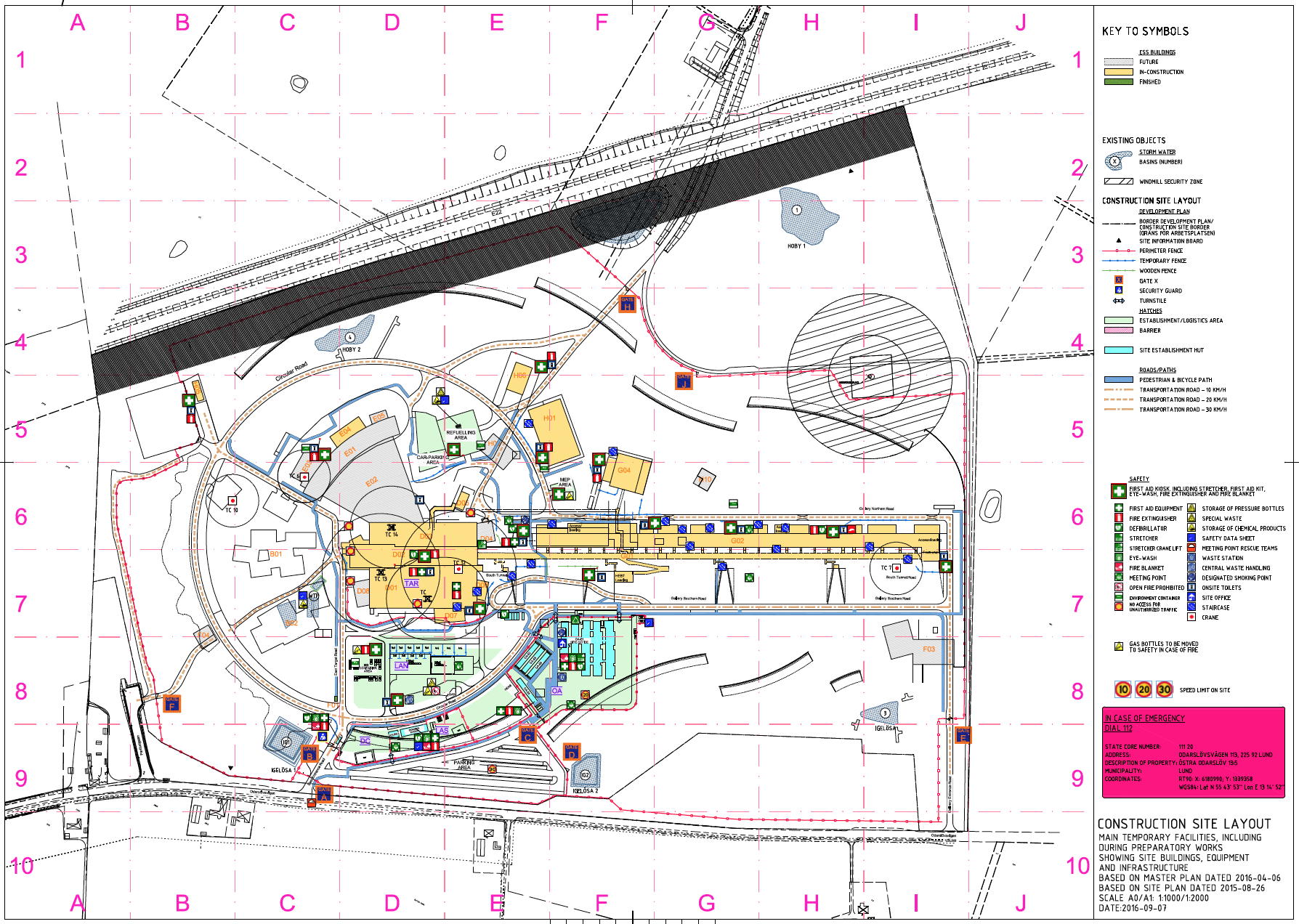
## Reporting in case of an accident/incident

Any accident that caused bodily injury with or without work interruption on the ESS site, including when traveling on the ESS site, shall be immediately reported to the ESS System Leader. This reporting shall be made in written (see Annex 9 and Annex 10).

The document shall be completed by the contractor and addressed to the national authority and the insurance company of the victim.

The ESS System Leader shall notify the ESS ES&H Division ([bertil.winer@esss.se](mailto:bertil.winer@esss.se)) with an internal accident report including relevant documentation provided by the contractor as attachment.

1. Site map (worksite/area layout/drawing)



1. Area Hazard Analysis (AHA)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Work Area:** G01 (accelerator tunnel), ion source area. | | | | |
| **Brief description of activities to be authorized for this work area:**  Installation of a safety fence for the ion source. The AHA can be found in ESS-0105616. | | | | |
| **Approvers** | **Name** | **Date** | **Signature** | **Phone No.** |
| **Area Supervisor** | Dennis de Wit | yyyy/mm/dd |  | +46722073683 |
| **Line Manager** | Håkan Danared | yyyy/mm/dd |  | +46721792046 |
| **ESS Safety Representative** | Michael Plagge | yyyy/mm/dd |  | +46721792431 |

**Hazard Identification**

Please mark with a cross any potential hazards that could be present in the work area:

| **Potential Hazard** | **Present in Area?** | **Present in adjacent work area?** | **HAZARD description** |
| --- | --- | --- | --- |
| **Biological Safety** | | | |
| Biological agents |  |  |  |
| Legionella |  |  |  |
| **Chemical Safety** | | | |
| Asbestos |  |  |  |
| CMR |  |  |  |
| Corrosive |  |  |  |
| Dangerous for the environment |  |  |  |
| Explosive |  |  |  |
| Flammable |  |  |  |
| Harmful |  |  |  |
| Irritant |  |  |  |
| Oxidizing |  |  |  |
| Toxic |  |  |  |
| **Cryogenic Safety and Oxygen Deficiency Hazards, [11]** | | | |
| Cryogenic fluid |  |  |  |
| Inert gases |  |  |  |
| **Electrical and Electromagnetic Safety, [14]** | | | |
| Electricity |  |  |  |
| Magnetic field |  |  |  |
| Static electricity |  |  |  |
| **Ionizing radiation** | | | |
| Open sources |  |  |  |
| Closed sources |  |  |  |
| Activated material |  |  |  |
| Radioactive waste |  |  |  |
| Particle beam |  |  |  |
| **Non ionizing radiation** | | | |
| Laser (class to be specified), [12] |  |  |  |
| Microwaves (300 MHz-30 GHz) |  |  |  |
| Radio frequency (1MHz-300MHz) |  |  |  |
| UV Light |  |  |  |

| **Potential Hazard** | **Present in Area?** | **Present in adjacent work area?** | **HAZARD description** |
| --- | --- | --- | --- |
| **Mechanical Safety** |  |  |  |
| Lifting equipment |  |  |  |
| Machinery |  |  |  |
| Mechanical energy (moving parts) |  |  |  |
| Mechanical properties (sharp, rough, slippery) |  |  |  |
| Pressure |  |  |  |
| Surface temperature |  |  |  |
| Vacuum |  |  |  |
| **Workplace** |  |  |  |
| Confined spaces |  |  |  |
| Dust |  |  |  |
| Fall from height |  |  |  |
| Falling objects |  |  |  |
| Fall on the same level |  |  |  |
| Lone working |  |  |  |
| Obstruction in passageways |  |  |  |
| Traffic |  |  |  |
| Working at height |  |  |  |
| **Structural Safety** |  |  |  |
| Structures (inadequate design or condition) |  |  |  |
| **Ergonomics** |  |  |  |
| Air quality |  |  |  |
| Lighting |  |  |  |
| Manual handling |  |  |  |
| Mental overload, [13] |  |  |  |
| Moisture |  |  |  |
| Noise |  |  |  |
| Repetitive activity |  |  |  |
| Temperature |  |  |  |
| VDU work (Visual Display Unit) |  |  |  |
| Vibrations |  |  |  |
| **Worksite** |  |  |  |
| Co-activity |  |  |  |
| Hot work (welding, flame cutting, brazing, sparks, etc.) |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Potential Hazard** | **Present in Area?** | **Present in adjacent work area?** | **HAZARD description** |
| **Environment** |  |  |  |
| Discharge of effluents to sewage |  |  |  |
| Emission of noise harmful for the environment |  |  |  |
| Emission of substances into the atmosphere |  |  |  |
| Generation of vibrations harmful for the environment |  |  |  |
| Historical site pollution (chemical) |  |  |  |
| Odors |  |  |  |
| Soil activation (radioactive) |  |  |  |
| Use/storage of potentially polluting substances (gases, liquids, solids) |  |  |  |
| Waste generation |  |  |  |
| **Others** |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **PERSONAL PROTECTIVE EQUIPMENT (PPE) TO CONSIDER** | | |
| **A** | http://www.hse.gov.uk/workplacetransport/images/mandatory-gloves-2.gif | Safety gloves (EN 388) |
| **B** | **http://www.hse.gov.uk/workplacetransport/images/mandatory-helmet-2.gif** | Safety helmet (EN 397) |
| **C** | http://www.hse.gov.uk/workplacetransport/images/mandatory-boots-2.gif | Safety shoes (EN ISO 20345) |
| **D** | http://www.hse.gov.uk/workplacetransport/images/mandatory-ear-2.gif | Ear protection (EN 352) |
| **E** | **http://www.hse.gov.uk/workplacetransport/images/mandatory-eye-2.gif** | Eye protection (EN 166) |
| **F** |  | High visibility clothing (EN 471 class 2) |
| **G** |  | Respiratory protection (EN 149) |
| **H** |  | Other, please specify: |

1. Job Hazard Analysis (JHA)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Job:** Installation of ion source safety fence | | | | | |
| **Number of people performing the job:** 4 | | | | | |
| **Start date:** 2018/04/09 | | | **End date:** 2018/04/12 | | |
| **Location/Work Area:** G01, ion source area | | | | | |
| **Approvers** | **Name** | **Date** | | **Signature** | **Phone No.** |
| Area Supervisor:  System Leader: | Dennis de Wit  Øystein Midttun | yyyy/mm/dd | |  | +46722073683  +46721792299 |
| ESS Safety Representative: | Michael Plagge | yyyy/mm/dd | |  | +46721792431 |
| Note: The JHA shall be regularly reviewed and updated if necessary as indicated in (Procedure for authorizing work in ESS workspaces). A copy of this JHA shall be kept in the location at the premises where the job shall be performed. | | | | | |

| **Work Tasks/Steps** Identify work steps/tasks in sequence when such sequencing contributes to safety, security, and/or environmental protection. | **Associated Hazards**  Identify activity hazards for each step. | **Controls, Preventive Measures, and Actions** Specify compensating measure for each hazard | **Time estimation**  Specify the time estimated to perform each task/step of the work activity |
| --- | --- | --- | --- |
| Lower the components of the safety fence into G01 with the HEBT loading bay crane.  Transport to the ion source area with a trolley. | Heavy lifting as the fence consists mainly of 12 plates of lead and aluminum, weighing approx. 100 kg each (2.5x1.2x0.006 m3).  → Risk of falling objects, pinching, crushing | Trained operator will use the crane.  Use mandatory PPE.  Barrier off the area. | 1 day  2018/04/09 |
| Install the inner support frame for the safety fence. | → Risk of falling objects, pinching, crushing | Use mandatory PPE. |
| Install steel mesh on top of frame | → Risk of falling objects, pinching, crushing | Use mandatory PPE. | 2 days  2018/04/09 –  2018/04/10 |
| Install side walls | Side walls weigh approx. 100 kg each.  → Risk of falling objects, pinching, crushing | Use mandatory PPE.  If crane is needed, a trained operator will use it. |
| Install door | The door weighs approx. 100 kg.  → Risk of falling objects, pinching, crushing | Use mandatory PPE.  If crane is needed, a trained operator will use it. | 1 day  2018/04/11 |
| Add steel mesh below the ground shielding plate.  Add shielding around water cooling pipes. | → Risk of pinching, cuts | Use mandatory PPE. |

1. Complementary information

**Contractor**: Pamako AB

**Provisions for the information and training of personnel**

The contractors will be accompanied by Richard Bebb who has a valid first aid training.

**Personnel list of the contractor**

|  |  |  |  |
| --- | --- | --- | --- |
| **First/Last Name** | **Role1** | **Certification/ Authorization** | **First aider**  **YES/N****O2** |
| David Dallemangne | Technician |  |  |
| Jonas Lindberg | Technician |  |  |
| Jonathan Koskinen | Technician |  |  |
| Anton Sandberg | Technician |  |  |
| Jen-Eric Nilsson | Technician |  |  |
| Per Andersson | Work supervisor |  |  |
| 1: It is requested by ESS that the minimum number of English speakers corresponds to one per working team.  2: It is requested by ESS that the minimum number of first-aiders at the worksite corresponds to one per working team.  CR: Contractor Representative | | | |

1. System Deliverables (e.g. DTL, RFQ, RF distribution system, etc.)

| **Item name** | **Description** | **Quantity** |
| --- | --- | --- |
| Side wall plates | Fence side wall plates made of lead sandwiched between two aluminum plates, approx. 1.2x2.5 m2, 100 kg. | 12 |
| Ceiling mesh | Stainless steel mesh to cover the top part of the fence. Approx. 1x3 m2. | 4 |
| Inner frame | Made of Rexroth profiles. Delivered unmounted. | ~30 |
| Door | Made of lead sandwiched between two aluminum plates, approx. 1.2x2.5 m2, 100 kg. | 1 |
| SL: ESS System Leader  CR: Contractor Representative | | |

1. Equipment List (e.g. lifting equipment, analyzation equipment, etc.)

| **Item name** | **Description** | **Quantity** | **Unit cost** |
| --- | --- | --- | --- |
| Ladder | A ladder to stand on. | 2 |  |
| Trolley | Trolley for transporting the goods from HBL to the ion source area | 1 |  |
| Scissor lift | To stand on while installing the steel mesh close to the ceiling | 1 |  |
| SL: ESS System Leader  CR: Contractor Representative | | | |

1. Installation Processes

| **Installation process** | **Description** | **Start date** | **End date** |
| --- | --- | --- | --- |
| Unpacking and transportation within the installation area | The components will arrive at the HEBT loading bay. We’ll use the crane to bring down to the tunnel, then transport with a trolley. | 2016/04/09 | 2016/04/09 |
| Installation, mounting and fixing | Installation will be done manually. A scissor lift is needed for installing the mesh close to the ceiling. | 2016/04/09 | 2016/04/12 |
| Connection to services | N/A |  |  |
| Testing | We will test that the structure is solid, make sure that there are no gaps larger than 2.5 mm, and check that the door works properly. | 2016/04/12 | 2016/04/12 |
| Removal of material and equipment from the installation area | Waste will be removed continuously to dedicated bins.  The installation area will be cleared once the installation is finished. | 2016/04/09 | 2016/04/12 |
| SL: ESS System Leader  CR: Contractor Representative | | | |

| **Document required for installation and service/maintenance** | **Yes** | **No** |
| --- | --- | --- |
| to be filled-in by the SL and CR |  |  |
| to be filled-in by the SL and CR |  |  |
| to be filled-in by the SL and CR |  |  |
| to be filled-in by the SL and CR |  |  |
| SL: ESS System Leader  CR: Contractor Representative | | |

1. Minutes of the pre-work visit

| **Activity:** indicate main activity of the contract | **Date:** yyyy/mm/dd |
| --- | --- |
| **Participants**:  ESS System Leader: First/Last Name  Contractor Representative: First/Last Name  Area Supervisor: First/Last Name  Safety representative(s): First/Last Name, First/Last Name, First/Last Name | |
| **Main findings:**  provide description of main findings | |
| **Mitigation actions:**  provide description of mitigation actions to be taken | |

| **Activity:** indicate main activity of the contract | **Date:** yyyy/mm/dd |
| --- | --- |
| **Participants**:  ESS System Leader: First/Last Name  Contractor Representative: First/Last Name  Area Supervisor: First/Last Name  Safety representative(s): First/Last Name, First/Last Name, First/Last Name | |
| **Main findings:**  provide description of main findings | |
| **Mitigation actions:**  provide description of mitigation actions to be taken | |

1. Instructions in case of a serious accident/injury

**IN CASE OF SERIOUS ACCIDENT/INJURY**

1. CHECK FOR ANY DANGER, CASUALTY AND IF POSSIBLE MAKE THE SITUATION SAFE
2. CALL 112 AND PROVIDE THE FOLLOWING INFORMATION:
   1. Nature of the accident/injury
   2. Location of the accident/injury
   3. Number and state of the injured people
   4. Any kind of information that could be of use for the rescue team
3. PERFORM FIRST AID/CPR
4. REPORT IMMEDIATELY TO THE **AREA SUPERVISOR** (Dennis de Wit, +46 72 207 3683).
5. REPORT IMMEDIATELY TO THE **ESS SYSTEM LEADER** (Øystein Midttun, +46 72 179 2299).
6. REPORT IMMEDIATELY TO THE **CONTRACTOR REPRESENTATIVE** (Per Andersson, +46 70 424 5660).

ADDRESS TO BE COMMUNICATED TO THE RESCUE TEAM:

**ODARSLÖVSVÄGEN 113, 22592 LUND**

1. ACCIDENT/INCIDENT REPORTING FORM

| **ACCIDENT/INCIDENT REPORTING FORM** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Type of event:** | Injury | | Near miss | | Environmental incident | | Other, please specify: | |
| **Name of the victim:** First/Last Name | | | | | **Date of the event:** yyyy/mm/dd | | | **Time of the event:** hh/mm |
| **Location of the event:** specify location of the event (e.g. building) | | | | | | **Precise location:** specify precise location of the event (e.g. room, area) | | |
| **Status of the victim:** | | ESS employee | | Contractor (IK-partner, company) | | | Other, please specify: | |
| **Circumstances and details of the event**:  Provide circumstances and description of the event | | | | | | | | |
| **Immediate actions to be taken:**  Provide the list of immediate actions and control measures taken after the event | | | | | | | | |
| **Any other comments:**  Provide any additiona relevant information | | | | | | | | |
| **Distribution list:**  ESS contact person: Øystein Midttun – [Oystein.Midttun@esss.se](mailto:Oystein.Midttun@esss.se)  Area supervisor: Dennis de Wit – [Dennis.deWit@esss.se](mailto:Dennis.deWit@esss.se)  ESS line manager: Håkan Danared – [Hakan.Danared@esss.se](mailto:Hakan.Danared@esss.se)  Divisional Safety Representative: Michael Plagge – [Michael.Plagge@esss.se](mailto:Michael.Plagge@esss.se)  ESS Safety Representative: Bertil Wíner – [bertil.winer@esss.se](mailto:bertil.winer@esss.se)  Other: Edgar Sargsyan – [Edgar.Sargsyan@esss.se](mailto:Edgar.Sargsyan@esss.se) | | | | | | | | |

# references

1. Health and Safety Plan, ([ESS-0020522](https://chess.esss.lu.se/enovia/link/ESS-0020522/21308.51166.20992.38892/valid))
2. Guidelines for ESS Stakeholder Access, ([ESS-0062090](https://chess.esss.lu.se/enovia/link/ESS-0062090/21308.51166.50176.57369/valid))
3. General conduct and safety rules - ESS Conventional Facilities Worksite,   
   ([ESS-0063375](https://chess.esss.lu.se/enovia/link/ESS-0063375/21308.51166.55808.10849/valid))
4. ESS Rules for Electrical Safety, ([ESS-0012721](https://chess.esss.lu.se/enovia/link/ESS-0012721/21308.51166.512.29585/valid))
5. Procedure for authorizing work in ESS workspaces, ([ESS-0064035](https://chess.esss.lu.se/enovia/link/ESS-0064035/21308.51166.44800.46269/valid))
6. General information for contractors coming on the ESS site, ([ESS-0093892](https://chess.esss.lu.se/enovia/link/ESS-0093892/21308.51166.4608.20308/valid))
7. Installation responsibility matrix, ([ESS-0093460](https://chess.esss.lu.se/enovia/link/ESS-0093460/21308.51166.53504.55878/valid))
8. ESS accident/incident reporting form, ([ESS-0095940](https://chess.esss.lu.se/enovia/link/ESS-0095940/21308.51166.10240.25433/valid))
9. ESS rule for lock-out/tag-out (LOTO), ([ESS-0059903](https://chess.esss.lu.se/enovia/link/ESS-0059903/21308.51166.41472.36648/valid))
10. ESS construction site layout, ([ESS-0093979](https://chess.esss.lu.se/enovia/link/ESS-0093979/21308.51166.37376.21544/valid))
11. ESS Guideline for Oxygen Deficiency Hazard (ODH), ([ESS-0038692](https://chess.esss.lu.se/enovia/link/ESS-0038692/21308.51166.6144.45848/valid))
12. ESS Procedure for Laser Safety, ([ESS-0044704](https://chess.esss.lu.se/enovia/link/ESS-0044704/21308.51166.47104.12833/valid))
13. ESS Guideline for countering stress, ([ESS-0048472](https://chess.esss.lu.se/enovia/link/ESS-0048472/21308.51166.39936.50546/valid))
14. ESS Rules for Electrical Safety, ([ESS-0012721](https://chess.esss.lu.se/enovia/link/ESS-0012721/21308.51166.512.29585/valid))
15. Request to work outside of normal working hours, ([ESS-0147090](https://chess.esss.lu.se/enovia/link/ESS-0147090/21308.51166.54528.59056/valid))

# Document Revision history

| Revision | Reason for and description of change | Author | Date |
| --- | --- | --- | --- |
| 1 | First issue | <<Name>> | <<YYYY-MM-DD>> |
|  | <<Keep only full number revisions when approving document>> |  |  |
|  |  |  |  |

1. ESS Document Management System (<https://chess.esss.lu.se/>). [↑](#footnote-ref-1)