

## TABLE OF CONTENTS

WORK PERMITS.....	2
1 GENERAL .....	2
2 TYPES OF WORK PERMIT .....	2
3 ISSUERS.....	2
4 PERMIT RECIPIENTS.....	3
5 PERMIT REQUIREMENTS .....	3
5.1 Exceptions.....	3
6 COMMON REGULATIONS .....	4
6.1 Forms .....	4
6.2 Validity and management responsible .....	4
6.3 Protective equipment/action .....	5
6.3.1 Thunderstorms .....	5
6.3.2 Risk assessment .....	5
6.3.3 Scaffolding.....	5
6.3.4 Mobile cranes .....	5
6.4 Risk of exposure to chemicals .....	5
6.5 Visualisation of work permits .....	6
6.6 Working on /disassembly of process equipment.....	6
6.6.1 Regulations when working with electrical equipment .....	6
6.6.2 Connection permit for electrical isolation and disconnection of automation functions.....	6
6.6.3 Power source disconnection .....	7
6.7 End of work permits.....	7
7 COLD WORK .....	8
7.1 Examples of cold work.....	8
8 HOT WORK.....	8
8.1 Hot work within flammable areas .....	8
8.1.1 Hot work with requirements for fire guards and special approval .....	8
8.1.2 Hot work with requirements for fire guards and ordinary approval.....	9
8.2 Hot work outside flammable areas.....	9
9 ACCESS TO CONFINED SPACES .....	10
10 DEVIATIONS FROM THIS PROCEDURE .....	10

APPENDIX 1 List of people with authority to issue work permits

[Link](#)

APPENDIX 2 List of people with authority to issue hot work permits acc. to point 8.1.1

[Link](#)

APPENDIX 3 List of people with authority to receive permits

[Link](#)

APPENDIX 4 Periodic cold work permit form

[Link](#)

APPENDIX 5 Standby person, fire guard and electrical safety guard duties

Page 11

APPENDIX 6 Flowchart for work permit forms

Page 13

APPENDIX 7 Training for work permit receiver

[Link](#)

## WORK PERMITS

### 1 GENERAL

Repair, maintenance and new build work at the facility always means a greatly increased risk of injuries, environmental and material damage. It is therefore important to minimise this risk increase as far as is practicable. One way is to carefully follow the rules for a work permit for hazardous work within the company.

The work permit is an agreement between the issuer of the permit and permit recipient that a specified job is to be performed, at a specified place and for a specified time. Permits are used to control and coordinate the work to maintain safe working conditions. They ensure that foreseeable risks have been evaluated and that the appropriate protective equipment has been identified.

In the event that the scope of work changes, the work must be stopped and a new permit sought.

If a work is stopped because of failure to perform safely the permit issuer must be informed. The work can only be resumed once the permit issuer has given his/hers consent. A new or updated SJA and/or work permit may be required.

### 2 TYPES OF WORK PERMIT

- cold work permit
- hot work permit
- access to confined spaces
- periodical work permit

### 3 ISSUERS

Work permit issuers must have undergone training and be experienced in the work to be performed.

Responsibility of the issuer:

- Assess the protective equipment to be used
- Take into account other work and risks in the same area
- Take note of performed safety job analyses (if any) so that the recommended actions are included in the permit
- Ensure that the workplace is correctly decommissioned, prepared, controlled
- Inform the permit recipient about special risks, for example hand out safety sheets

Permits are issued by authorised personnel in the respective department, see Appendix 1.

For work permits for hot work with for example open flames that is to be carried out in flammable areas (section 8.1.1), approval must be given by the relevant head of department or other approved person according to Appendix 2. Company emergency planners also have the right to approve.

When working in electrical operation rooms (switchgear) or machine rooms, permits must be issued by qualified electrical personnel. There are exceptions to remedy simple electrical faults for personnel who have passed the requisite training according to [HMSS-502](#).

When working in instrumental appliance rooms, permits must be issued by qualified electrical or instrumental personnel.

## 4 PERMIT RECIPIENTS

To be the permit recipient for work permits you must have undergone training and have good knowledge in Swedish. In addition, you must be experienced in the work to be performed.

See appendix 3 for lists of approved permit recipients. Permit issuers are approved as permit recipients without any further training. For operators, the current permit recipient is included in the training card.

Responsibility of the permit recipient:

- Understand the scope and risk of the work
- Take note of carried out safety job analyses (if any) and ensure that other workers take note of this
- Ensure that everybody who is to carry out the work follows the requirements specified on the permit, including that Min Take 2 is carried out

In the event that the permit recipient does not have the requisite training, the permit issuer must ensure that the above is followed.

## 5 PERMIT REQUIREMENTS

Written permission is required for all repairs, maintenance and new build work within INOVYN Sverige AB areas.

### 5.1 Exceptions

- Work carried out by the department's own personnel, who have the necessary skills, (e.g. approved training cards).
- Work in workshops intended for maintenance, repair work and new build work (however, permits are required for work on the workshops' own equipment).
- Only verbal authorisation is required for servicing work on office machines.

- 
- Heads of departments can give personnel from other departments or contracts the same rights and obligations as personnel from their own department (periodic cold work). Forms can be obtained from the intranet's form service.
  - For access to containers or hot work, both within and outside the flammable areas, written permission is always required for everyone. Exceptions for the hot work permit requirement are made for mechanical, electrical and instrumentation workshops, operational departments' own workshops as well as the eastern end of the cell hall cellar.
  - Regulations for rectifying electrical faults according to [HMSS-502](#).

## 6 COMMON REGULATIONS

### 6.1 Forms

- Hot wok permit (red outer edging)
- Other work permits

The forms consist of four different coloured forms The following applies:

White original: stored at the work place

Pink copy: stored in the operation department's control room

Yellow copy: stored by fire guard, door guard or electrical safety guard if such has been appointed

Green copy: stored by issuer responsible

Appendix 6 shows flowcharts for managing work permit forms and copies.

### 6.2 Validity and management responsible

The work permit is only valid between the dates specified on the form (maximum 24 hours).

The permit only applies to the work specified on the form.

When the work is carried out by a third party there must be a contact for INOVYN. This can be a self-employed person or a consultant who manages projects for INOVYN.

The work permit is issued by stating the name of the person leading the work, the contractor company and the names of those persons carrying out the work. The person leading the work must be at INOVYN or be able to be reached by telephone immediately. If the person is not at INOVYN they must be able to get to the company within 60 minutes.

Permits that extend across shift changes or work release must be signed by current supervisor or relief staff (only the issuer's). The requirement only applies to permits for hot work requiring a fire guard and special authorisation (point 8.1.1) or in the event of intervention in the process.

In the event of an internal emergency alarm, all work permits become invalid. The work may not be resumed until after the "all clear" signal has been given, the permit must then be signed again by the responsible issuer.

### **6.3 Protective equipment/action**

Necessary precautions on the permit form must be marked and signed before the issuer's signature. Signatures by the operator, permit issuer and permit recipient mean that the actions are carried out or that you have undertaken to follow them during the work.

Upon issuance of work permits that apply in areas where helmets and small goggles are not obligatory, the permit issuer must still state this as required protective equipment if necessary.

#### **6.3.1 Thunderstorms**

Carefully evaluate the risks associated with working at height in the event of thunderstorms. It is recommended that work at height is avoided during thunderstorms.

#### **6.3.2 Risk assessment**

JSA (Job safety analysis) or checklist for safety issues must always be required of the contractor for blasting, high pressure flushing or using breathing equipment. In addition to the JSA performed by the contractor, assessment must also be performed of whether INEOS should carry out JSA (see [HMSS-331 Säker jobbanalys, Min Take2 och Riskinventering driftpersonal](#)).

A personal risk assessment must be made for operations personnel according to "Risk inventory operations personnel" for all non-routine work.

For other personnel, such as maintenance, a corresponding personal risk assessment must be made according to "Min Take 2" and must be carried out for all non-routine work.

#### **6.3.3 Scaffolding**

Scaffolding must always be cordoned off as a safeguard and must have fall protection as safety equipment.

#### **6.3.4 Mobile cranes**

When lifting with a mobile crane, a cordoned area is required as a safeguard where there is risk that the suspended load can be dropped.

### **6.4 Risk of exposure to chemicals**

Safety sheets must accompany work permits in terms of work involving the risk of exposure to chemicals.

For own employees, safety sheets are not required for chlorine, lye, hydrochloric acid, EDC and VCM if the issuer ascertains that the recipient has sufficient knowledge of the medium.

If any department still routinely wants safety sheets for the above chemicals, this must be stated in the local safety regulations.

## 6.5 Visualisation of work permits

The white copy of the work permit must be hung up in a yellow plastic pocket in close proximity to the workplace for all jobs.

On certain occasions this is not appropriate for practical reasons, for instance when driving a vehicle or changing a fluorescent lamp. In this case it is important that the person who executes the work keeps the work permit in close proximity.

The pink copy must be hung up in the control room.

## 6.6 Working on /disassembly of process equipment

When working on the process equipment, the work permit issuer must personally or through a representative, be onsite when the equipment is first opened by the maintenance personnel. This is to ensure that the system is correctly shut down and that you are in the right place.

When extending the permit, assessment must be made if there is need for a viewing on site.

A shutdown list with action signatures must be used for all equipment taken out of service for maintenance. See HMSS-353 Avställning av utrustning.

When disassembling equipment containing substances that are flammable, corrosive, toxic, or other media that may pose risk to health or the environment, blinds must be applied so that the media cannot accidentally come out.

### 6.6.1 Regulations when working with electrical equipment

During access to switchgear or apparatus rooms by personnel, who are not authorised according to [HMSS-502](#), the issuer of the work permit must be onsite to ensure that the safety working conditions are satisfactory. See [EAA-4.03-1](#)

Authorised electrical personnel who issued a work permit in electrical operations rooms (switchgear) or machine rooms must notify the operations department's shift supervisor that this is done.

Electrical safety guard must be onsite, see [EAA-4.03-2](#).

Work on a live installation is not permitted.

### 6.6.2 Connection permit for electrical isolation and disconnection of automation functions

See HMSS-351 Kopplingsbevis för elektrisk frånskiljning and HMSS-352 Kopplingsbevis tillfällig bortkoppling automationsfunktion.

### 6.6.3 Power source disconnection

When disconnecting the power source, the power must always be disconnected by locking. Exemptions from locking apply to air-operated automatic valves. Disconnection then occurs by closing off the air and then bleeding the valve. (Note that bleeding is important to eliminate the power in the system.)

When working on equipment that can be set in motion with the help of power other than electricity, e.g. air or hydraulics, the power source must be disconnected by locking. The lock must have a locking bracket so that the individuals and/or teams who carry out the work on the object can lock with their own key. Locking must be done with the key of the operating department and by each team that has its own work permit, as well as contractors who have their own work permit.

Regulations for locking safety switches are described in HMSS-503.

## 6.7 **End of work permits**

In addition to signing upon authorisation, the permit recipient must also sign the permit upon return.

There are two options for the recipient to sign off completed work. One is completed work for the day. This applies to work stretching over several days. The other is work completed and ready. The latter means completed delivery from the maintenance department. In both cases, the work place must be clean, which is also confirmed by signature.

Responsibility for the repair lies with the relevant maintenance department.

Issuers must always countersign returned work permits. Before the issuer signs "the received permit", the relevant person or representative must be satisfied that the work site is restored to an operationally correct state, and that it is clean. If this cannot be done immediately upon return, the checks must be made later during the night shift. At least the day after, notify the person who did not clean properly that he/she must ensure that it gets done. The checks can often not be made immediately after the work, but must be made as soon as possible. This means, for example, that blinds are removed, leak checks performed and test operation performed.

Work permits for completed work must always be submitted to the designated place at the issuing department.

Completed work permits are stored in the department three months. Always applies to the white sheet, and if necessary the fire and door guards' yellow sheet. In such cases, the current shift supervisor also signs the green sheet. If a JSA (Job Safety Analysis) or protocol from a confined space entry pre-meeting are filled out it shall be filed with the permits.

## 7 COLD WORK

### 7.1 Examples of cold work

- Inspection
- Cleaning
- Painting
- Connection and disconnection of cables
- Blind flanging
- Opening of manholes
- Review of pumps and measurement instruments
- Use of the air-powered, non-spark-generating, tools (e.g., air powered drill).

## 8 HOT WORK

Hot work in flammable areas must be avoided as far as possible. If this working method must be chosen, it is very important to create safe conditions for the work in question.

Work permits for hot work to be performed in flammable areas according to 8.1.1 below, require special approval, also see Section 3. Safety must be checked onsite by the approver in person and in close connection to the type of work.

Other work permits for hot work are issued by the authorised issuer from the operating department, respectively authorised person at the electrical department for switchgear and electrical department.

Hot work that must be performed outside the established departmental boundaries must, initially, be administered by the safety department.

Contractors performing hot work must have a valid certificate for hot work. INOVYN staff must have attended fire training at Bränningen.

Fire guard must have skills in accordance with [HMSS-337 Brand och inträdesvakt](#).

Area fire guards are permitted. Fire guards must be able to survey their monitoring areas at all times.

***For hot work described in 8.1.1 after surveillance shall be performed within two hours after the work is performed. If the work is within flammable areas the work permit must be signed.***

### 8.1 Hot work within flammable areas

#### 8.1.1 Hot work with requirements for fire guards and special approval

- Gas and electric welding



- Gas cutting and other work with naked flames
- Heat and spark-generating machining
- Dry sand blasting
- Works with high speed rotating tools
- Non-manned operation of internal combustion engines and non Ex-enclosed electric motors etc. (e.g. temporarily set-up machines)

Water for fires and hand fire extinguishers must be available.

#### 8.1.2 Hot work with requirements for fire guards and ordinary approval

- Driving motor vehicles in flammable areas. (The delivery and collection of goods does not need issued written permission if fire guards monitor this with explosion meters during the work)
- Temporary use of manned non certified equipment for explosive atmosphere.
- Drilling in concrete\*
- Connection and disconnection or measurement of live objects (does not apply to intrinsically safe circuit Exi).

\* water for fires and hand fire extinguishers must be available. If uncertain when selecting firefighting equipment, contact the Safety department.

#### 8.1.3 Fire guards

Fire guards must be equipped according to permit instructions. Generally speaking, that you cannot be your own fire guard. Exceptions may be granted when photographing on the condition that you:

- are fire guard trained
- are well known in the facility
- do not carry out any other work

Hot work permits and explosion meters of course apply as always, and the permit issuer always has the right to request a separate fire guard if he/she thinks it necessary.

## 8.2 Hot workoutside flammable areas

For the type of hot work described in 8.1.1 above, water for fires or hand fire extinguishers must be available outside the flammable area. If uncertain when selecting firefighting

equipment, contact the Safety department. If only hand fire extinguishers are selected, there must be two available.

When working outside the flammable areas that are deemed critical, and when the person carrying out the work has difficulty in supervising the surroundings, a fire guard must be in place.

During hot work on pipe bridges where the permit issuer deems that a fire guard is required, the fire guard must be on the actual pipe bridge. Assessment must also be made, if necessary, of whether a fire guard is required at ground level. There may be cases where this is appropriate for supervision in view of sparks.

### **8.3 Requirements for portable fire extinguishers and fire hose**

Use water if available. If water is available use a fire hose with fire nozzle.

If more than two lengths of fire hose is required, a thick fire hose shall be used. NOTE! Thinner hose than 38 mm is not allowed.

If portable fire extinguisher is used at hot work, two powder extinguishers on each 12 kg must be available.

## **9 ACCESS TO CONFINED SPACES**

See [HMSS-342 Inträde i slutna utrymmen](#)

## **10 DEVIATIONS FROM THIS PROCEDURE**

Any deviations from these instructions during, for example maintenance shutdowns, can only be approved in writing by the production manager. Deviations may only apply to a defined area and time period.

## **APPENDIX 5 STANDBY PERSONS, FIRE GUARDS AND ELECTRICAL SAFETY GUARDS**

Generally, applies to ensure that general protection and safety rules are followed.

### **IT IS THE RESPONSIBILITY OF THE STANDBY PERSON**

- to ensure that the instructions marked in the permitted are fulfilled.
- to be outside the door opening (within visual and/or hearing contact) when work is being carried out.
- to be familiar with how the prescribed breathing equipment is used.
- to be equipped with a communications radio (for contact with the control room or similar).
- to be equipped with measuring equipment for checking oxygen levels and be familiar with how it works.
- to call for help in the event of an emergency.
- to sign off after completed work or a completed work day.

### **IT IS THE RESPONSIBILITY OF THE FIRE GUARD**

- to ensure that the instructions marked in the permitted are fulfilled.
- to be in the relevant area and have an overview of it during the prescribed time.
- to be equipped with a communications radio (for contact with the control room or similar).
- to be equipped with an explosion meter and be familiar with how it works.
- to monitor the relevant area with regard to fire, explosion and gas hazards.
- to move personnel to safety in the event of an Emergency alarm.
- to know where the nearest alarm cabinet is and how it is used.
- to check that no welding sparks or hot material that could ignite remain after completed work or during interruptions to work.
- ensure that unattended electrical equipment is switched off at the end of work or in event of interruption.
- to ensure that fire safety equipment is replaced after completed work.
- to sign off after completed work or a completed work day.

### **ELECTRICAL SAFETY GUARD**

- Approved electrical safety guards at INOVYN Sverige are stated in Appendix in EUI-S:1.
- Unless otherwise agreed, the electrical safety guard is the electrical safety supervisor.

### **Before starting work**

- If there are two or more electrical safety guards, it must be mutually agreed prior to starting work who the electrical safety supervisor is going to be.
- A review of the switchgear at each electrical safety guard's assignment must be undertaken.
- A review of the work to be carried out must be undertaken.
- A review of what is to be disconnected must be undertaken.
- A review of what cordons must be erected must be undertaken.
- A review of what shields against live parts must be erected must be undertaken.
- Check safety equipment and its location.
- Check where the nearest emergency telephone is and where the nearest ordinary phone is.

- Ascertain how and where to interrupt all switchgear in the switchgear room.
- A review of the guard's suitable location to be able to see all of the work must be undertaken. If work is performed in a cable cellar for example, it must be considered whether two guards are required.
- The electrical safety guard checks with the person(s) who is/are to be supervised so that you agree what is to be done. If you do not agree, a supervisor must be summoned.

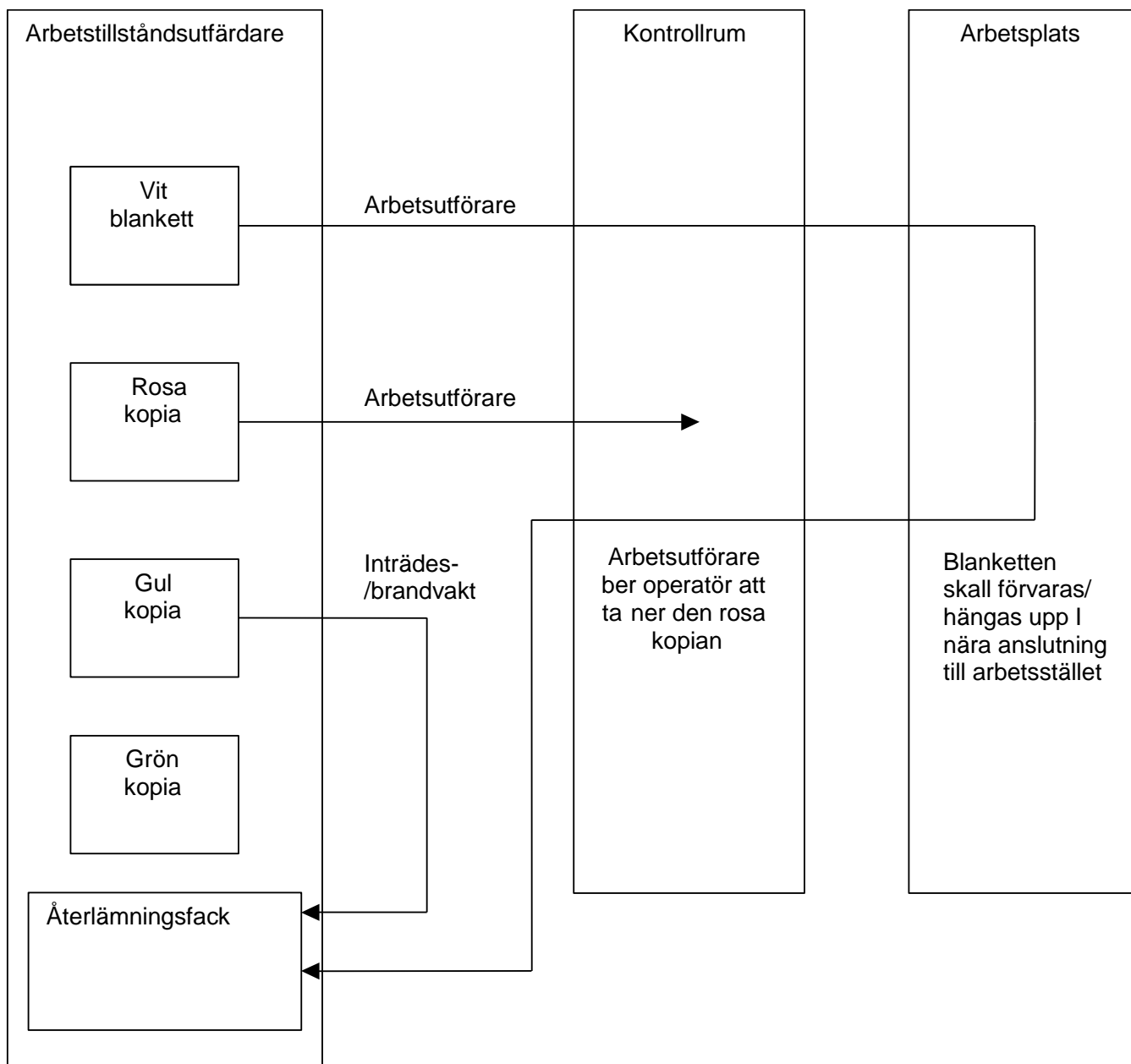
#### **During work**

- The entire job must be monitored.
- Immediately stop work in the event of any uncertainties and, if necessary summon supervisors.

#### **After work**

- Check that the work has been carried out as agreed.
- Sign off.

**APPENDIX 6**                      **FLOWCHARTS FOR WORK PERMIT FORMS**



White and any yellow forms must be archived at the respective operations department together with the JSA (Job Safety Analysis) and protocol from confined space entry pre-meeting for three months.