Borealis TA2023 Turnaround guide

Turnaround manager's greetings

Welcome to the Borealis TA2023 turnaround.
Borealis major turnaround involves Borealis` olefin and po-production areas. We want every day of the turnaround to be safe, and we expect everyone to return home in good health. To achieve this, we need everyone's contribution during the entire turnaround. Do not compromise on safe work practices under any circumstances.

There are more than 2,000 people working on the turnaround site, and it is everyone's duty to follow these rules and cooperate with others. Safety is our shared responsibility and, whenever necessary, it is everyone's duty to intervene in unsafe working practices and give advice on safety. We expect you to respect and appreciate everyone working on the turnaround site. Keep in mind, that **interfering is caring**. At Borealis, during the turnaround and at all times, our health and safety goal is zero incidents. This is the safety guide to the TA2023 turnaround. Please read it carefully. We expect your full contribution to make the turnaround safe for everyone. Our motto is:
If we can't do it safely, we don't do it at all!

Have a safe turnaround!

Antti Tapio
Turnaround manager

Turnaround goals

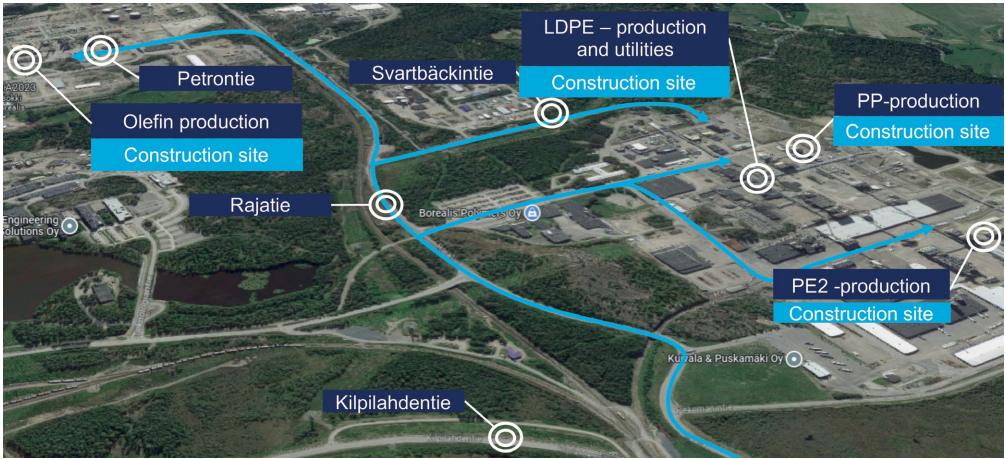
We have set the following goals for the turnaround as a guideline for everyday work and decision-making. We expect everyone working on the turnaround site to commit to these goals:

GOALS OF THE TURNAROUND

- Zero accident
- Zero process safety incidents
- Zero environmental incidents
- Excellent cleanliness and order of the construction site
- Active safety observation and reporting
- A safe and reliable running period until the next turnaround with high work quality

The turnaround site: basic issues

During the turnaround, all Borealis plants involved in the project are categorised as construction sites. Among other laws and regulations, working on construction sites is governed by the Finnish Government Decree on the Safety of Construction Work 205/2009. Every contractor must be familiar with the contents of this decree and comply with its terms.



Hazards and dangers on the turnaround site

On the turnaround site there are several tasks with increased risks to work safety. The machinery and equipment of the processing units are drained and purged with nitrogen or steam to remove all hydrocarbons before the turnaround work tasks.

Machines and components that contain hydrocarbons will be clearly identified and isolated. All work sites will be set up in a safe state before work permits are issued.

Work areas are prepared so that they are in a safe status before work permits are issued and each work permit defines appropriate special safety precautions for the work task.

Hazards and dangers on the construction site

In addition to the Borealis HSEQ guidelines, the work permit and the instructions in the Task risk assessment (TRA), the contractor must pay attention to the usual dangers on construction sites and construction work and take them into account when planning and performing work tasks.

The contractor must make a Safety plan of action (SPA) for every work task and present it when the work permit is issued.

Special risks on the turnaround site include:

- Special traffic arrangements on the site as well as heavy traffic and the large number of people.
- Demolition work (confined spaces, lifting and transport operations, effects of operations on other people working at the same site, increased risk of fire, etc.).
- Radiation sources are used in inspections.
- Worker exhaustion because of overwork (adequate resting time must be ensured).
- Working at height – risk of falling, risk of dropping objects (temporary removal of floor gratings, etc.)
- Danger of exposure to toxic and corrosive chemicals, dust, flammable and pyrophoric chemicals.
- Inert gases with a risk of asphyxiation, such as nitrogen and various protective inert gases.
- Exposure to noise.
- Handling chemicals (purging, catalysts, washing).

Nitrogen

Nitrogen is used everywhere in the Borealis factory area.

Nitrogen is an odourless, colourless and tasteless gas which makes it very difficult to detect!

High concentration of nitrogen in the air causes lack of oxygen which may result in unconsciousness or death.

Taking just one breath of nitrogen can stop your breathing and knock you unconscious without warning.

Always make sure that oxygen level is measured before entering a confined space.

Nitrogen is an inert gas and it is used in purging process equipment and pipelines to remove hydrocarbons and oxygen.

There may be hydrogen anywhere and everywhere on the construction site. You are allowed to use nitrogen by permission of the production plant only. The hazard of nitrogen asphyxiation is extremely high.
Nitrogen ports are identified with light brown paint and a tag.

Use of nitrogen, steam, water and air is allowed only by permission of production plant.

Because of these chemicals, you are not allowed to bring foodstuffs or consume them in the process area.

Contractors must report all chemicals they use to a representative of Borealis and keep the list up to date at the work site.

Chemicals used in olefin production

Acetone
Flammable liquid.

Acetophenone
Toxic substance. Suspected of causing genetic defects. Can be fatal if absorbed through the skin.

Phenol
Toxic substance. Suspected of causing genetic defects. Can be fatal if absorbed through the skin.

Ethene (both liquid and gas)
Colourless, faintly sweet-tasting, lighter than air and extremely flammable gas (ethene fumes can cause sleepiness).

Liquid ethene, propene and 1,3-butadiene can cause frostbite in contact with skin (because of rapid evaporation).

Propene (both liquid and gas)
Extremely flammable, colourless and odourless gas. Fumes are heavier than air and they spread out on the floor level.

1-Butadiene
1,3-butadiene is heavier than air and an extremely flammable gas. If 1,3 butadiene reacts with oxygen it forms extremely explosive peroxides. If breathed in, 1,3-butadiene can cause cancer and genetic defects.

Benzene-containing hydrocarbons
Benzene is a clear, colourless liquid with a sweet smell typical of aromatic compounds. It irritates the skin and respiratory passages. In liquefied form benzene causes skin dryness. Exposure to benzene can have harmful effects on blood-forming organs, the liver and the immune system.

Lye
Lye is a strong alkaline chemical which causes severe skin burns and eye damage (and damage to mucous membranes). Reacts violently with acids and corrodes metals in humid conditions.

Many hazardous substances are used and stored in the plastics production area!

Chemicals used in plastics production

Ethene
Colourless, extremely flammable and faintly sweet-smelling gas. Ethene is lighter than air and its fumes can cause sleepiness.

Propane/Propene
Extremely flammable, colourless and odourless gas. Fumes are heavier than air and they spread out on the floor level.

1-Butene
Extremely flammable and colourless gas/liquid that smells like olefin. 1-butene is heavier than air. Fumes may cause sleepiness.

Contractors must report all chemicals they use to a representative of Borealis and keep the list up to date at the work site.

Triethylaluminium, TEAL

TEAL is clear and colourless, self-igniting liquid. It reacts violently with oxygen and humidity. It must always be handled and stored under an inert gas (nitrogen). TEAL is extremely corrosive.

Operating and repairing all equipment is regulated strictly.

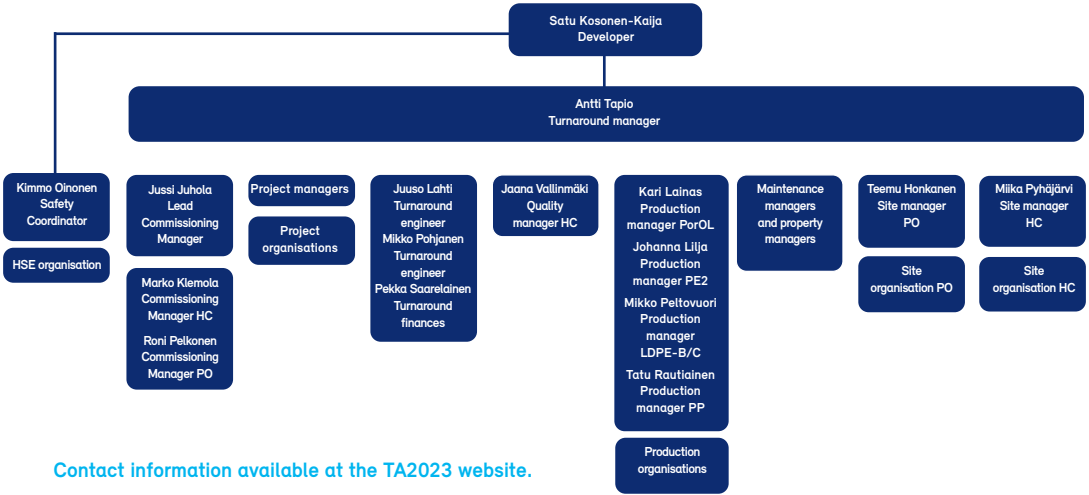
A TEAL fire must never be extinguished with water.

If you work at a TEAL site, a representative of the production plant must be present at all times. Always work at a TEAL site in pairs (never alone).

When working at a TEAL site, always use special TEAL protective clothing.

TEAL protective clothing.

TA2023 Turnaround management organisation



Contact information available at the TA2023 website.

If you are unclear about anything, Borealis personnel are always there to help you.

Borealis organisation on the turnaround site

You will see many Borealis employees on the turnaround site. You will recognise them by their reflective vests with special identification:

Production personnel wear a yellow reflective vest with the identification: **TUOTANTO/PRODUCTION** and **ALUEVASTAAVA/AREA RESPONSIBLE**

HSE teams wear a yellow reflective vest with the identification: **TURVALLISUUS/SAFETY**

Quality teams wear a yellow reflective vest with the identification: **LAATU/QUALITY**

Safety guards wear an orange reflective vest with the identification: **TURVALLISUUSVAHTI/SAFETY GUARD**. Safety guards act both as a entry guards and fire guards on the turnaround site.

Visitors to the turnaround site wear a yellow vest with the identification: **VIERAILIJA/VISITOR**

Life-saving rules

At Borealis, the safe management of daily work and projects is the key to our production excellence.

Our life-saving rules and their basic requirements are non-negotiable, because they prevent fatal accidents and dangerous situations.

Every worker, contractor and service provider must obey these rules everywhere and at all times.

Our life-saving rules are mandatory. There are no exceptions.

If we can't do it safely, we do not do it at all!

Work Authorization

Work with a valid permit when required

Energy Isolation

Verify isolation and zero energy before work begins

Bypassing Safety Controls

Obtain authorization before overriding or disabling safety controls

Hot Work

Control flammables and ignition sources

Confined Space

Obtain authorization before entering a confined space

Working at Height

Protect yourself against a fall when working at height (above 1.8m)

Safe Mechanical Lifting

Plan lifting operations and control the area

Line of Fire

Keep yourself and others out of the line of fire

Driving

Follow safe driving and traffic rules

LIFE-SAVING RULES

If we can't do it safely, we don't do it at all!

Work Authorization

Work with a valid permit when required

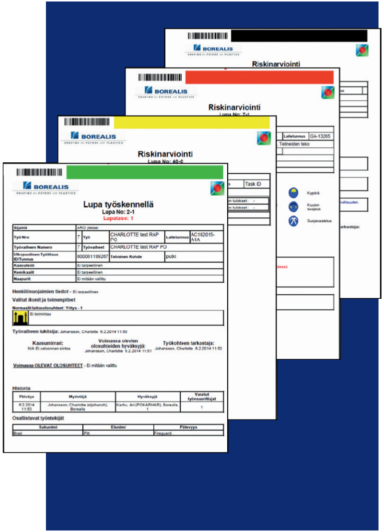
- I am authorized to perform the work by a fully signed and valid permit
- I understand the permit and have confirmed that hazards are controlled, and it is safe to start
- I stop and reassess if conditions change
- I ensure a physical handover of permits to work at the place of execution as required

The basics of work authorisation

Life-saving rule "**Work authorisation**" is the key to risk management. Work permit is our primary tool for identifying hazards and for assessing risks. The work permit system prevents conflicting tasks and ensures that simultaneous tasks are managed properly and safely. Workers must make sure that they have a work permit for the task you perform and that the work permit is valid. A valid work permit must be present at the work site at all times during work.

The person who receives the work permit must go through the contents of the permit with everyone who will participate in the task (the toolbox talk). Everyone must understand both the task and possible hazards, as well as the precautions to avoid dangerous situations. Active participation in the toolbox talk is obligatory before starting the work.

If you are unclear about something, you must ask and make sure that everyone understands the task. If conditions at the work site or in the general area change overnight and you are not sure if it is safe to continue, contact the issuer of the work permit. The work permit is the cornerstone of safe work for you and your team.



Written work permit

All work tasks are subject to written work permit, which are issued using the electronic RAP system.

Work permits are categorized into four risk categories. Accepting a work permit requires special training. After you have completed the training, you get a user ID to use the RAP system.

Entry permit is issued by the production supervisor.

During the work, comply with all the conditions written in the work permit:

- Use tools and equipment specified in the work permit.
- Use appropriate protective equipment and take other necessary precautions.
- Keep to the site or area specified in the work permit (pay special attention to EX areas).

The supervisor/the acceptor of the work permit is responsible for going through the contents of the work permit with the persons who will perform the work. The workers confirm their attendance with their signature.

When there are changes during the work (if, for example, you need other tools than those specified in the work permit), always contact the work permit issuer.

Safety plan of action (SPA)

The contractor must prepare a written safety plan of action (SPA) for all tasks that require a work permit.

The contractor's supervisor prepares the safety plan of action with the workers before applying for the work permit. If the work permit contains conditions that must be taken into account when assessing the risks of the task, the SPA must be updated.

The issuer of the work permit makes sure that the contractor has prepared the SPA when applying for a work permit.

You must go through the SPA at the work site with all the workers before starting the work. (All workers must also sign the SPA).

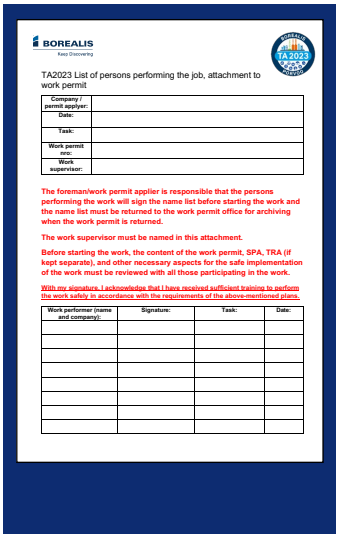
Before work begins: toolbox talk

Before starting the work at the site, the work permit acceptor and the workers must together go through the work task, the contents of the work permit, the SPA and the task risk assessment (TRA), if it has been made.

If a safety guard is required (an entry guard or a fire guard), they must attend the toolbox talk.

The workers and the safety guard sign a printed list of names (which must be kept at the work site as an attachment to the work permit). The list must be signed every time the work permit is updated, unless it is updated on the same day and both work conditions and the workers remain unchanged.

The signed work permit must be kept at the work site at all times.
By signing the work permit the workers confirm that they have gone through the conditions and attachments of the work permit and that they **understand** everything.



BOREALIS
Keep Discovering

TA2023 List of persons performing the job, attachment to work permit

Company / permit applyer:	
Date:	
Task:	
Work permit nmr:	
Work supervisor:	

The foreman/work permit applier is responsible that the persons performing the work will sign the name list before starting the work and the name list must be returned to the work permit office for archiving when the work permit is returned.

The work supervisor must be named in this attachment.

Before starting the work, the content of the work permit, SPA, TRA (if kept separate), and other necessary aspects for the safe implementation of the work must be reviewed with all those participating in the work.

With my signature, I acknowledge that I have received sufficient training to perform the work safely in accordance with the requirements of the above-mentioned plans.

Work performer (name and company):	Signature:	Task:	Date:

Attaching the names of workers to the work permit

A list of names attached to the work permit is obligatory during the TA2023.

Standard sheets for name lists are supplied to contractors before the turnaround starts. Sheets are also available at the work permit offices or you can download them from the TA2023 homepage.

The list of names must be submitted to the work permit office. It is attached to the work permit.

All the workers performing the work task must be on the list and they must sign the list before starting the work.

After the work is finished, the signed list of names and the work permit must be returned to the work permit office.

Careful preparation ensures that the work permit process runs smoothly.

High risk work requires special precautions.

Task risk assessment TRA

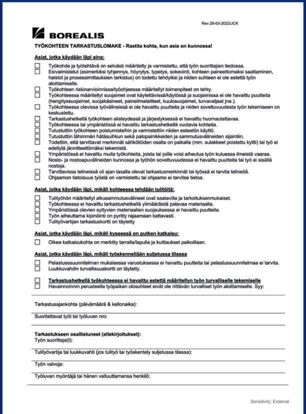
A task risk assessment (TRA) must be made before every high-risk work task.

TRA is made well in advance before starting the work. It ensures safe coordination of individual work tasks at the work site.

Chemicals used by the contractor must be taken into account in the TRA. The contractor must report all the chemicals they bring to the construction site to the issuer of the work permit. Safety data sheets must be provided for the chemicals, and all chemical containers must be properly labelled.

Every worker must understand the process of task risk assessment. The contractor's supervisor/foreman is responsible for going through the TRA and its conditions together with all the workers who will perform the task.

Work authorisation



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BOREALIS

TYÖKOHTEEN TARKASTUSLOMAKE - Rastita kohta, kun asia on kunnossa!

Asiat, jotka käydään läpi aina:

- ☐ Työkohde ja työtehtävä on selvästi määritelty ja varmistettu, että työn suorittajien tiedossa.
- ☐ Esivalmistelut (esimerkiksi tyhjennys, höyrytys, typetys, sokeointi, kohteen paineettomaksi saattaminen, haistot ja prosessimittauksien tarkistus) on todettu tehdyiksi ja niiden suhteen ei ole estettä työn aloittamiselle.
- ☐ Työkohteen riskinarvioinnissa/työohjeessa määritellyt toimenpiteet on tehty.
- ☐ Työkohteessa määritellyt suojaimet ovat käytettävissä/käytössä ja suojaimissa ei ole havaittu puutteita (hengityssuojaimet, suojakäsineet, paineilmalaitteet, kuulosuojaimet, turvavaljaat jne.).
- ☐ Työkohteessa olevissa työvälineissä ei ole havaittu puutteita ja niiden soveltuvuudesta työn tekemiseen on keskusteltu.
- ☐ Tarkastushetkellä työkohteen siisteydessä ja järjestyksessä ei havaittu huomautettavaa.
- ☐ Työkohteessa tai ympäristössä ei havaittu tarkastushetkellä vuotavia kohteita.
- ☐ Tutustuttiin työkohteen poistumisteihin ja varmistettiin niiden esteetön käyttö.
- ☐ Tutustuttiin lähimmän hätäsuihkun sekä palopainikkeiden ja sammutusvälineiden sijaintiin.
- ☐ Todettiin, että tarvittavat merkinnät sähkötöiden osalta on paikalla (mm. sulakkeet poistettu kyltti) tai työ ei edellytä jännitteettömäksi tekemistä.
- ☐ Ympäristössä ei havaittu muita työkohteita, joista tai joille voisi aiheutua työn kuluessa ilmeistä vaaraa.
- ☐ Nosto- ja nostoapuvälineiden kunnossa ja työhön soveltuvuudessa ei havaittu puutteita tai työ ei sisällä nostoja.
- ☐ Tarvittavissa telineissä oli ajan tasalla olevat tarkastusmerkinnät tai työssä ei tarvita telineitä.
- ☐ Ohjaamon tietoisuus työstä on varmistettu tai ohjaamo ei tarvitse tietoa.

Asiat, jotka käydään läpi, mikäli kohteessa tehdään tulitöitä:

- ☐ Tulityöhön määritellyt alkusammutusvälineet ovat saatavilla ja tarkoituksenmukaiset.
- ☐ Työkohteessa ei havaittu tarkastushetkellä ylimääräistä palavaa materiaalia.
- ☐ Ympäristössä olevien syttyvien materiaalien suojauksessa ei havaittu puutteita.
- ☐ Työn aiheuttama kipinöinti on pyritty rajaamaan kattavasti.
- ☐ Tulityövartijan tarkastuskortti on täytetty

Asiat, jotka käydään läpi, mikäli kyseessä on putken katkaisu:

- ☐ Oikea katkaisukohta on merkitty tarralla/lapulla ja kuittaukset paikoillaan.

Asiat, jotka käydään läpi, mikäli työskennellään suljetussa tilassa

- ☐ Pelastusssuunnitelman mukaisessa varustuksessa ei havaittu puutteita tai pelastussuunnitelmaa ei tarvita.
- ☐ Luukkuvahdin turvallisuuskortti on täytetty.

- ☐ **Tarkastushetkellä työkohteessa ei havaittu estettä määritellyn työn turvalliselle tekemiselle**
- ☐ Havainnoinnin perusteella työpaikan olosuhteet eivät ole riittävän turvalliset työn aloittamiselle. Syy:

Tarkastusajankohta (päivämäärä & kellonaika):

Suoritettavat työt tai työluvan nro:

Tarkastukseen osallistuneet (allekirjoitukset):
Työn suorittaja(t):

Tulityövartija tai luukkuvahti (jos tulityö tai työskentely suljetussa tilassa):

Työn valvoja:

Työluvan myöntäjä tai hänen valtuuttamansa henkilö:

Sensitivity: External

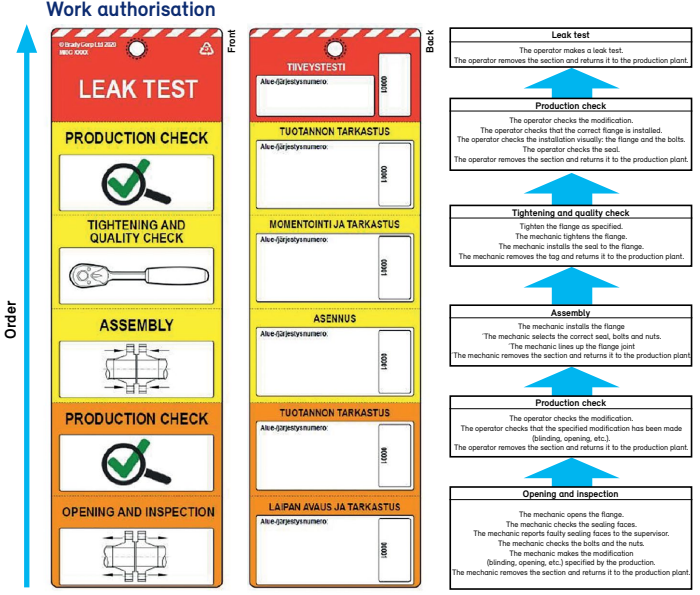
Work site inspection

The purpose of work site inspection is to identify dangerous conditions and shortcomings that may compromise safety – before starting the work.

Inspection of high-risk tasks and work sites is always documented in writing by Borealis personnel. Work may not be started before a verbal permission is given.

Take into account conditions that may change during the work. If conditions become unsafe, work must be stopped.

Report the interruption and the change of conditions to the work permit issuer and your supervisor.



Tagging procedure for opening flanges

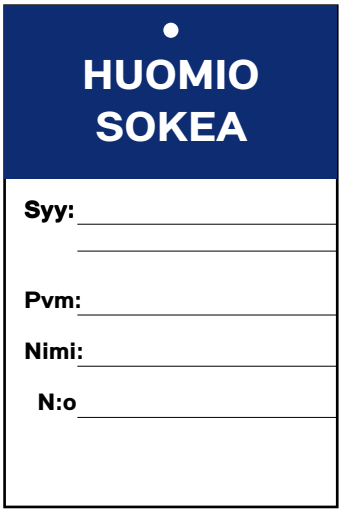
Flanges to be blinded are identified with a six-part tag.

The same six-part tags are used for flanges, that are not blinded but opened, for example.

Tagging ensures safety at the work site and during start-up.

See the attached flange tag and the tagging procedure.

Work authorisation



Blinding of flanges

The flanges to be blinded, where in the up/downstream of the flange exists some process medium, like chemicals, hydrocarbons, steam etc. shall be attached with a tag **"HUOMIO SOKEA"** .

In case of flanges tagged with **"HUOMIO SOKEA"** the removal of the blind is strictly forbidden without a dedicated permit from production!

In actual blinding work:

- Be aware: when opening the flange, you can not be 100% sure that there are no residuals of process medium, despite flushing/ purging of the pipeline.
- Gas testing with detector before installing the blind.
- Protection of the surfaces of the flanges.
- Gasket to be installed to the both sides of the blind.

Cutting a pipeline

Cutting a process pipeline is always risky

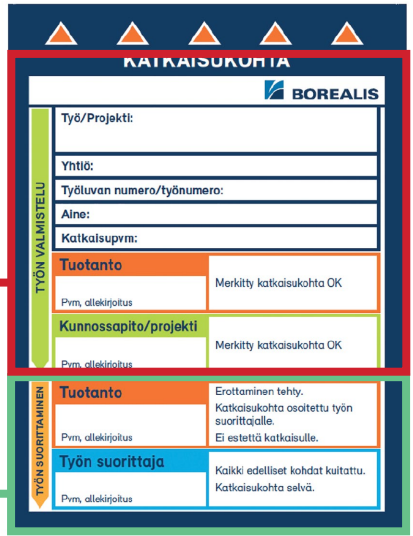
The biggest risks are cutting the wrong pipeline or inadequate preparation of the cutting process which can lead to uncontrolled release of energy or hazardous substance.

Never cut pipeline if the cut-off point is not clearly marked.

Borealis personnel gives always the final permit to start the cutting at the field in the exact location.

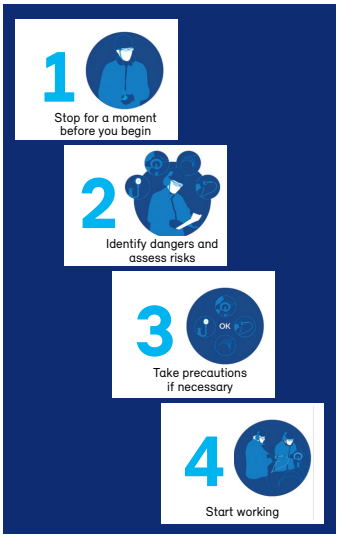
Preparation of task
During a field inspection round: identify the cutting point or points with a tag/sticker that has been filled in according to figure 1 and sign the first section of the task.

Performing the task
The operator or other representative of the production plant. Person performing the task = contractor who cuts the pipe.



Task/project: Short description of the task or other identifier.
Company: Company that performs the cutting operation.
Work permit number/task number: The identification number of the work permit or task.
Substance: The substance that is normally transported in the pipeline.
Cutting date: Date of cutting operation.

Signatures:
Preparation of task:
(attaching the sticker).
Representative of the production plant.
Representative of maintenance/project.
Performing the task
The operator or other representative of the production plant.
Person performing the task = contractor who cuts the pipe.



Last-minute risk assessment

Last-minute risk assessment is the key to preventing accidents and unwanted incidents:

- Do you have the permission to start the work?
- Do you know how to perform the work safely? Are you familiar with working instructions?
- Do you have all the tools, help and safety equipment you need? Are they in working order and are they suitable to the task?
- Do you have the protective clothing and personal protective equipment that you need when performing the task?
- Is the work site safe and in good order? Are you sure that nearby activities are not a hazard to you?
- Are you sure that your work is not a hazard to people working or moving near you?
- Do you know the dangers involved in the task?
- Do you know what to do in an emergency?
- Before you begin, concentrate in the task.
- Ask help if you need it.

LIFE-SAVING RULES

If we can't do it safely, we don't do it at all!

Energy Isolation

Verify isolation and zero energy before work begins

- I have identified all energy sources (e.g., pressure, heat, electricity, mechanical, chemical reactions)
- I confirm that hazardous energy sources have been isolated, locked, and tagged
- I have checked there is zero energy and tested for residual or stored energy

Energy isolation

The basics of energy isolation

Life-saving rule **"Energy isolation"** means that energy isolation and zero energy are verified before work begins. Energy sources include, for example, electricity, heat, pressure, mechanical energy, and chemical reactions. All these energy sources must be identified and isolated appropriately. Every instance of isolation must be documented, verified and communicated.

The LOTOTO procedure – lock-out, tag-out and try-out – is one of the safest ways to isolate equipment before maintenance work or repairs. The procedure is essential to protecting people from accidental re-energization of equipment and potential injury or fatality.

Energy isolation begins with shutting down the factory, a section of the factory or shutting down the necessary equipment correctly. Isolation equipment (valves, switches, locks, etc.) are used to isolate equipment. All the necessary tagging must be done in the field. Energy isolation must be verified, including residual and potential energy. Finally, at the try-out stage, you try to restart the equipment. You can continue only after you have made sure that the isolated equipment cannot be restarted.

While working we must make sure that sudden energy sources will not cause injuries. Energy sources such as electricity, heat, pressure, and chemical or mechanical energy can cause serious accidents leading to expensive repairs, interruption of production and even fatalities. Energy isolation saves lives!

Energy isolation


DANGER
This Lockout Device May Only Be Removed By:
Name:
Dept:
Expected Completion:


DANGER
LOCKED OUT
DO NOT OPERATE
PROPRIETE.DE

LIFE-SAVING RULES

If we can't do it safely, we don't do it at all!

Bypassing Safety Controls

Obtain authorization before overriding or disabling safety controls

- I understand safety-critical equipment and procedures which apply to my task
- I obtain authorization before:
  - disabling or overriding safety equipment
  - deviating from procedures
  - crossing a barrier
- I secure adequate compensating measures for the duration of the bypass and limit the bypass time to a minimum
- I ensure reinstatement to the original design function

Bypassing safety controls

The basics of bypassing safety controls

Life-saving rule **"Bypassing Safety Controls"** is an essential part of process safety. It refers to correct and timely operation of safety-critical elements such as burners, flame detectors, tank level detectors, pressure and temperature sensors and emergency shutdown systems. The purpose of safety-critical elements is to prevent and control serious accidents. A malfunction or failure of a safety-critical element can cause serious accidents such as explosion, fire, release of hazardous substances, and material damage. Serious physical injuries are also a risk.

Sometimes safety-critical controls must be bypassed or disabled temporarily. For example, if one temperature sensor gives incorrect readings, they are bypassed temporarily. Bypassing or disabling safety-critical controls is allowed only with a valid work permit or authorisation. In addition, you must obtain authorisation if you deviate from instructions or override safety controls. In all these cases you must take necessary precautions for the entire duration of the bypass.

Bypassing safety controls must be kept as short as possible. When bypassing is no longer necessary, the equipment or system must be restored to its original design function. Documenting the bypass and communicating about the operation to everyone who is involved is obligatory as in all tasks that require work permit.

Avoid bypassing safety-critical controls if possible. Do not hesitate to shut down a process if it is safer than bypassing controls or deviating from instructions. If this is not the case, obtain appropriate authorisation, make the necessary precautions and limit the bypass time to a minimum.

LIFE-SAVING RULES

If we can't do it safely, we don't do it at all!

Hot Work

Control flammables and ignition sources

- I identify and control ignition sources
- Before starting any hot work:
  - I have considered alternative work methods (other than hot work) and areas
  - I confirm flammable material has been removed or isolated
  - I obtain authorization
- Before starting hot work in a hazardous area, I confirm:
  - gas testing has been performed
  - gas will be monitored continually
  - mitigation measures in the field are in place

Hot work

The basics of hot work

Life-saving rule **"Hot Work"** applies to all tasks that create a source of ignition such as open flame, heat, electric arc, sparks, or hot surfaces. Ignition sources can start a fire or set off an explosion if there is flammable material or an explosive mixture of air at the site. Absolute safety is required when performing any kind of hot work in our process area, because there may be hydrocarbons, chemicals or dust in designated danger zones. If flammable materials or ignition sources are present at the site, both must be carefully identified and watched. Proper preparation for hot work contains the following steps: First consider, if the task can be performed without hot work or in some other place. Then make sure that flammable material is removed from the work site or isolated properly (cover it up, for example).

You must always obtain authorisation for hot work to ensure the necessary precautions (for example, uninterrupted gas monitoring, the availability of fire protection and fire-fighting equipment) for safe work.

Before cutting, for example, a pipe, make sure that you are working at the correct site and that all preparations have been made. Only then you can start the work.

Before starting hot work, inspect the work site carefully with the safety guard and the workers and make a last-minute risk assessment.

There are danger zones in our plants and other operational environments. This means areas, where there may be a flammable mixture of air. In spite of this, performing hot work is sometimes necessary. Therefore, hot work must be always planned and supervised carefully. Unnecessary risks must be always avoided.

Securing hot work safety

Before you begin, always make sure that the site is adequately protected. Check floor gratings and other structures through which sparks may fly.

Make sure that fire-fighting equipment is available at the site.

Make sure that fire hydrants can be accessed freely.

Keep the work site tidy and make sure that there is no unnecessary fire load at the site

Fire guard role and responsibilities

- Monitors the safety of hot work.
- Is aware of the risks of hot work.
- Monitors the changing fire risks during hot work.
- Removes flammable and hazardous materials from the work site.
- Interrupts hot work in case of imminent hazard or damage. Calls for help if necessary.

- Together with the person performing the hot work, the fire guard anticipates and makes sure that sparks, hot splashes, etc. do not ignite fire, cause dangerous situations or damage equipment or structures.
- Together with the person performing the hot work, the fire guard makes sure that the work site is in proper order when the work begins and during the work.
- Together with the person performing the hot work, the fire guard participates in the safety check at the work site and goes through the hot work permit.
- Contacts the supervisor or the issuer of the work permit if conditions change.
- The fire guard fills in the occupational safety card of fire guard in every work site that they monitor.
- Reports all safety shortcomings.
- After the hot work is finished, the fire guard is responsible for continuing the fire-watch for at least 1 hour.
- When leaving the site, the fire guard must hand over the site by reporting to the issuer of the work permit.

LIFE-SAVING RULES

If we can't do it safely, we don't do it at all!

Confined Space

Obtain authorization before entering a confined space

- I confirm energy sources are isolated
- I confirm the atmosphere has been tested and is monitored
- I confirm there is a qualified entry guard always present, and a rescue plan is in place
- I obtain written authorization to enter
- I make sure that openings to confined spaces, which are not used, are barricaded

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Confined spaces

The basics of confined spaces

Life-saving rule **"Confined space"** provides basic guidelines for ensuring safe work for people who must enter a colon, vessel, tank, inspection pit, excavation, or ditch.

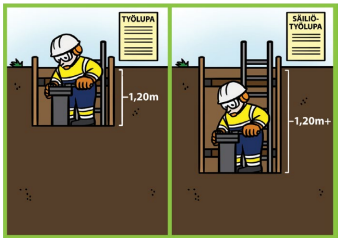
In order to enter a confined space you need a valid entry permit and a work permit that specifies the necessary precautions. Precautions include appropriate isolation of energy sources according to the life-saving rule on energy isolation.

Before entering, the atmosphere of the confined space must be tested by measuring it. During the work the atmosphere must be monitored without interruption. Persons entering a confined space must use appropriate personal protective equipment the way they are designed to be used. Before entering, the protective equipment must be checked according to the "four eyes principle".

A trained safety guard must be present at the entrance of the confined space (for example, a manhole) during the entire duration of the work.

An appropriate rescue plan is obligatory. All entrances to confined spaces must be closed immediately, when there's nobody working inside. If this is not possible, entrance to the confined space must be blocked with a physical barrier so that no one can even try to go inside.

Working in a confined space involves many dangers. Therefore, appropriate planning and authorisation are obligatory. One of the most important precautions is communication during the work. Members of the team must trust each other and be confident that they know how to act safely in unexpected situations.



Working in a confined space

- You must have a valid work permit.
- You must have a valid entry permit (vessel certificate) -> keep it at the entrance.
- There must be a safety guard at the entrance.
- Personal protective equipment appropriate to the work site and a personal gas sniffer are obligatory.
- Preliminary check of the site must be made and the production plant has to authorise starting the work.
- Physical barrier preventing entrance to the confined space must be put in place always when there is no one working inside or the conditions prevent entering the space.
- A correctly performed gas measurement is valid for 12 hours after the measurement.

Confined spaces

BOREALIS **SÄILIÖTODISTUS/VESSEL PERMIT (LYHYT VERSIO)** 1(1)

Työkohde/Unit	Laite/Equipment	Tunnus/Tag	Sisältö/Contents

Puhdistus-toimenpiteet ennen sisäänmenoa/ Required cleaning activities before entrance	Toimenpide/Action	Kuittaus/Signature	Toimenpide/Action	Kuittaus/Signature
	☐ Vesipesu/Water wash		☐ Happopesu/Acid wash	
	☐ Öljypesu/Oil wash		☐ Imurointi/ Vacuum cleaning	
	☐ Liuotinpesu/Solvent wash		☐ Tuuletus/ Ventilation	
	☐ Höyrytys/Steam purge		☐	
	☐ Typetys/Nitrogen purge		☐	

Sokeointi/ Blinding
☐ Sokeoitu erotus-/turvallisuussuunnitelman mukaan/Blinds installed as per isolation/safety plan
☐ Ei sokeointia/Blinding not applicable
Päivämäärä/Date ____ Allekirjoitus/Signature ____

Säteilylähteet/ Radiation sources
☐ Säteilylähteet lukittu ja mitattu/ Radiation sources locked and measured — Kohteet/ Targets ____
☐ Ei säteilylähteitä/No radiation sources
Päivämäärä/Date ____ Allekirjoitus/Signature ____

Sähkölaitteet/ Electrical equipment
☐ Sähkölaitteet kytketty irti/ Electrical equipment disconnected — Kohteet/ Targets ____
☐ Ei sähkölaitteita/No electrical equipment
Päivämäärä/Date ____ Allekirjoitus/Signature ____

Energian erotus/ Isolation of energy
☐ Muut energialähteet erotettu/ Other energy sources isolated — Kohteet/ Targets ____
☐ Ei muita lähteitä/No other sources
Päivämäärä/Date ____ Allekirjoitus/Signature ____

Pelastus-suunnitelma/ Rescue plan
☐ Suunnitelma saatavilla/Rescue plan available ☐ Suunnitelmaa ei vaadita/Rescue plan not required
Päivämäärä/Date ____ Allekirjoitus/Signature ____

Kaivanto/ Excavation
☐ N/A
☐ Maanvyöry estetty/Landslide prevented
☐ Hätäpoistuminen suunniteltu/Escape route planned
☐ Maanalaiset johdot ja putket huomioitu/Underground wiring and piping taken into account

Kaasu-analyysit/ Gas analysis
Analyysitiheys

☐ LEL (%)	☐ O_2 (%)	☐	☐	☐	☐	☐ MASL	Pvm Date	Aika Time	Kuittaus Signature

Kommentit/ Comments

Hyväksyntä/ Approval	Voimassaoloaika/Validity	Allekirjoitus ja nimenselvennys/Signature and clarification of name
	-	
	-	
	-	
	-	

Sisäänmenoon tarvitaan erillinen työlupa/A separate work permit is needed for vessel entry

Kopio säiliötodistuksesta on säilytettävä työkohteessa säiliötyön ollessa käynnissä/
A copy of this vessel permit has to bestored on site during vessel entry

Lisäpuhdistusta tai lisäsuojautumista tarvitaan, jos/Additional cleaning or protection is required if:
LEL-% >10 %, O_2 < 19,5 %, O_2 > 23,5 %, MASL > 1

Säiliötodistus on voimassa vain, jos kaasuanalyysitulokset vastaavat turvallisen sisäänmenon vaatimuksia/
The vessel permit is valid only when the gas analysis support the requirements of a safe entrance

Työluvan myöntäjä vastaa mittaustuloksista ennen jokaista työluvan myöntöä ja lisätarpeiden määrittelystä työlupaan/
The issuer of the work permit is responsible for the gas analysis and defining additional needs into the work permit

Lomakkeen versio: 13.9.2022

Sensitivity: Internal

Säiliötodistus

ALWAYS MAKE SURE THAT A CONFINED SPACE IS SAFE BEFORE WORK BEGINS.

Definition of confined spaces

THE FOLLOWING ARE REGARDED AS CONFINED SPACES:

Vessels
Pipes
Furnaces
Exhaust pipes
Drainage wells
Vessel bases
Channels
Deep excavations (deeper than 1.2 metres)
Spaces, where the oxygen content is below 19.5 % by volume
Spaces where you can enter to work partially or fully

Entrances must be kept open and unobstructed to enable quick exit from the confined space.

Physical blocking of entrance

The basics of installing and removing a physical barrier:

When entrance into a confined space is opened for the first time, the contractor or operator must install a physical barrier in the boltholes of the entrance.

When the entry permit and work permit are in order, the entry guard removes the physical barrier or barriers from all entrances before anyone enters the space.

When the person working in the confined space exits the space, they must tell the entry guard to install the physical barrier or barriers in all entrances.
A physical barrier must be installed in all entrances if there is no valid work permit (even with a valid entry permit).

The entry guard installs a physical barrier in all entrances every time they leave the work site, if another entry guard does not replace them. Install the barrier even if there is a valid work permit and entry permit.

A sign forbidding entrance must be visible at all times when a physical barrier is installed to block the entrance.

Role and tasks of the entry guard

A entry guard (manhole watch) must be present at the entrance when someone is working in a confined space. The entry guard must have completed the manhole watch training organised by Neste rescue service and the entry guard training organised by Borealis.

The entry guard must:

- Always fill in the occupational safety card of the entry guard, and attend the toolbox talk at the worksite, and sign the work permit.
- Make sure that when there is nobody working inside a confined space (during breaks, for example), the entrance to the space must be blocked. The entry guard is responsible for blocking the entrance.
- Be familiar with the location of the work site and be able to call for help.
- Be aware of the risks of the task and the work site and the special characteristics of the task.

Confined spaces

The entry guard must always interrupt unsafe work, and in case of an accident their first task is to call for help!

- Actively monitor the persons who enter and exit the confined space. The entry guard collects entry permits from everyone who enters the space and returns the permits when they come out.
- Make sure that persons entering the confined space have a valid work permit and that their entry permit is also valid.
- Monitor actively the safety of the confined space and initiate rescue measures in case of an emergency.
- The entry guard must be aware of the condition of the persons working inside at all times. They must communicate using the agreed method (by talking, radiophone, signalling).

LIFE-SAVING RULES

If we can't do it safely, we don't do it at all!

Working at Height

Protect yourself against a fall when working at height (above 1.8 m)

- I ensure that a safe platform is provided (firm, with guardrails, all openings shielded off)
- I always use appropriate fall protection and approved anchor points when I need to step outside of a safe platform
- I am properly trained to use a fall protection, and a rescue plan is in place
- I secure tools and work materials to prevent dropped objects
- I only work on scaffolds and ladders which have been inspected, approved, and correctly labelled

Working at height

The basics of working at height

Life-saving rule "**Working at Height**" must be obeyed always, when a work task involves a risk of falling or the height of a work site is **more than 1.8 metres**. If working at height cannot be avoided by choosing alternative methods or tools, a safe work platform must be used. The platform must comply with regulations, and you must make sure that it is fitted with guard rails and toe boards. All openings must be protected with physical barriers.

If you need to step outside of the safe platform, you must use personal fall protection equipment. Remember that you must be trained to use the protective equipment.

Your fall protection equipment must be suitable to the task. Always make sure that the fall protection equipment are approved and that they have been checked. Always perform a "four eyes" check before using the equipment. Always attach the fall protection equipment to an approved anchor point.

Working at height is a risk to others working at the site, because falling objects or tools may hit people working below. Tether all the tools and materials that you use so that they will not fall. When working at height you must barricade the area below and make sure that nobody is working below your platform. Only use approved models of scaffolds, step stools and stepladders, and make sure that they have been inspected and tagged appropriately.

Workers must be trained and qualified to working at height. They must observe safety rules and use appropriate fall protection equipment and gear to prevent objects from falling.

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Korkealla työskentely

Working at height

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Turvallista työpäivää!
Have a safe workday!

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Working at height

Scaffolding

Keep the access to scaffolding open. Make sure that there are no objects or tools blocking the way. Secure all hoses and cables so that there is no risk of tripping.

Only a trained and qualified scaffold builder may build, modify and dismantle scaffolding.

Before climbing the scaffold always check that the green TELINEKORTTI (scaffold card) is visible, and make sure that the scaffold is upright and undamaged.

All scaffolds used on the turnaround site must be inspected every week.
Never climb a scaffold if the scaffold card is missing or the red STOP sign is facing out.

If you notice any problem or defect in a scaffold, turn over the scaffold card so that the red stop sign is facing out, and report the defect to the work permit office.

If there are access hatches in the scaffold, always close them after using them.

When scaffolding is being built or modified, the builders must barricade the danger zone with a yellow-black stripe.

Risk of falling

There is a risk of falling when there is a clear danger at the site or it is possible to fall from higher than 1.8 metres.

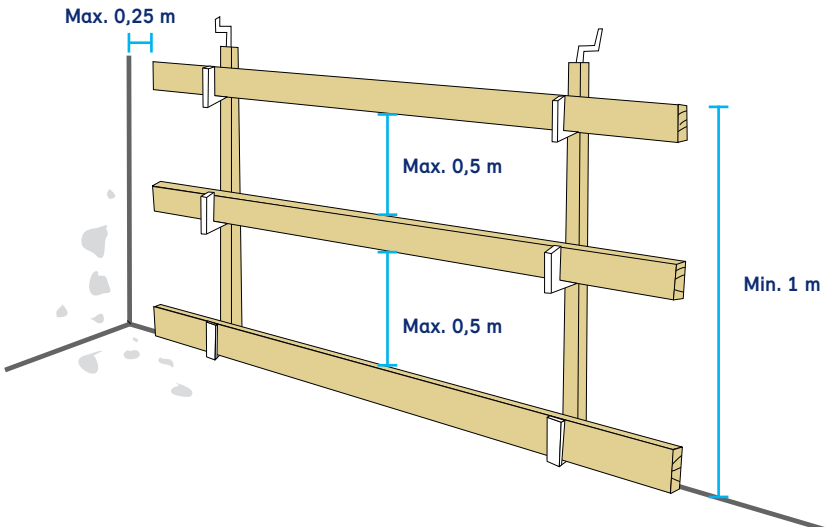
When there is a risk of falling, the best way to prevent it is to install guard rails or other barriers.

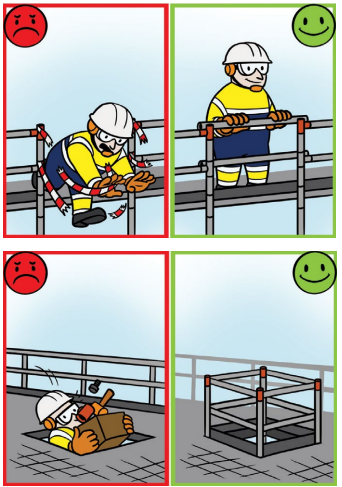
When the task involves working at height, you must use mobile elevating work platforms or fixed platforms fitted with guard rails or safety nets or other fall protection equipment anchored to solid structures.

If the nature of the work prevents using safety equipment and physical barriers, you must use a safety harness and ropes as a fall protection device.

Scaffold builders must use personal fall protection equipment at all times when they are building or modifying scaffolds.

When using elevating work platforms you must ALWAYS use approved and inspected safety harnesses and attach them to appropriate anchor points.


Max. 0,25 m
Max. 0,5 m
Max. 0,5 m
Min. 1 m



Protecting openings

All new openings and hatches must be protected immediately with physical barriers that prevent both falling and entering the hazardous area.

- Install barriers around the opening.
- Cover the opening with a plywood board or a metal plate, for example.

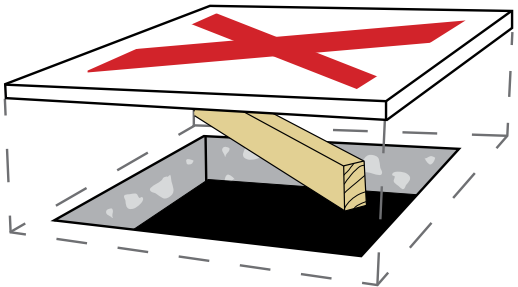
Protect all openings that pose a safety risk. (Even very small openings increase the risk of tripping.)

Openings must be protected with a cover carrying at least 150 kg of weight or with a guard rail or toe board.

If the side or diameter of an opening is more than 1 meter, it must always be protected with a guard rail or toe board.

Secure the cover in place with a supporting beam or a fasten it safely and identify it clearly with a red cross.

Access hatches of scaffolds must be closed immediately after using them.



WORK STAND

Height of work platform

0-100 cm

Access to work platform must be provided from both sides, if the platform height is > 500 mm.

101-150

Work platform must have a fall protection rail.

151-200

Not recommended.

Safe work stands and standing ladders (step ladders)

General instructions applying to work stands:

Work platform of the work stand must be lockable, so that it would not open when being used.

Work stand must have steps, minimum depth 50 mm.

Maximum allowed spacing of steps 300 mm.

STANDING LADDER, STEP LADDER

Height of work platform

0-100 cm

On top of the work platform there must be a fall protection rail.

Standing ladders must not be used in case of works requiring strength and fire hazard related works, if stability requirements established to work stands have not been met (Government decree Vna 205/2009, annex 6).

101-150 cm

On top of the work platform there must be a fall protection rail.

151-200 cm

On top of the work platform there must be a fall protection rail.

The side the employee goes up must be with handrails.

Standing ladders higher than one meter must meet the stability requirements established to work stands.

General instructions applying to standing ladders:

Fastening of work platform is not sufficient for locking of standing ladders; besides that standing ladders must be lockable with horizontal joint / metal limiter.

Depth of the standing ladder steps must be at least 50 mm.

In case of works requiring strength or fire hazard related works (for example chiselling, welding), the standing ladder must meet stability requirements established to work stands (Government decree Vna 205/2009, annex 6) irrespective of the work platform height.

As regards the properties required from standing ladders, the decisive factor is height of the work platform (not the height of the platform where work is being performed at a particular time).

The critical factor that defines the minimum qualities of a stepladder is the height of the platform, not the height of the step that you are standing on.

Make sure that all step stools and stepladders are designed for professional use and suitable for construction work.
Step and platform surfaces must prevent the risk of slipping (grooved or corrugated).

The components of step stools and stepladders, such as steps and braces, must be built to withstand the conditions of professional construction work.

There must be no bending, buckling or dents that compromise safety.
The feet of ladders must be fitted with foot pads.

LIFE-SAVING RULES

If we can't do it safely, we don't do it at all!

Safe Mechanical Lifting

Plan lifting operations and control the area

- I never walk or stand under a suspended load
- I confirm that the lifting equipment and load have been inspected and are fit for purpose
- I have cross-checked the weight of the load against the maximum allowed load of the lifting equipment
- I ensure that lifting devices are placed on stable ground and select appropriate anchor points to ensure balance of the load
- I establish and obey barriers and exclusion zones and follow instructions of the signalman or banksman

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The basics of safe mechanical lifting

Life-saving rule "**Safe mechanical lifting**" applies to all lifting operations. Careful planning is essential: **talk through a lifting operation together before performing it so that everyone involved in the operation is aware of the risks and precautions.** If the operation is demanding, you must prepare a lifting operation plan.

Always talk through a lifting operation before beginning so that everyone involved in the operation is aware of all the risks and precautions.

When planning a lifting operation it is not enough to consider the weight of the load and choose appropriate lifting equipment. You must also take into account the location of the operation. Is there enough space and can the crane be positioned on stable ground? Does the lifting operation affect any machinery or equipment nearby? Are there overhead electric cables or pipelines nearby? After identifying the risks of the operation, they must be managed. To lift a load use certified and inspected lifting equipment and appropriate anchoring points to ensure the balance of the load.

The team performing the lifting operation can consist of one or several people. Typical tasks include slinger, signaller, lifting supervisor and the operator of the lifting equipment who has the ultimate responsibility during the operation. Clear communication between all members of the lifting team and observing the life-saving rules are critical to the operation: the area of the lifting operation must be clearly barricaded and outsiders must not be allowed to enter. It is forbidden to go under a suspended load. Everyone must obey the instructions and guidelines of the lifting operation.

When moving or lifting heavy objects, careful preparation and smooth cooperation between everyone involved in the operation is essential to safety. Lifting is safe only when you have the right kind of equipment and a good plan, which is familiar to every member of the team and everyone obeys the rules. Good communication before and during the operation is extremely important.

Lifting operations and lifting equipment

All lifting operations are performed on sites assigned by Borealis in advance.

Cranes and lifting equipment must fulfil the requirements of the Finnish occupational safety and health act and applicable regulations.

Cranes and lifting equipment must always be inspected before use.

All lifting gear must be certified with a valid periodic inspection tag.

The colour code for 2023 inspection tags is **orange**.

Examples of lifting sites

Make sure that lifting operations are performed only on sites assigned in advance.

Take into account the weather, load bearing capacity of the ground and others working nearby.

Lift objects properly and safely

Choose lifting points carefully and use suitable lifting equipment.

LIFE-SAVING RULES

If we can't do it safely, we don't do it at all!

Line of Fire

Keep yourself and others out of the line of fire

- I position myself to avoid:
  - moving objects
  - vehicles
  - pressure and substance releases
  - dropped objects
- I establish and obey barriers and exclusion zones
- I perform the work considering hazards of tools (e.g., rotating equipment) and their potential malfunction
- I take action to secure loose objects and report potential dropped objects

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Line of fire

The basics of being in the line of fire

Life-saving rule "**Line of fire**" obliges us to be aware of our surroundings and our position in relation to other people, other work tasks and equipment, and to understand, if there is a danger of being in the line of fire or getting injured.

What does being in the line of fire mean?

Moving objects such as rotating components and objects falling from altitude may hit and injure you. If you stand in the way of a crane or other moving machines, you are in the line of fire. The use of tools such as a hammer or a knife may put you in the line of fire. Sometimes you can be in the line of fire without knowing it, for example, when a leakage check or a pressure test is carried out or there is an sudden release of pressure. Also, for example, a failure in a hydraulic or pneumatic system can cause sudden movement of heavy components and thus put persons nearby in the line fire.

Wherever you work, be aware of possible hazards caused by a failure or malfunction of moving components, objects, vehicles, and other systems. Choose a safe place and stay away from danger zones. Depending on the hazards involved, barricade your work site and make sure that the exclusion zones are obeyed. When working at height, take precautions so that you drop nothing.

Line of fire

Wherever you go, watch out for hazards caused by moving components, vehicles, and possible system failure. Move safely out of the hazardous area and stay out of the line of fire. Barricade your work site according to the hazards involved and make sure that the exclusion zones are obeyed.

When working at height make sure that you tether all your tools. If you drop something, report it, and take precautions to prevent it from happening again.

Whatever you do in your daily work, always stay out of the line of fire: make sure that neither you or anyone in your team is near to falling or moving objects or vehicles or close to hazardous energy releases. Obey exclusion zones, take care of yourself and others around you, stay alert and interfere in unsafe work practices.

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Vaaravyöhykkeellä olo

Line of fire

Turvallista työpäivää!
Have a safe workday!

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Line of fire

Line of fire

How to prevent objects from falling

When working at height, make sure that you drop nothing:
- Tools and other things you need in your work.
- Machines and equipment.
- Dismantled equipment and components (insulation material, insulation casings, instruments, etc.)
- Nuts, bolts and other fasteners.

Everyone is responsible for the following precautions:
- Barricading danger zones.
- Safe storage of dismantled equipment and components (pay attention to the effect of wind on objects stored on platforms, for example).
- Tools and equipment: use clips, straps and slings to tether them to the operator or solid structures of the work site.
- Various boxes, bags and other holders to prevent things from dropping.
- Covering work platforms (floor gratings, for example) with matting or other sheeting to prevent objects/components from falling.

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Putoavat esineet

Falling objects

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Turvallista työpäivää!
Have a safe workday!

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Keep Discovering

Line of fire

Examples

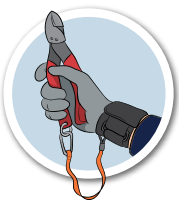
Even the smallest falling objects (even nuts and bolts) can cause serious injury when falling from altitude.

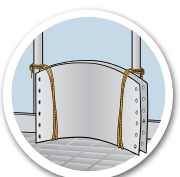
When working at height, always take care of the following:

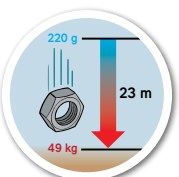
Tether your tools in order not to drop them.

Secure all dismantled equipment and their components, if you keep them on the platform.

Nuts, bolts, tools: keep them in racks, boxes or bags and cover floor gratings to prevent anything from falling.







Line of fire

Examples

Take care that you are positioned safely when loading and unloading.

Watch your position when you open flanges.

Position objects safely when working on them/ dismantling them.

Line of fire

Barricading dangerous areas, exclusion zones

Red and white barrier tape: **Enty strictly forbidden.**
Enter only by permission of the supervisor.

Black and yellow barrier tape: **Caution, potential hazard.**
Do not enter the site unless you have a good reason such as participating in a lifting operation.

The dangerous zone is identified with a sign:
Cause of danger
Contact person

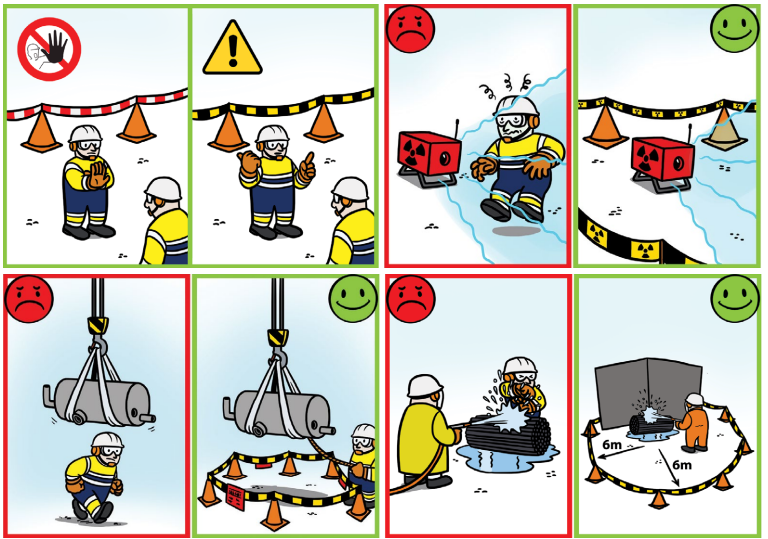
Always establish and barricade danger areas to prevent anyone from stepping in danger area unintentionally.

When the work is finished, remember to remove the barriers.

Never enter an exclusion zone if you do not have a permission to enter.

Remember to remove barriers when they are no longer needed.

Line of fire



LIFE-SAVING RULES

If we can't do it safely, we don't do it at all!

Driving

Follow safe driving and traffic rules

- I always wear a seatbelt, and so do all passengers
- I do not exceed the speed limit, and reduce my speed for road conditions
- I never use a mobile phone while driving
- I am fit and fully alert while driving, and I follow journey management requirements
- I do not drive into hazardous process areas (e.g., ATEX) without entry permit

Safe driving

The basics of safe driving

Life saving rule "**Driving**" applies to all traffic in our factory area. We drive when we are working, we drive to work and back home with a car, bicycle and other vehicles. Always follow the rules of safe driving and traffic regulations.

When driving a car, the driver and all the passengers must wear a seatbelt. When riding a bicycle, wear a helmet and hold the handlebars firmly. Loads must be fastened appropriately on all kinds of vehicles.

Never exceed the speed limit and reduce your speed when road conditions or the weather are not good. To keep attention from flagging avoid using your phone when driving and never use your phone without a handsfree kit. It is important to be fully alert and keep an eye on the traffic when you are driving.

A good plan is essential to safe working and safe driving. Part of good planning is choosing the safest route. You are allowed to drive into the factory and process area only if you have an appropriate permit and take the necessary precautions.

Pedestrians must follow traffic regulations, too. Being actively aware of your surroundings improves the safety of everyone moving around.

To most of us moving around and driving is a daily routine. We must be aware of dangers on the road regardless of what means of transport we use. Traffic is safe for all of us if we follow traffic rules, stay alert and exercise caution in traffic.

Traffic and moving around on the turnaround site

We try keep road traffic to a minimum during the turnaround. Driving permits are issued only if they are really necessary.

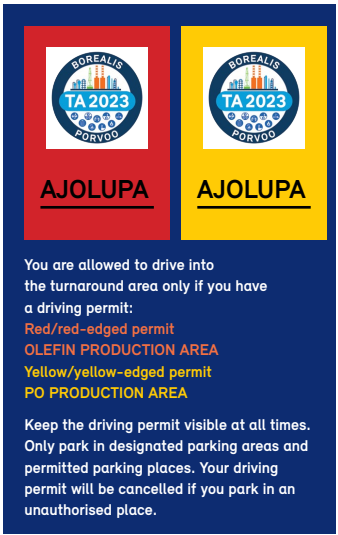
As a rule, vehicles are only used to transport machinery, goods and freight on the turnaround site.

On the turnaround site pedestrians are clearly separated from road traffic. Use designated and safe routes at all times.

During the turnaround you are allowed to ride a bicycle only on roads. Bicycles are not allowed within the process area.

Only park in designated parking areas.

Pedestrians must keep themselves to pedestrian routes.
Always make sure that operators of nearby machines and equipment have noticed you. Never go into the danger zone around machines and equipment.



Driving permits on the turnaround site

During the turnaround, driving permits for the designated construction site are issued for specified purposes only:

- Cranes and manlifts
- Cleaning vehicles
- Scaffold transports
- Equipment and spare parts transports
- Tool transports (large containers) into the area
- Passenger transport is not allowed!

Housekeeping and waste management

Keeping the turnaround site tidy and in good order is vital to safety.
Work sites must be kept tidy and in good order at all times.

Everyone working on the turnaround site is responsible for housekeeping at their work site and its surroundings.

Borealis only accepts work sites if they are handed over in the same condition as when the contractor took over.

Borealis reserves the right to interrupt work if untidiness and disorder at a work site compromise safety.

Borealis reserves the right to charge the contractor for clean-up costs, if a work site is not cleaned properly.

Everyone is responsible for removing and sorting waste from a work site to places designated by Borealis.

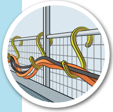
On the turnaround site there are clearly identified containers for energy waste, cables, wood waste, metals and hazardous waste. Sort all waste in appropriate containers.

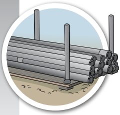
You and your team – no one else – are responsible for good order at your work site.

TA2023 Turnaround guide **80**

Siisteys ja järjestys

Cleanliness and order

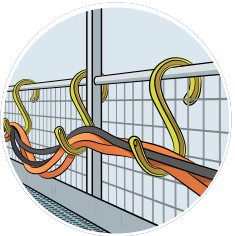




Turvallista työpäivää!
Have a safe workday!

BOREALIS

Working on the turnaround site



Safe moving, hoses and cables

Make sure that the hoses and cables you use are either hung up (using S hooks or cords, for example) or covered by cable protectors on the ground.

Tripping and falling are common causes of injury.

Advantages of proper hose and cable management:

- Danger of tripping is minimized.
- Easier installation and dismantling.
- Easier troubleshooting.
- Hoses and cables last longer.

When going up or down the stairs ALWAYS HOLD THE HANDRAIL!

Personal protective equipment on the turnaround site

You must wear personal protective equipment and protective equipment specified in the work permit on the turnaround site at all times.

The work permit specifies the use of special protective equipment in your work task. Study the work permit carefully before you begin work.

If you are unclear about protective equipment, contact Borealis personnel.

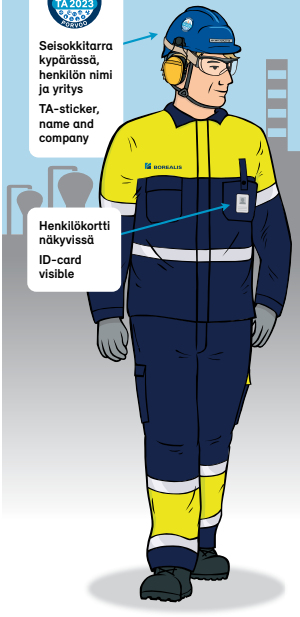
Remember to change protective equipment when necessary. Only use protective equipment that is intact and suitable to your task.

Regarding olefin production: when opening pipeline flanges of tanks/columns for the first time, you must wear fully sealed protective goggles and chemical gloves. Normally, you can use safety glasses with side shields and standard gloves on the turnaround site.

Work permit issuer specifies specifies what kind of special protective equipment is necessary at your work site or in the task (respirator, gloves, protective eyewear, mask, etc.)

Tervetuloa Borealiksen seisokkityömaalle!

Welcome to Borealis TA construction site!



Suojakypärä
leukahihnalla
Protective helmet
with chinstrap

Silmäsuojaimet
Eye protection

Kuulosuojaimet
Hearing protection

Turvajalkineet
Safety boots

Suojavaatetus
Protective clothing

Työkäsineet
Work gloves

Iskusuojakäsineet
Tulee pitää mukana Borealiksen seisokkityömaalla työskennellessä ja niitä on käytettävä, jos työtehtävä on sellainen, että siinä on käsiin kohdistuva riski.

Impact protection gloves
Must be carried when working at Borealis turnaround sites and must be used if the work task is such that there is a risk to the hands.

BOREALIS TA 2023 PORVOO

Turvallista työpäivää!
Have a safe workday!

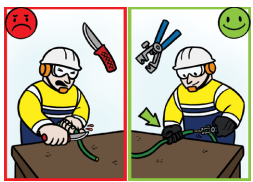
BOREALIS

Fixed-blade knives and retractable knives are not allowed

NOT ALLOWED

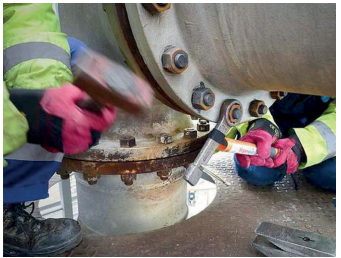
Fixed-blade knives and retractable knives are not allowed on the turnaround site.

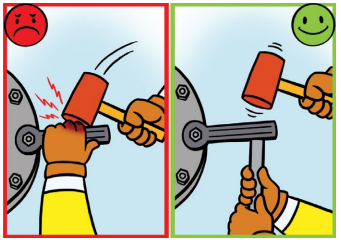
Use safety cutters and safe cutting methods instead.



ALLOWED

No precautions needed.





Impact protection gloves

Always use impact protection gloves if the work task involves hazards to your hands, and impact protection gloves offer you protection:

- When you use striking tools.
- When you use pneumatic tools.
- When you use heavy tools.
- When you handle heavy objects.

You must wear impact protection gloves, if they are specified in the work permit or TRA.

If it is necessary to hold a slogging spanner when opening something, always use a finger-saver tool holder.

Intoxicants, smoking, photographing, making fire

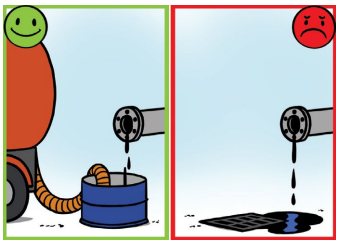
Bringing alcohol and other intoxicants into the turnaround site, consuming them and being under their influence is not allowed. This ban is effective in the entire area. The limit for blood alcohol content is zero. We test all suspected cases of intoxicant use.

Bringing personal fire making equipment into the turnaround area is not allowed.

Smoking is permitted in designated smoking areas only.

Taking photographs is not allowed without a permit and special photography training.

Using non atex-certified mobile phones on the turnaround site is permitted only during a strictly limited period. Check turnaround site info boards before using your phone.



Leaks and spills

Pouring any substances or water into Borealis sewers is not allowed without the specific permission by a representative of the production plant.

Waters containing chemicals such as equipment washing waters and oils may not be poured into ground.

All chemical and oil splashes must be cleaned up immediately.

In case of a leak you will find leak prevention materials (absorption material and sewer sealing mats). Prevent the leak from spilling over.

In case of a larger spill, contact the Neste rescue service.
Report all leaks and spills to Borealis personnel.

Preventing chemical exposure

Select appropriate protective equipment according to the chemicals used in the plant and special features of the work site and the task.

Remember to check that your equipment are clean and in proper condition before, during and after the work.

Change your working clothes often enough.

Use the right protective equipment, use them properly and change them if they do not work or they are dirty.

Remember to take care of hand hygiene before eating and other breaks.

What to do in case of chemical exposure

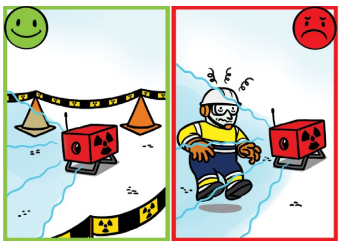
Chemical splashes:

The best first aid for chemical splash is rinsing with plenty of water. Water washes away and dilutes chemicals on the skin.
You must use a safety shower after every chemical splash and even when you suspect a splash:

- Stepping on the floor grating activates the shower.
- Take of your clothes and avoid touching contaminated clothes.
- Keep washing your skin and wait for help. Safety shower is the only first aid there is: do not step out of the shower until you get the permission to leave!

In case of an eye injury, the best first aid is an eye shower or an eyewash bottle. Keep rinsing your eyes until the paramedics arrive.

There are clearly indicated safety showers, eye showers and eyewash bottles in all the plants. Make sure that you know the location of nearest showers.



Working near a radiation source

Instruments using radioactive radiation to measure level and density are used in the tanks and reactors of the plants, for example.

Before you start working near such an instrument, the work permit issuer makes sure that the source of radiation is turned off appropriately.

The work permit issuer gives safety instructions for working near a radiation source.

Next to the manhole of a vessel containing a source of radiation there is a sign saying: "**Turn off the radiation source before entering the vessel.**"

Never do any work between a radiation source and a receiver without adequate isolation and a work permit.

We also take x-ray images of pipelines on the turnaround site. These sites are clearly indicated exclusion zones with no entry to outsiders.

Use of utilities during the turnaround

Only Borealis personnel may use the nitrogen ports of the turnaround site.

Nitrogen ports are painted pale brown and identified with tags.

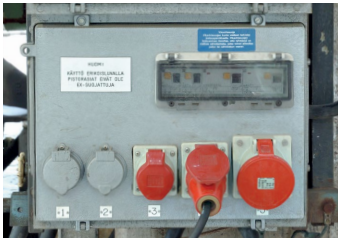
Steam ports in the area may be used only by permission of the production plant.

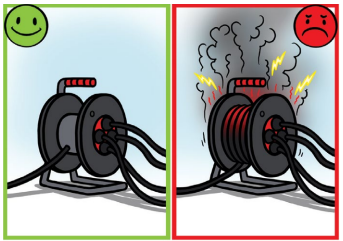
Service water can be used for pressure tests only at designated source points.

Except for emergencies, water for fire-fighting can be used only by permission of the production plant.

Contractors can use the compressed air ports on the turnaround site.

Service water is not drinkable!





Use of electricity during the turnaround

You must arrange for the use of electricity with a representative of the production plant when the work permit is issued.

When you use your own power distribution centres, you must make sure that your centre or the respective Borealis power centre is equipped with a ground fault interrupter.

The contractor must make sure that the power centers, cables and other electrical equipment are in proper working order.

Pay particular attention to the condition of electrical equipment and cables, as well as cable management.

When work is finished or interrupted (during breaks, for example) all electrical equipment must be made dead (voltage free).

Power distribution centres must be turned off at the end of the day.

Quality

Quality control during the turnaround

In our plants we handle substances that are explosive, flammable and hazardous to health. Therefore all our machines and equipment must be in solid condition, reliable, and safe to use.

We want to ensure safe and trouble-free start-up after the turnaround.

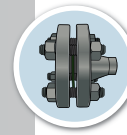
We also want to ensure trouble-free operation between turnarounds.

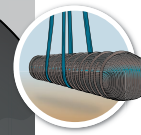
To us, quality means the procedures and features to ensure that our products and services satisfy the needs expressed or assumed by our customers.

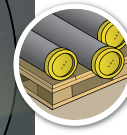
We are all responsible for safety and quality!

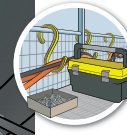
Laatu – Kerralla oikein

Quality – First time right









Turvallista työpäivää!
Have a safe workday!

BOREALIS

Quality

Cornerstones of quality and safety at work

Do your work according to instructions.

Fulfil the conditions of the work permit and use appropriate protective equipment at all times.

Handle equipment and objects correctly.

Protect and store correctly, lift and support at the right points.

Clean equipment properly.
This is a precondition for reliable inspections. Solid matter left in equipment increases the risk of corrosion.

Carefully protect insulation and other equipmen to prevent washing water leaking into wrong places.

Re-install parts carefully. Prevent damages, dents and scratches, and make sure that the next stage goes smoothly (when installing insulation, for example).

After the installations, remember the finishing touches site welding, scratches, taping.

Make sure that the work sites are always tidy and in good order.
Good housekeeping promotes safety and high-quality work.

If you do not know what you are doing or there are unexpected changes while you work,
contact the work permit issuer.

What to do in an emergency

When you notice a fire or an accident, call help immediately or press the nearest fire alarm button. When you make a call to the general emergency number, make sure you give the exact location of the emergency.

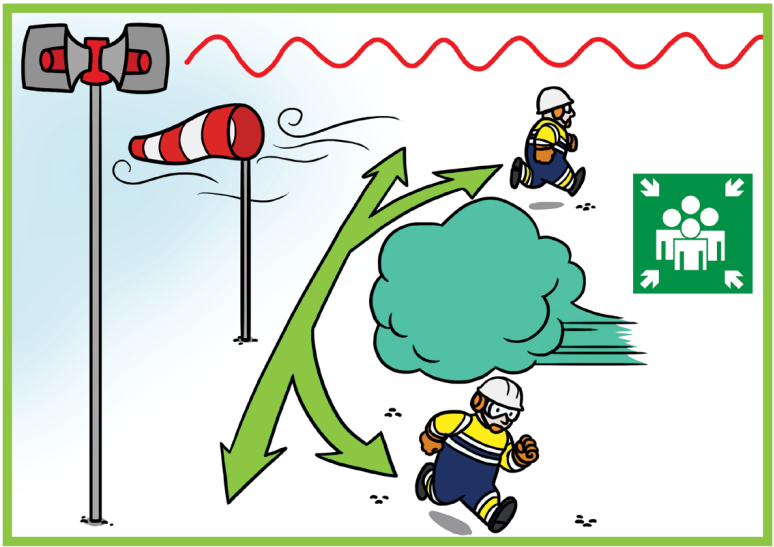
Factory area emergency number

+358 10 458 2222

2222

General emergency number

112



What to do in an emergency

General alarm signal
(ascending–descending)

What to do in an emergency

Ask anyone carrying a Borealis radio to call for help. This is the best way to ensure effective and safe rescue work.

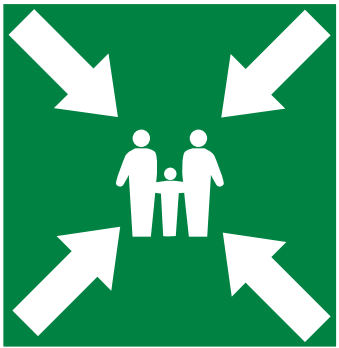
Pay attention to alarm signals and follow the instructions given over the emergency PA system.

When you hear an alarm signal, work permits and driving permits are no longer valid. Stop your work at once and make sure that everything is safe and secured at your work site.

Alarm sirens and the emergency PA system are tested every Monday at 12 o'clock noon.

Evacuation order is given by a loud signal:

- One-minute ascending and descending signal or a steady horn signal (on the turnaround site).
- One minute all clear signal.



What to do in an emergency

In case of an emergency you are advised to punch out at the gate (in order to keep count of those left behind).

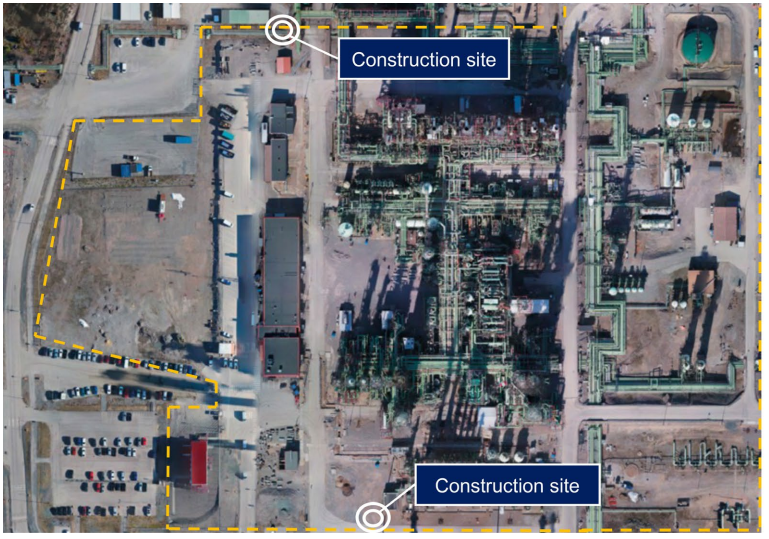
- Go to the outdoor assembly points indicated in the turnaround guide.
- The assembly point is selected according to the location of the emergency, wind direction, etc.

QR code
to TA2023 homepage.

Communication during the turnaround

Our main communication channel during the turnaround is the turnaround website. On the website you will find contact information, map of the turnaround area, downloadable guides and other material and a lot of useful information about the turnaround. Please find our homepage at:
https://www.borealisgroup.com/finland/ta2023

Olefin production construction site

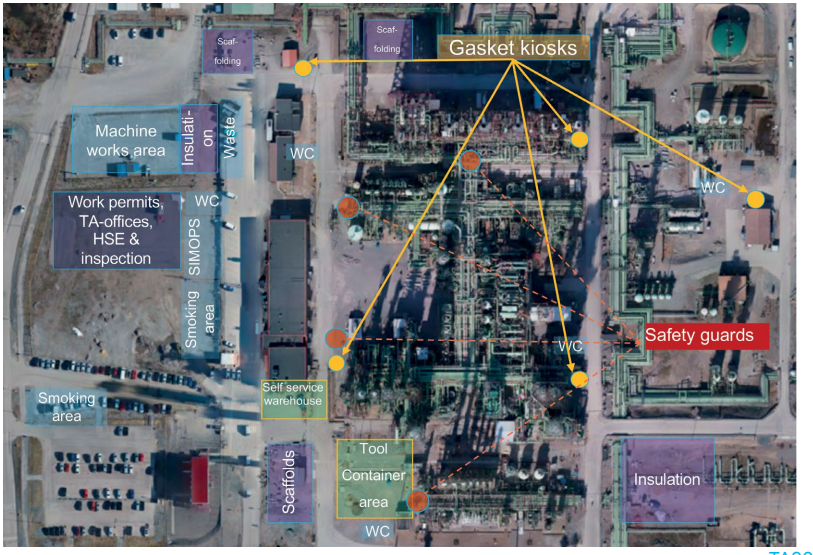


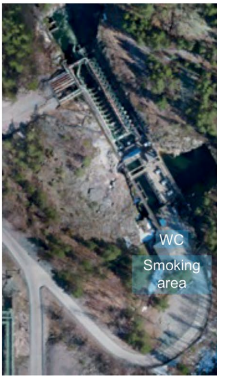
Services on the olefin production turnaround site

In the olefin production area contractors are welcome to the turnaround canteen on Petrontie opposite to the production plant. There is also a "backpack canteen" where contractors can enjoy packed lunch.

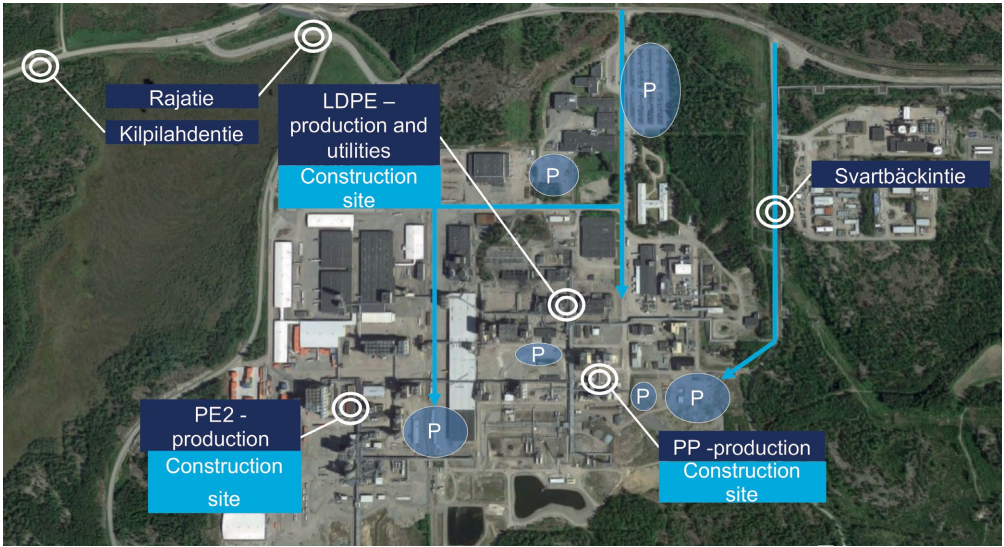
You can view the canteen opening hours from the TA2023 homepage.

General area arrangements olefin production

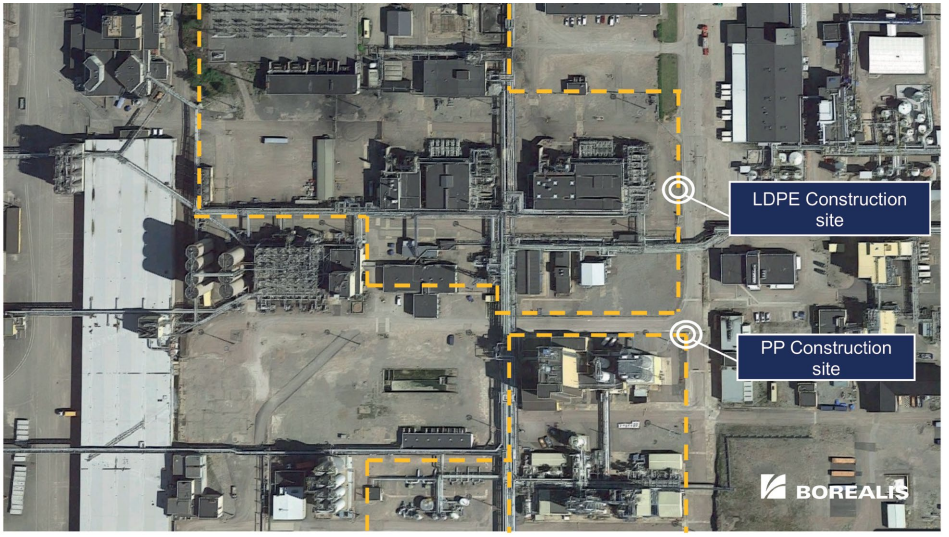




Routes to the PO-production construction sites



PO-production PP and LDPE- construction sites area



General area arrangements PP and LDPE-production

Services on the PO-production site

In the plastics production area contractors are welcome to use the services of the staff canteen, which is located in the vicinity of the main office. In addition, cafe services are available at the PP and LDP production plants and the PE2 production plant.

PE2 production construction site area

General area arrangements PE2 production

What to do in case of an offence

We have a general set of rules for dealing with criminal offences committed during the turnaround. These rules apply to service providers and Borealis personnel. Normally, there are three levels of sanctions and penalties for offences. If the offence is continued or repeated, the severity of sanctions and penalties increases gradually. If the violation or offence is serious, severe sanctions can be imposed immediately. Offences are investigated in cooperation with the supervisor of the offender or other representative of their employer. The purpose of the investigation is to establish causes and possible consequences of the offence and to assess the severity of the offence (intention, consequences, possible effects).

In case of a serious offence against rules and guidelines, the offender can be expelled from the turnaround area immediately and their ID card can be seized. Serious offences include:

- Breaking the life-saving rules and serious breaches of work safety.
- Criminal acts on the turnaround site and crimes against property.
- Public intoxication or use of intoxicants on the turnaround site.
- Violent behaviour towards a representative of the employer or co-workers.
- Repeated neglecting of work tasks regardless of warning.
- Sexual harassment and misconduct.

At Borealis we have a zero tolerance policy towards sexual harassment and misconduct. We investigate all suspected cases of harassment or misconduct.

In case of an offence, the contractor must submit a report to the principal contractor upon request.

All offences are handled case by case. Possible sanctions include:

- **Reprimand, verbal or written warning.**
- **Redoing the basic training of the turnaround and the access pass.**
- **Temporary revoking of the access pass.**

Harassment and unacceptable behaviour

There are people from many countries, cultures, and companies working on the turnaround site. The physical, mental, and sexual integrity of everyone working on the site is inviolable. We do not allow any kind of harassment or inappropriate behaviour towards other persons, especially when it could cause any risk or danger to health or safety.

Every person should feel safe at the turnaround site.

Examples of harassment and inappropriate behaviour:

- Threats
- Bullying
- Sexual harassment
- Malicious or suggestive comments or messages
- Disparaging or ridiculing words or behaviour, excluding someone from the work community
- Continuous or groundless criticism of someone's work or hindering someone's work
- Questioning someone's reputation or position.

If you witness harassment, unacceptable behaviour or other kinds of misconduct, report your concerns anonymously by using the Borealis Ethics Hotline at borealis.integrityline.com

Theft

During the turnaround we will conduct occasional searches at the gates to ensure the ownership of materials and tools.

Contractors are kindly asked to identify the tools and machinery they use on the turnaround site with their company name or logo.

All cases of theft will be reported to the authorities.

General safety rules

Safety management: anticipation

Making observations and reporting shortcomings

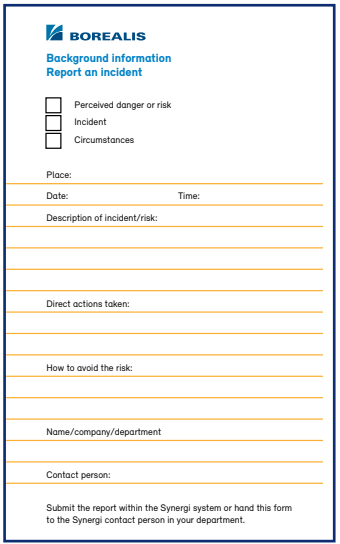
In safety management the purpose of anticipation is to avoid occupational accidents and other unwanted incidents. Therefore, all observations and incidents concerning safety and quality issues and the environment must be reported.

Report your observations and safety shortcomings to your supervisor or Borealis personnel as soon as possible.

How to report your observations:

- Speak to Borealis personnel.
- Fill in an incident form (forms are available at all work permit offices on the turnaround site).
- File a report using the Borealis Synergi system (see the turnaround web page for instructions).

General safety rules



BOREALIS

Background information
Report an incident

- ☐ Perceived danger or risk
- ☐ Incident
- ☐ Circumstances

Place:

Date: Time:

Description of incident/risk:

Direct actions taken:

How to avoid the risk:

Name/company/department

Contact person:

Submit the report within the Synergi system or hand this form to the Synergi contact person in your department.

All safety shortcomings must be reported to your supervisor and to Borealis personnel:

- Accidents
- Incidents/close calls
- Dangerous situations
- Leaks and environmental damages
- Fires and flare-ups
- Traffic accidents
- Machine and equipment damages (minor damages, scrathes)
- Thefts

The contractor must submit a written description of all incidents. Keep in mind that observations of shortcomings are never pointless.

BOREALIS

Background information
Report an incident

- ☐ Perceived danger or risk
- ☐ Incident
- ☐ Circumstances

Place:

Date: Time:

Description of incident/risk:

Direct actions taken:

How to avoid the risk:

Name/company/department

Contact person:

Submit the report within the Synergi system or hand this form to the Synergi contact person in your department.

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General emergency number

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