



Yara Management System

Document type:

Procedure

Valid for organisation:

Sluiskil

Valid for location/facility:

Persoonlijke veiligheid en arbeidsomstandigheden

(HAE-026861) GRAAFVERGUNNING

Note:

- New definition of excavation- and digging added.
- Civil engineer as authorized to sign excavation permit added.
- Cable detection added.
- Adjusted the TRA-team.

1. Purpose

The purpose of this procedure is to minimise personal and operational risks from excavation and earthworks executed on the instructions of YARA Sluiskil B.V. This is done by setting strict rules for the preparation and execution of the work, and by defining responsibilities for YARA Sluiskil B.V. and the relevant contractor.

2. Scope

This procedure is to be used by YARA Sluiskil B.V. and contractors for all excavation and digging works within the marked area (see §7) of Yara Sluiskil B.V. **Excavation and digging work includes all forms of:**

- digging regardless of depth;
- digging regardless of method;
- the insertion of objects below ground level.

Excepted (no digging permit required):

- Manually re-installing street- and sidewalk tiles of a limited size (max. 40 m2 paving and max. 30 cm depth from ground level).
- Manual placement of signage.
- Sampling of soil from: temporary storage, short-term storage and soil depot.

3. Responsibilities

Keeping the procedure up to date is the responsibility of YARA Sluiskil B.V.'s safety experts. These must ensure that the target group is properly instructed.

The principal acting on behalf of YARA Sluiskil B.V. retains ultimate responsibility for the activities that are to be carried out. The applicant for the excavation and/or earthworks (YARA Sluiskil B.V. or a contractor who outsources the work to a subcontractor) is obliged to append this procedure to the quotation request and/or the contract that is entered into with a (sub)contractor. With this, the (sub)contractor is informed of the specific requirements that YARA Sluiskil B.V. sets for the activities.

The executive contractor is fully responsible for following the defined excavation and earthworks procedure. The main contractor (if applicable) retains ultimate responsibility at all times in relation to YARA Sluiskil B.V. for the activities to be carried out. This procedure is not applicable to the disposal of soil above ground level.

Document owner:
Reggie van Immerseel
Document ID:
YMS0-180-1221
Changes in this version:
<Data required>

Approved by:
Lesley Vermeerssen
Version: 8.0

Approval date:
2020-01-09
A paper copy is an uncontrolled copy of the document

Next review date:
2022-01-08

The following persons are authorised to sign excavation permits on behalf of YARA Sluiskil B.V.:

Civil Engineering

- Infrastructure Manager
- Appointed asset managers*
- **Appointed civil engineers***

*Asset managers and **civil engineers** can only be appointed if they have adequate internal training and knowledge of the excavation procedure. The Infrastructure Manager is responsible for appointing the asset managers.

Electric

- The Installation Chief (IC) of YARA Sluiskil B.V.
- The Chiefs of Works (CoW) of YARA Sluiskil B.V.

4. Description of excavation and earthwork

4.1 Classification

Three classifications are used for Yara's site, as follows:

- a. High-risk areas.
- b. Limited risk areas.
- c. Risk-free areas.

These areas are defined as follows:

- A high-risk area is any area that has not been charted with test trenches, and for which the relevant Yara manager has not given his initials as proof that a different excavation method than specified in §4.2 is permitted or that activities other than excavation work are permitted.

A high-risk area is characterised as an area the width of the underground cables or pipelines (other than drinking water, drainage, fire-extinguishing water and cooling water pipes), as localised with the aid of test trenches, and which has been extended with a safety margin of 50 centimetres on both sides (see figures 2 and 3 in §4.2).

- A limited risk area is an area that has been charted by means of test trenches, in which only drinking water, drainage, fire-extinguishing water and/or cooling water pipes are located.

The status of 'limited risk' is only applicable to an area if the Civil Engineering manager has marked the areas yellow on the excavation permit. This sketch must be initialled by the Civil Engineering manager.

- A risk-free area is one that has been charted by means of test trenches and in which no cables or pipelines are located.

The qualification 'high risk' always applies at the start of all earthwork activities. An exception may be made if the area has already been designated as a limited risk area in the past. In that case, these areas are indicated by the drawing room on the excavation permit by being marked in YELLOW.

- Limited risk areas are indicated by being marked in YELLOW.
- Areas that require no TRA or excavation permit and indicated by being marked in GREEN.

An area can only be qualified as a limited risk area **or risk-free area** by means of digging test trenches. These matters are further clarified in Figure 3 in paragraph 4.2.

Areas which remain defined as high-risk after test trenches have been dug, including the defined margins at the site, must be marked using survey stakes and tape. This marking is to be done by or on the instructions of the Civil Engineering manager who has drawn out the high-risk and/or limited risk areas on the excavation permit and initialled

these. The person who installs the markings is to inform the operatives who will work from the excavation permit about these.

Earthworks other than excavation (probing, drilling, piledriving, etc.) are only permitted in areas that have been designated as limited risk areas. If this is not the case, then the area must first be charted in accordance with the excavation method for high-risk areas. In exceptional cases (e.g. guided horizontal drilling operations) the Civil Engineering manager may permit activities other than excavation to go ahead in high-risk areas (after test trenches have been dug). Any agreements should then be written up under 'comments' on the job preparation form (associated with the excavation permit).

4.2 Rules

The following applies to areas that qualify as 'high-risk':

1. Any paving/foundations present are to be mechanically and/or manually removed.
2. Each 25-centimetre layer that is to be excavated is to be 'spitted' manually with a spade.
3. If nothing is encountered, 10 cm of the 25 cm can be removed mechanically.
4. If deeper digging is required, step 2 is repeated until cables, pipelines or underground systems are encountered.
5. The encountered cables, pipelines or underground systems are then to be dug out further by hand. Drainage and cooling water pipes form an exception. Cables and pipes for fire extinguishing and drinking water (in connection with GRE pipeline) should be suspended at 1.5 m intervals with non-cutting material to prevent damage to insulation as a result of sagging.
6. If a well is or will become fairly deep, the issuer of the work permit should consider whether there is a question of a 'confined space' in conformity with [HAE-026167 Working in Confined Spaces](#).
7. Cable detection is always applied. If there is a slag- and / or foundation layer in the soil, cable detection is only applied after the removal of the upper slag- and / or foundation layer.
8. The contractor is to ensure that personnel are skilled and demonstrably trained with regard to digging pilot trenches in accordance with the U-pattern digging method (see Figure 1) and Yara's rules relating to excavation and earthworks. For this purpose, the Yara excavation test must be successfully completed. The Yara excavation test is mandatory for:
 - Everyone who is to carry out excavation and earthworks on the Yara Sluiskil site.
 - The immediate managers of those who are to carry out those excavation and earthworks.The Yara excavation test is conducted by the FAC department and is valid for two years. An overview of authorised person is available from the FAC department.



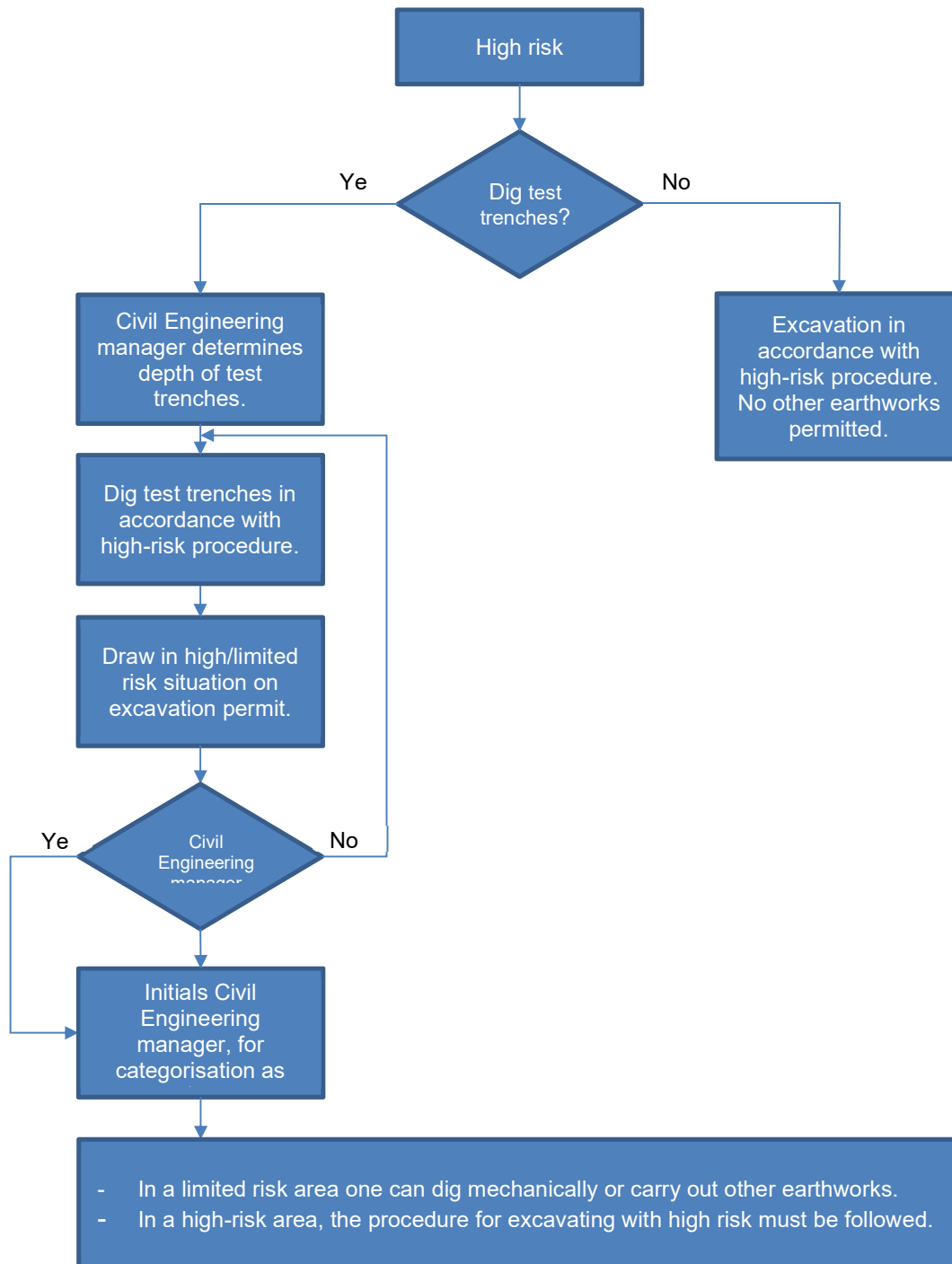
U-steekDEF.pdf

Figure 1

Explanatory note on U-pattern digging:

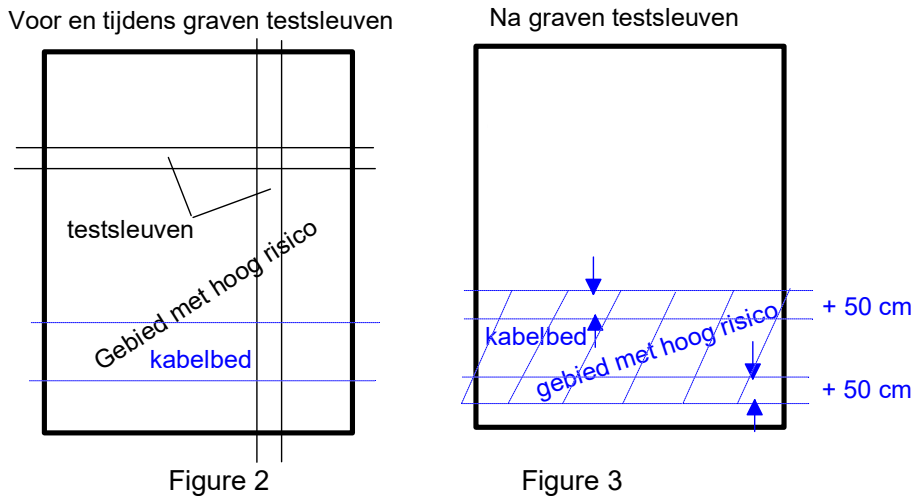
The U-pattern digging method involves first digging pilot trenches both outer sides of the trench in the direction of its length, in order to establish that no cables or cable loops intrude into the excavation zone on either side. The pre-dug sides are connected by a transverse pilot trench across the entire width of the zone that is to be excavated. In this way, one steadily works forward.

The following flowchart shows the normally permitted working method:



Figures 2 and 3 show an example of a high-risk area. By digging test trenches, the location of the cable bed is identified.

Figure 3 shows the cable bed that has been identified after digging test slots and the 50 cm safety margin on both sides that indicate the high-risk area.



For a larger location, for example 50x50m, it is sufficient to dig a trench with a depth of 1500mm and a width of 1000mm around the location. **At the request of the civil engineer**, the additional requirement can be included to provide the site with a test slot which is pulled crosswise through the site in order to obtain **more** certainty.

Furthermore, the following rules must be adhered to:

- The responsible person from Yara and/or FAC must be designated.
- The responsible person of the contractor must be designated.
- A separate excavation permit must be issued for each specific job (depending on the risks). If, while the job is ongoing, something arises which gives cause for deviation from the original excavation permit, this must be reported to the Civil Engineering department and the drawing room so that it can be updated immediately. A new excavation permit must be applied for. Examples of reasons for deviating from the original excavation permit:
 - ✓ changes in the activities
 - ✓ encountering cables & pipelines not shown on the drawing
- The excavation permit, together with the work permit **and TRA**, must be present at the work site.
- The excavation permit is valid for a maximum of 2 months, starting from the date of issue. It is the responsibility of the contractor to hand in the excavation permit at the Yara drawing room, including any amendments, as soon as the earthworks have been completed or the permit expires. The Civil Engineering manager is responsible for issuing a new permit, if necessary, after a previous permit has expired. This is issued in conformity with the issue of the first permit. Any comments, margin notes or measurement data should be noted on the permit. The contractor himself can request an extension, at least 3 days before the existing permit is due to expire. An extension can only be applied for if the excavation work continues without interruption in a subsequent period. The application must be accompanied by a copy of the permit for which extension is requested, including any changes (e.g. cables/pipelines encountered), so that these changes can be taken into account in the new permit.
- A person trained in earthworks must be present at all times if mechanical excavation takes place in a high-risk area. The mechanical excavation must be suspended for as long as this person is not present.
- Cables are (usually) protected by PE protection tiles positioned in the ground 200mm above the cable. If, for the purpose of excavation work, the PE protection tiles have been removed and the cables have not been fully dug out, the previous position of the PE protection tiles should be

marked with cordon tape when leaving the work site so as to avoid touching/damaging the cables on resumption of the work. The same applies when filling in wells/trenches until the PE protection tiles have been installed.

4.3 Special rules for activities other than excavation

Pile driving / vertical drilling / earth spike striking:

When piling piles into the ground, drilling vertically or hitting an earth spike, the underlying soil must be cleared of underground cables and / or pipes. This must be done by digging a hole (at a few posts) at the location of the post / earth spike at least 1500 mm in which a PVC pipe is placed after release. If it concerns a group of posts, it is sufficient to dig a trench with a depth of 1500 mm and a width of 1000 mm around the location of the posts.

After the site has been excavated (with a digging permit), released and marked with a PVC pipe, digging permits are no longer required for hitting the pile / earth spike within the marked area.

Horizontal drilling:

In the case of horizontal drilling work, the risks must be assessed as well as possible using drawings of possible cable networks in the vicinity of the area to be drilled. (Test) trenches along the length of the drilling path (ingoing and outgoing) will provide confirmation regarding cable networks directly next to the object to be drilled under. The finalised working method should be determined by means of the TRA associated with the excavation permit.

4.4 Permit procedure for excavation and earthworks

4.4.1 Excavation permit

An excavation permit should be applied for at least 1 week in advance via Yara's principal. An exception to this may be made in the event of a calamity. The application should be made by written letter or email (F_YARA_SLU_EMP_OND_3665), specifying the location and the reason for the activities. The excavation permit is always drawn up by the Yara drawing room.

If underground cables, pipelines or systems are to be modified, installed or dismantled, the drawing room is to be informed of this at least 1 day in advance so that they have the opportunity to make (or commission) the necessary surveys. This can also be done by the company. In that case, it must supply the data to the drawing room in digital format within three weeks.

The main items of this procedure are:

- In addition to stating whether mechanical excavation is or is not permitted, the excavation permit must state the location, the reason for the activities, and the names of the persons requesting and issuing the excavation permit.
- After generating the excavation permit, the drawing room should fill in the necessary data, adding all the necessary information regarding the location of cables and pipelines, and then sign for agreement. The Civil Engineering manager then discusses the permit, including additional information, with the responsible person from the Electrical department. If they are in agreement, both then sign the excavation permit. The list of positions authorised to do this is included in §3.

It is therefore the responsibility of the responsible persons from both the Civil Engineering department and the Electrical department to ensure that the excavation permit is filled in completely and that all the available information is added to it. For that reason, the two parties must consult each other concerning the permit in question.

The excavation permit contains a 1:250 overview of the area where excavation is to take place, a 1:2000 overview for orientation purposes, and a legend giving an explanation of the symbols and colours used.

Outside daytime working hours one can call upon someone from the drawing room via the Security Department for the issue of an excavation permit. The excavation permit must then be completed and signed by the Duty Chiefs of the WTB and Electrical departments after they have discussed the job and the local situation together. If no digital copy of an excavation permit is available, the Duty Chiefs of WTB and Electrical decide about the start/progress of the activities, subject to the order of priorities.

In the case of earthworks within the area shown on the drawing (see appendix) for which an excavation permit must be applied for, a 'WION notification' (see WION tab) must be made. The notification is provided by the main contractor.

In addition, when work is carried out close to railways outside the site which are managed by a rail infrastructure company, consideration must be given to the technical regulations for the issue of permits by the rail network controller.

For discharges, see procedure [HAE-028352 Agreements with respect to working in \(contaminated\) ground](#)

An example of the checklist appended to the excavation permit can be found as an appendix to this procedure. The department for the issue of the work permit should be stated on the checklist.

4.4.2 Additional condition for the granting of an excavation permit (TRA)

An excavation permit can only be granted after a form for the TRA associated with the excavation permit has been completed, including the 'job preparation' section, and this has been signed by all concerned.

The TRA must be discussed by the persons responsible for the preparation with all the operational staff. In the event of doubt or ambiguity, there is the possibility to have it signed by the responsible Head of Division / Head of Department, or the MT member of the department. Outside of daytime working hours, this should where necessary be done by the duty management member.

In the TRA, one can also state whether the use of a vacuum truck or cable detection equipment is desirable.

A vacuum truck must satisfy the following requirements:

- The statutory requirements.
- SIR requirements or SBG inspection.
- Periodically inspected and approved by an authorised agency.
- Extraction must only be done with a rubber nozzle attached to the hose. The metal (or hard plastic) nozzle is not to be used.
- Hoses must be semi-conducting (Ohm hoses).
- The truck must be continually earthed during the extraction work.

The TRA is given the same number as the lowest number of the excavation permit(s) that the TRA forms part of.

At a minimum, the TRA team for the excavation permit consists of:

- The responsible person from YARA Sluisil B.V.'s Civil Engineering department.
- The responsible person from YARA Sluisil B.V.'s Electrical department.
- The works supervisor of the main contractor.
- ~~All operational staff (earthwork personnel and machine operator, among others).~~
- Expert Supervisor of Projects (DLP)/Expert Environmental Supervisor (MKB).
- Environmental coordinator.
- PROCO from the department where the excavation work is to be carried out (only if there are/may be risks to above-ground systems/installations).

The executor of the main contractor is obliged to demonstrably discuss the approved TRA (incl. H&S plan execution phase) with all contractors (groundworkers, operator, etc.) before starting the work.



TRA

graafvergrunning 120:

On the TRA there is also a reference to the CROW; see [HAE-028352 Agreements with respect to working in \(contaminated\) ground](#).

If there is a question of groundwater being pumped out, one must establish how the water is to be disposed of in consultation with the environmental coordinator of YARA Sluiskil B.V.

4.4.3 Activities cannot be executed in the way they are described in the TRA

If, after work commences, it is found that the activities cannot be executed in the way they are described in the TRA, the works supervisor is to report to the person responsible from Civil Engineering. Both are to go to the site to view the situation.

The person responsible from Civil Engineering is to call for a new TRA meeting, to be attended by at least the following persons:

- The responsible person from YARA Sluiskil B.V.'s Civil Engineering department.
- The responsible person from YARA Sluiskil B.V.'s Electrical department.
- The works supervisor of the main contractor.

The TRA is to be adapted to the changed situation and the above persons are to sign the TRA for agreement.

Some examples of changed situations:

- There is an underground foundation that prevents the digging of pilot trenches.
- There is a clinker foundation that prevents the digging of pilot trenches.

4.4.4 Work Permit

All excavation and earthworks require a normal work permit, issued by the applicable department(s) of Yara in conformity with the prevailing procedure HAE 026168 'Work Permit System', which can be consulted via the internet.

However, before a work permit for this type of work can be issued, the checklist included in the appendix of this document must be completed. This checklist forms part of the excavation permit document that is issued by the drawing room. It is used by the person who issues the work permit in order to check the preparation. As a condition for the issue of a work permit, the form for job preparation/TRA mentioned in paragraph 4.4.2 must be fully completed, signed and handed in with the excavation permit.

The underground risks have been described by experts (excavation work TRA team), and the control measures have been defined. The issuer of the work permit evaluates the ABOVE-GROUND risks and issues a work permit in which the above-ground risks have been evaluated and (if applicable) additional control measures have been defined.

4.5 Documentation, archiving and transmitted changes

Unless otherwise specified, the excavation permit copy and the associated TRA are to be archived with FAC by the applicant for the activities until 3 months after the termination and the earthworks.

FAC is responsible for passing on changes to the Yara drawing room.

4.5.1 Measurement data and/or photos

The company carrying out the activities requests the drawing room to come and record the measurement data at least one day before the trenches are filled in. Or this is done by the contractor himself. Deliver the data in digital format within three weeks. The Drawing Room subsequently processes the measurement data within a week on the original drawings.

5. Deviations from the procedure

5.1 Deviation from the procedure

Deviation from this procedure must be approved by the safety experts of YARA Sluiskil B.V.

5.2 Deviation from the procedure in the event of a calamity

If the procedure cannot be followed during a calamity, permission to deviate from it must be given by the responsible person from Civil Engineering or, outside daytime working hours, by the duty WTB chief – if desirable in consultation with the duty HESQ chief and/or with the duty Electric chief.

6. References

HAE-26168 Work Permit System

HAE-028352 Agreements with respect to working in (contaminated) ground

Certified earthworks personnel folder: Y:\HESQ\17. Production\Earthworks

7. Appendices

App.1 Checklist associated with excavation permit + Plant Layout for which the work permit is valid.



Graafvergunning
2018.pdf



Plant lay out
werkvergunning gebik

8. Underground Networks (Information Exchange) Act (Dutch abbreviation: WION)

On the basis of this legislation, an owner of underground networks (cables and pipelines) is obliged to provide information to the Land Registry regarding the nature and location of these networks. This applies not only to all networks outside the company premises, but also to certain networks within a company's own premises (see list of notified networks). All internal networks (cables and pipelines) which connect to an external network, or whose contents are hazardous, must also be registered in accordance with the WION.

Yara has provided all the required data to a company which passes the data regarding our registered networks electronically to the Land Registry, for availability via 'Klic-online'.

In the event of excavation work outside of our company premises, this Land Registry data about our networks will be exchanged with the company that will carry out the excavation work. Excavation work affecting registered Yara internal networks (see list) must be dealt with in accordance with the same notification procedure, after which a work notification is sent via the Land Registry.

Persons directly involved receive an electronic (email) work notification of all intended excavation work in the area of one or more networks controlled by Yara Sluiskil B.V. For the purpose of (re-)evaluation, the following persons (at a minimum) are to be informed of the intention to carry out excavation work:

- the appointed Yara asset manager
- Duty HESQ chief.

Justification:

By virtue of the legislation, a network controller must appoint an asset manager. Among other things, this person is responsible for issuing the correct information about the networks (at Yara via the appointed company) to the Land Registry. In addition, the asset manager provides reports on any calamities in the prescribed manner.

Calamities:

As a network controller, Yara has to provide for a communication system in case of a calamity / damage to one of our registered networks. On the work notifications to groundwork contractors of (excavation) work in the immediate vicinity of our networks, issued by the Land Registry, a calamity number is given: 0115-474144 (Yara security department). This number is alerted in the event of damage to one of our networks outside the company premises.

The duty security officer immediately alerts the duty HESQ chief. The latter will contact the operational controller of the relevant network in order to initiate action. If applicable, the duty HESQ chief can visit the site in order to record the damage, partly in connection with subsequent actions concerning insurance.

List of networks under the control of Yara Sluiskil B.V. – to be added.

Reference



CROW_publ_250_Richtlijn zorgvuldig graafproces.pdf