

Permitting process on Hydrogen Refuelling Stations
Summary of the practical guide for operators and local residents

As part of the Hydrogen Safety Innovation Programme (*Waterstof Veiligheid Innovatie Programma*, WVIP) under the Dutch H2 Platform

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Introduction

It is expected that the number of public hydrogen refuelling stations in the Netherlands will increase over the next few years. The Dutch Climate Agreement¹ mentions a number of 50 such filling stations by 2025. However, the presence of hydrogen in the vicinity of buildings is a relatively new issue for both refuelling operators and authorities as well as for local residents. Dutch experiences with the current public refuelling stations² teach us that the permitting process, particularly where this touches on the environmental regulations³ and the zoning/development plan, still raises many questions, both for the project developer and the permitting official. The refuelling station operators are rarely used to installations that require environmental permits.

This document is a summary of the points for consideration relating to the process of permitting in the Netherlands. Detailed treatment of these points is included in the 'Practical Manual on the Hydrogen Refuelling Station permitting Process'⁴. The manual has been developed within the working group on 'Uniform Permitting Process' of the Dutch Hydrogen Safety Innovation Programme⁵.

Currently there are a number of national and international initiatives aiming at developing hydrogen refuelling stations. A lack of understanding of the permitting process may however lead to delay. Making available the points for consideration that we are aware of in the Netherlands will therefore hopefully help to prevent such delays.

Regulations for hydrogen refuelling stations in the Netherlands

An environmental permit is always required for a hydrogen refuelling station

Under the Activities Decree⁶ hydrogen refuelling stations are classified as type-C establishments. This means that an environmental permit⁷ is required in all cases. The municipality is the competent authority, which in most cases delegates the processing to the regional environmental agency. A recommendation is sought from the Safety region⁸ for aspects relating to safety. As a result, the process involved can take a relatively long time (at least six months, and on average eighteen months). Where hydrogen is produced, the obligation to obtain an environmental permit also applies under the terms of the Environmental Law Decree⁹. As long as the amounts produced are limited, the municipality will remain the competent authority.

Hydrogen refuelling stations do seldom fall under the Decree on Major-accident Hazards¹⁰

For the purposes of this document, we assume that stations will store a maximum of 5,000 kg of hydrogen. Above that cut-off point, other requirements are applicable.

In the event of new construction or conversion, a building permit will generally be required

For the realization of a hydrogen refuelling station or for the conversion of an existing filling station, a building permit¹¹ will generally be required.

The activity does not usually fit in with the development plan

In nearly all cases, such initiatives are in breach of the prevailing development plan, if only because most development plans do not take into account the possibility of using hydrogen as a fuel. So as a rule it is advisable to carefully select the location of any intended refuelling station, and to factor in ample time to either allow for a change in the development plan or apply for a dispensation¹² from the terms of the development plan.

Refuelling stations on the primary road network also require a permit of RWS

¹ [Klimaatakkoord](#)

² Current public hydrogen refuelling stations in the Netherlands are in: Rhon, Helmond, Arnhem, Delfzijl, The Hague. See also the List of hydrogen refuelling stations Benelux (Waterstofnet)

³ Act providing for uniform provisions for managing the physical environment (Wet algemene bepalingen omgevingsrecht-Wabo)

⁴ In Dutch: "[Praktische handleiding Vergunningproces waterstof tankstations](#)"

⁵ [Waterstof Veiligheids en Innovatie Programma \(WVIP\)](#). This programme aims to facilitate the introduction of hydrogen on a wide scale by identifying and addressing potential risks, and by designing suitable precautions to mitigate and manage risks.

⁶ *Activiteitenbesluit*

⁷ Wabo, as mentioned before

⁸ Dutch "Veiligheidsregio"

⁹ [Bor, appendix 1C, cat 2.1](#)

¹⁰ [Brzo and Bevi partly form the Dutch implementation of the Post Seveso Directive \(2012/18/EU\)](#)

¹¹ [Bouwvergunning](#)

¹² [Afwijking bestemmingsplan](#)

What is specific to road traffic is that filling stations on the primary road network also need a permit under the terms of the Management of Rijkswaterstaat Structures Act¹³

PGS 35 is the basis for the environmental permit

PGS35¹⁴ is considered as the best available technology and therefore forms the technical basis for the permit requirements. For instance, PGS 35 describes the calculation for the maximum heat radiation (in kW/m²) between the various parts of the delivery installation, which results in internal safety distances. PGS 35 also covers the rules for storage and delivery. The selected manner of supplying hydrogen is a determining factor for the technical configuration and the external risk and, as such, cannot simply be changed during the permitting process.

Risks are assessed in line with the Decree on External Safety of Establishments¹⁵, which implies a QRA

The competent authority shall specify that the operator identifies the risk and safety distances as required for the assessment of external safety. Although hydrogen refuelling stations do not fall under the Decree on external safety of establishments, in most cases a Quantitative Risk Assessment (QRA) study, reflecting the requirements set out in the Decree, is mandatory.

Permitting process

Sound consultation in advance with all those involved, is an important pre-condition for swift implementation

Hydrogen-related initiatives are relatively new, and both competent authorities and local residents have limited experience in this respect. When assessing the application for a permit and the subsequent procedure, the competent authority will ask the safety region to make a recommendation. For many local residents, a hydrogen refuelling station in their immediate residential vicinity will raise questions. Therefore it is essential to consult properly in advance with the municipality, environmental agency, safety region and other interested parties (such as local residents). This prevents delays or obstructions.

The QRA is a study that shows whether the proposed site is feasible from the point of view of the risk assessment. The local risk (the so-called 10⁻⁶ risk contour) must be lower than 10⁻⁶ in relation to local vulnerable buildings and structures (such as dwellings and schools). Ideally, these 10⁻⁶ contours would be within the boundaries of the establishment in question, but this is often not the case. Where the local risk in the vicinity of a vulnerable building or structure is greater than 10⁻⁶, mitigating measures must be taken to reduce these contours. Where this is not possible, the site will no longer be considered. The group risk must also be ascertained and assessed. This assessment is an administrative consideration.

The permitting procedure is the same for hydrogen refuelling stations as for other establishments.

The Administrative Guide to Hydrogen Filling Station Licensing¹⁶ describes the following steps in the permitting process:

1. Preliminary phase and 'quick scan' outlining the possibilities and potential sticking points
2. Determining whether the application is admissible and licensable
3. Justification of the group risk
4. Formulation of rules
5. Data input in the risk register/risk map
6. Risk communication
7. Enforcement
8. Preparation of incident control

The flow diagram below gives a summary of the permitting process steps. These steps have been described in more detail in the before mentioned Practical Manual on the Hydrogen Refuelling Station permitting Process.

¹³ [Wet beheer rijkswaterstaatwerken \(Wbr\)](#). Implementation of the *Wbr* rests with Rijkswaterstaat.

¹⁴ [PGS 35: Waterstof-Afleverinstallaties van waterstof voor wegvoertuigen, 2015](#). A new version is expected to be published end 2020. The 2015 version is also available in English.

¹⁵ [Bevi](#)

¹⁶ [Bestuurlijke handreiking vergunningverlening Waterstoftankstations](#)

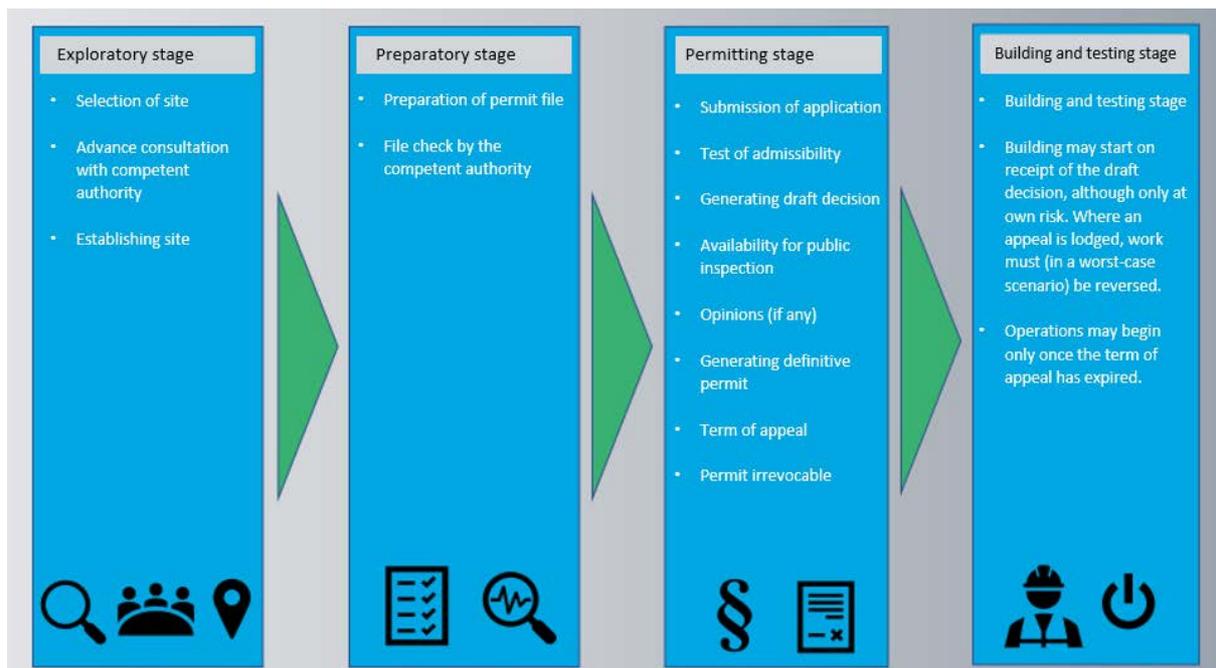


Figure 1. Stages in the process of licensing a hydrogen filling station

Options for lodging an objection or appeal

The operators and other interested parties have the option of issuing a formal response at three points¹⁷ during the permitting procedure: an opinion on the draft decision, an objection against the definitive decisions and the option of an appeal to the courts.

The operator must provide information when applying for the environmental permit

The competent authority shall indicate which studies, documentation and/or other information must be submitted where an application for a permit is made. The following studies and documentation are often required:

- Non-technical description of the hydrogen refuelling station
- Water and soil survey specific to the site
- Study into discharge to surface water, including rain water
- Acoustic survey
- Study of emissions to air
- Plan justifying change of land use in development plan
- Ecological study under the terms of the Nature Conservancy Act¹⁸
- Traffic mobility study
- Maps, elevations and cross-sections, 3D visuals
- Plan of aspect/landscape for municipal aesthetics committee
- QRA safety study for impact on external safety
- Waste management plan
- Energy management plan

Moreover, it is possible that the following information must be available when the operation starts:

- Explosion protection document and emergency plan
- HAZOP study
- Transport routes of hydrogen delivery by tube trailer

Tip: Incorporate an option to make amendments to the application for a permit

We recommend establishing the starting points and technical scope at an early stage, and keeping these unmodified in the course of the process. Should a technical configuration change during the permitting process it will be necessary to go through some aspects of the process again, which could result in delays. It is often agreed with the consultancies to be used and the competent authority to only process all changes in one go at the very end of the procedure. At this point, the final design can be reviewed to see whether it

¹⁷ Infomil describes these [three points](#)

¹⁸ *Wet natuurbescherming*

meets all requirements. All definitive survey reports and documentation can be submitted in one go as a supplement to the application on the basis of the definitive design.

Recommendation: Wait until the scope and site layout have received approval before carrying out the study
We recommend not having studies carried out until the scope and site layout have been approved. In the start-up phase it is possible, in the first instance, to use the fixed distances as described below in section '[Legislative developments: the Environment and Planning Act](#)'. Once the site layout and the scope have received approval, it is possible to proceed with a QRA study.

Legislative developments: the Environment and Planning Act¹⁹

The Environment and Planning Act will change the legislative framework, but the relevant rules will remain
The legislative framework for the application and the granting of environmental permits in the Netherlands is on the brink of change with the entry into force of the Environment and Planning Act. This act is a compilation of dozens of acts relating to such aspects as construction, the environment, water, planning and nature. This will bring about a change in the permitting process, but substantive considerations will remain largely intact.

What this means is that municipalities will have more freedom to take local considerations into account, and to match their environmental policy to their own needs and aims. There will be more rules and regulations with a general character, rather than detailed permits to facilitate initiatives, so the attitude when assessing plans will shift from 'no, unless' to 'yes, provided that'. However, rules and regulations will continue to apply to activities that involve risk, such as hydrogen filling stations. These are further elaborated in the Quality of the Living Environment Order²⁰ and the General Rules on Activities Order²¹

In future the Environment and Planning Act will regulate fixed safety distances

When the Environment and Planning Act enters into force, the Decree on External Safety of Establishments will be repealed, and the risk and safety distances in the Quality of the Living Environment Order will be incorporated. The Order includes fixed safety distances²²: for the local risk this is a distance of 30 metres from the buffer tank, where the hydrogen is delivered via pipelines or produced on site, and a distance of 35 metres from the filling point, where the hydrogen is delivered via tankers. In addition, a distance of 55 metres from the buffer tank applies for the fire focus area.

Involving stakeholders

The here suggested approach implies to involve all stakeholders during the permitting process. This approach is in line with one of the principal starting points of the new Environment and Planning Act, which requires operators and the competent authorities to consult with each other and ensure that all stakeholders are on board during the permitting process.

¹⁹ [Omgevingswet](#), expected to come into force in 2022. An [Unofficial-translation-of-the-environment-and-planning-act](#) in English is available

²⁰ [Besluit kwaliteit leefomgeving \(Bkl\)](#)

²¹ [Besluit activiteiten leefomgeving \(Bal\)](#)

²² Based on [RIVM-memo](#)