H2STATION®
HYDROGEN SAFETY PLAN

Everfuel® - hydrogen fueling network in California

Proposed Station Locations:
xx proposed Locations
in Southern California

GFO-15-605
Alternative and Renewable Fuel and Vehicle Technology Program
Light Duty Vehicle Hydrogen Refueling Infrastructure

Revision date: August 7, 2016

Applicant's Name:
Everfuel US Inc.

Equipment provider
H2 Logic A/S

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1. Scope of work

1.1 Scope of work

This safety plan provides the scope and nature of work conducted by H2 Logic in relation to the hydrogen refueling stations proposed by Everfuel (hereinafter Station Developer).

H2 Logic will manufacture, install and conduct service, maintenance and operation of the proposed stations for Station Developer. The proposed stations will all include identical H2Station® CAR-200 products from H2 Logic (as outlined in section 1.2)

H2 Logic is a company that develops, manufacture and test the H2Station® product fully in-house. H2 Logic also manage siting, installation, and commissioning and may also be responsible for the operation incl. service and maintenance the H2Station® at existing commercial fuel sites of any brand and or Greenfields. H2 Logic is therefore strongly involved and main responsible for the evaluation and mitigation by risk management within each of the named phases.

A hydrogen fueling station is an advanced product that operating with high pressure and flammable gas. H2 Logic has since 2003 manufactured hydrogen products and developed and implemented methods, technologies, processes and procedures to handle hydrogen, the installation and commissioning of the equipment in a safe way. H2 Logic does not accept any accidents with our products or our people. An accident may have large impacts on the injured persons and their relatives as well as jeopardizing then entire hydrogen mobility roll out. Therefor safety have the highest priority in H2 Logic above everything else.

Besides developing safe products and procedures for our own products, H2 Logic also participates in developing ISO, SAE, CSA and other international standards and sharing our experience with the industry to ensure a safe way of handling hydrogen. H2 Logic also work with authorities on providing input on relevant precautions and practices that authorities can use in their work with approving hydrogen refueling stations. H2 Logic among other developed one of the first response guidelines for hydrogen refueling stations in Europe together with Danish authorities.

H2 Logic have all competencies and processes internally involved in providing a hydrogen fueling station to the market. This covers sales, product development, production, quality, projects, siting, service, and maintenance. H2 Logic controls all the processes involved in building a hydrogen fueling station, installing and servicing it afterwards. This means that H2 Logic continuously capture substantial experience in the processes with limited dependency on subcontractors.

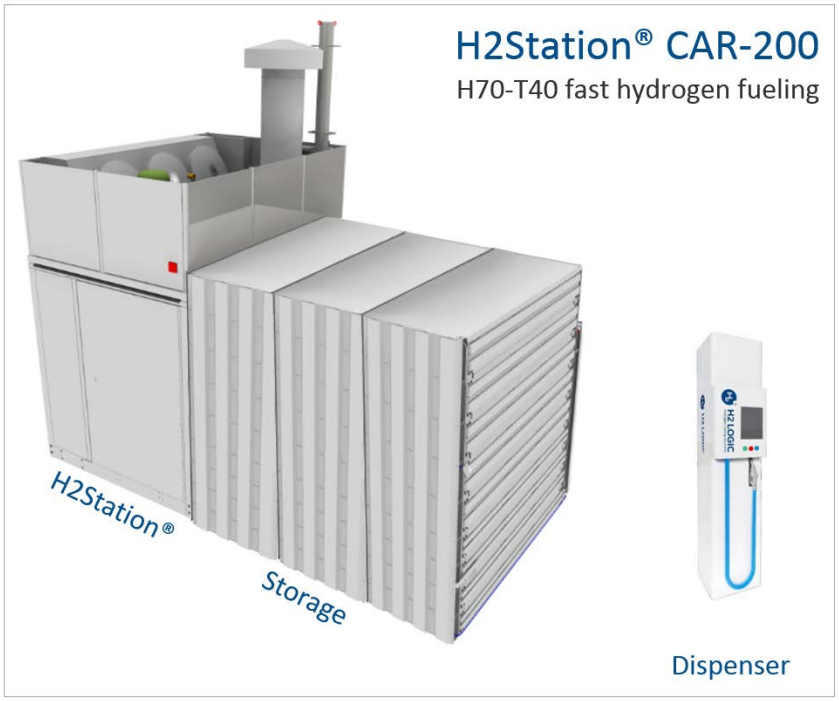
The H2Station® from H2 Logic is a fully standardized product and manufactured at factory and shipped to site for installation. In the design of the H2Station® is was decided to improve the risk assessment from a standard FMEA process to a risk assessment in accordance with IEC standard with HAZOP/LOPA. With a qualitative and semi quantitative assessment procedure with a more structure around the risk assessment. The HAZOP /LOPA process requires substantial more work but with a standard product, it is possible to conduct this cumbersome process and achieve product with a higher degree of structured and considered safety.

1.2 H2Station® CAR-200 fueling equipment overview

The H2Station® CAR-200 is based on years of development and operational experience in more than seven countries in Europe. H2 Logic was one among the first companies to successfully conduct 70MPa fast fueling in 2011 in accordance with the SAE J2601 – since then, the company has delivered more than 30% of all new 70MPa fueling stations in Europe.

The H2Station® CAR-200 is the latest 70MPa product generation for use in both Europe and USA and designed for high volume manufacturing at the world's largest factory for hydrogen stations.

CAR-200 is features one of the most compact footprints on the market which enables integration at even compact gas station forecourt sites as are the most common throughout California.



The fueling station consists of a H2Station® module with internal compression, cooling and control systems. This module is then connected to hydrogen storage and dispenser. These modules are designed with a minimum footprint, allowing for flexible on-site placement to ease integration into existing station configurations.

The H2Station® design and layout will be the same across all proposed stations to enable volume and synergy on manufacturing, installation and operation.

2. Organizational Safety Information

2.1 Organizational Policies and Procedures

Safety has the highest attention within H2 Logic.

H2 Logic's core business is sales of hydrogen refueling stations where a large part of the development, manufacturing and testing is done in-house. H2 Logic R&D department is dedicated on the development of hydrogen fueling solutions. Currently are there approx. 25 fulltime employed mechanical, electrical, process and software engineers, technical designers and safety and hydrogen component experts within the R&D department.

H2Station® safety and design goal:

- "Ensure that fueling of fuel cell electric vehicles are as safe as fueling of a gasoline car"
- "Ensure a safe, reliable and cost effective fueling of hydrogen"

H2Station® Safety design philosophy:

- Designed to avoid situations that may create hazardous situations by:
- Limiting risk of hydrogen release
- Reduce risk of sparks
- Protect vehicle against overfilling or high/low temperature
- Fail-safe of components when no power
- Detect and react to errors (e.g. leaks)
- Divide safety functions and process control

H2 Logic governance structure secures the split of safety related issues between two committees that each has a focused task and role, as outlined further below. The committee's reports regular to the entire management team on the status and progress.

Product Safety Committee task and role:

- Ensure that products and services are in compliance with rules and regulations
- Ensure that the products are designed to fulfill a very high safety level
- Monitor the installed fleet of H2 Logic products and if there have been and reports on potential product hazards.
- Monitor that all service jobs are performed safe and on time
- Management members: CEO and managers for development, service and quality

Safety Committee role and task

- Ensure a safe work environment for all employees and subcontractors if any
- Review the safety activities and plan the coming activities
- Ensure that workplace assessments/risk assessment are updated regularly
- Audit all activities with regard to safety and report deviations
- Ensure that all employees are trained sufficiently
- Investigate near misses, potential injuries, accidents and implement corrective actions
- Management members: COO and manager of production, service and quality.

H2 Logic have over time collected a vast experience which have been formalized into processes, work instructions and design guidelines to ensure that best practices are deployed in new products and work processes. This means also that the processes and procedures covers all aspects from the sales phase to development, production, siting and service and operation.

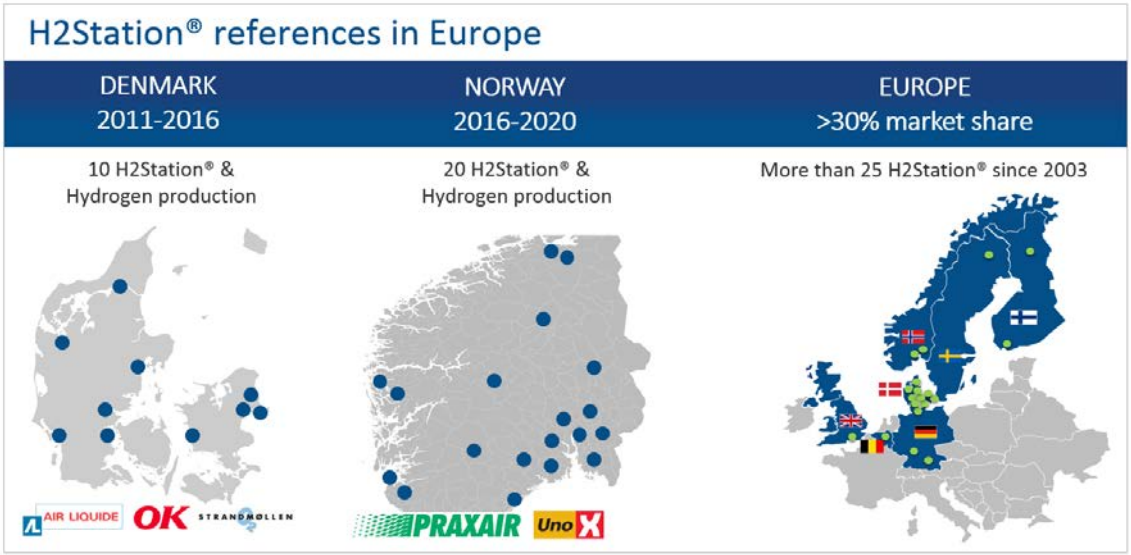
Employees are trained and audited regularly in the processes (as a minimum on a yearly basis). The processes can only be updated if they are approved by the department heads.

2.2 Hydrogen and Fuel Cell Experience

H2 Logic has worked with Hydrogen equipment since 2003 in many different aspects from installing fuel cells in a variety of vehicles to energy storage systems to hydrogen fueling. Today H2 Logic is 100% focused on hydrogen fueling stations but the understanding of the vehicles have been vital in building the experience.

After several years of focused development efforts, H2 Logic installed one among the first commercial 70MPa SAE J2601-compliant station back in 2011 in the world. Since then, H2 Logic has delivered more than 30% of all new 70MPa stations in Europe, contributing to more than 25 H2Station® fueling solutions delivered across seven countries since 2003.

Several H2Station® solutions were established via joint venture collaborations with major oil and gas companies, targeting countrywide network rollout in nations such as Denmark and Norway



H2 Logic's comprehensive experience and longstanding network operational period with 70MPa fueling have enabled them to continuously perfect the H2Station® technology, resulting in consistent and proven, high-reliability operation, and fueling availability for consumers.

For a reference list of hydrogen refueling stations delivered across Europe, please see:
http://h2logic.com/products-services/track-record

3. Project Safety

3.1 Identification of Safety Vulnerabilities (ISV) & risk reduction

3.1.1 Safety philosophy

H2 Logic have an overall vision with respect to safety and design to ensure that refueling on fuel cell electric vehicles are as safe as fueling a gasoline car and that our H2Station® ensures safe, reliable and cost effective fueling. *Our s*afety philosophy is that our products shall be designed to avoid situations that create hazardous situation. By e.g. limiting risk of hydrogen release, reduce risk of sparks, protect vehicle against overfilling or high/low temperature, detect and react to errors (e.g. leaks and have a dedicated safe process control system implemented to divide between safety operation and non-safety related controls. Furthermore, the solutions feature mechanical protection to prevent external events such as collisions by vehicles or other events.

3.1.2 Risk assessment

The H2Station® technology has undergone extensive and several risk assessments during the development and design. This involved among others:

- Identifying the safety critical function and mitigation to ensure safe operations
- Defining of acceptance criteria of risk
- Identify risk by a qualitative risk assessment made in a HAZOP.
- Define level of risk (likelihood and severity) and compare with acceptance criteria of risk

If the risks acceptance criteria were not met during the H2Station® design process additional safe guards were implemented thereby reducing risk to an acceptable level.

If risk acceptance level were not fulfilled qualitatively then a semi quantitative risk assessment on those hazards where conducted. Here statistical data were used for condition and frequency inputs. Firstly conditional modifiers, enabling events, and independent protection layers were identified, then the probability for the different layers were assessed and additional barriers implemented into design if needed. Concluding with a calculation and verification that risk is at an acceptable level and accept criteria's were achieved.

To obtain a high level of security a dedicated safety instrumented system is used, designed and implemented and tested in accordance with IEC 61508/61511. H2 Logic further have third party review of our risk assessment and all our safety instrumented functions are documented and verified by third party to ensure a safe operation of the H2Station®.

Further H2Station® is designed to comply with the newest ISO 19880-1 *"Gaseous H2 Fueling Stations General Requirements"* and relevant sections within latest HGV standards and codes such as NFPA 2. Further a risk assessment on the mechanical design is performed.

Responsibility for the design phase is the technical project manager who leads the process together with process engineers to perform the risk assessment. Responsibility for the operations onsite is the project director Infrastructure who leads the process together with project managers, process engineers and service/operation managers.

The risk assessments were conducted with a team of expert that brings in their experience in discussion on the risk and what can be implemented of different barriers to lower the risk to an acceptable level.

Each assessment were documented in a tool where it is possible to include experience from databases in the industry H2 Logic field experience, which provides basis for a very high degree of safety.

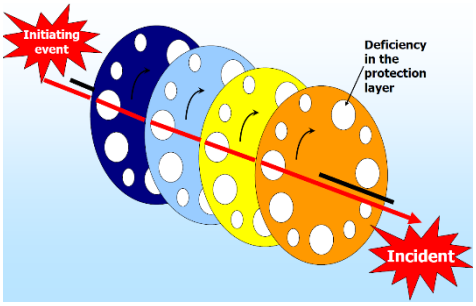


Figure shows the principle of layer of protection analysis works

The risk assessment process has been performed in accordance with relevant standards such as ISO 31000, ISO / IEC 31010, and ISO 12100.

3.1.3 Safety aspects of the H2Station® design

The H2Station® is designed with a compressor that captures hydrogen from a supply storage and compresses this into a high-pressure fueling storage from where fueling is conducted. Further on the H2Station® modules and layout is provided in other sections.

The fueling process is controlled by a safety instrumented system and basic process control system which is implemented in accordance with IEC 61508/61511. The process system control the process and the safety instrumented system, monitors the process system and ensure that system goes into safe condition if a safety system is activated.

Using a hydrogen refueling station has several potential risk that were taken into account when designing the H2Station® to acceptable risk levels:

- Risk of hydrogen release
- Risk of hydrogen release and having sparks to can cause explosion
- Risk of hydrogen release and ignition to create a jet flame
- Risk of vehicle being filled with to high overfilling or high/low temperature
- Risk of component failure like valve that can cause hydrogen internal or external
- Risk of service and maintenance with opening H2 system
- Risk of human failure and external onsite conditions

Each risk were identified as a part of the risk assessment and different barriers implemented risk mitigation. Some barriers are identified as safety critical components. All the safety critical components used in the safety instrument system are marked yellow, meaning that trained service employees performing tests or service would easily identify that these components are critical for the safety level. In addition, the components used within the safety-instrumented system has a certain level of reliability or safety integrity level (SIF) to ensure a consistent defined safety level. Safety critical components such as, hydrogen detectors, UV detectors, smoke detectors, temperature and pressure transmitters and mass flow metering.

For the entire H2Station® an area classification is made in accordance with "IEC 60079-10: Classification of hazardous areas". Service personnel working at the station will therefore know how to handle the usage and where the hazardous locations are placed.

3.1.4 Engineering Change Management

If new suggestions for improvement on the safety are identified, after design is completed or later during operation. The process for handling updates is executed through an H2 Logic Change Management system where is change is handled as an "Engineering Change Order" (ECO), applied on changes in Components, Assemblies, Documents, Processes, Work instructions and Specifications and others. The ECO is to ensure that all relevant updates are approved and done. The decision with respect to updates on already existing H2Station deployed are taken within the Product Safety Committee.

3.1.5 End of Line testing

When the fully assembled H2Station® leaves the last working station at the assembly line, it is thoroughly tested according to the "end of line" tests such as; I/O, Control of assembly, Safety Matrix, startup and check of pneumatics and cooling. After the H2Station® successfully passed these tests, it is flushed with nitrogen before the introduction of hydrogen and extensive in-house product acceptance tests starts such as; Start-up and leak check compressor and connections, boosting of banks, regulation valve check and test of refueling sequence, IR communication and flowmeter reading and safety systems functionality tests.

3.1.6 Certification by third party

After a successful "end of line tests", the H2Station® is thoroughly tested and certified by third parties to secure compliance with all applicable standards and codes on design, assembly and at component level. Also third parties are involved to verify the testing procedures and witness refueling protocol compliance testing and weight and measurement for fueled hydrogen amount.

3.1.7 HSSE during Site construction

To assure adequate HSSE performance (Handling of Health, Safety, Security and Environment) during the execution of site construction H2 Logic is working closely together with subcontractors to identify and plan HSSE capability, competence or performance gaps. H2 Logic audit each subcontractor and seek assurance that HSSE requirements have been implemented and are effective. This is to ensure that each subcontractor takes ownership and responsibility for assuring HSSE during performing of work at site. H2 Logic has gained extensive experience from working with major oil and gas companies e.g. Shell where the Permit to Work system is used. More info on PTW certification is provided in section 4.

3.1.8 HSSE at Installation site

H2 Logic has requirements for the production of HSSE plans at each installation site which includes topics such as: project description, time plan, project organization and responsibilities, required employee and tools certification, goals, reporting of “Near Misses” and “Potential Injuries”, Hazardous material incl. datasheets, PPE’s, working hours, zoning, dispatch of waste materials, toolbox talks, nearest hospital and drawings and setup of safety zones. The HSSE plans are to be reviewed and approved before the actual installation process by an individual.

Joint	Product manager				Service Manager	
1. Define	2. Design	3. Approve	4. Dev. release	5. CAD release	6. Implement	7. Close
Resource: All	Resource: Dev. engineers	Resource: Product comity	Resource: Dev. engineers	Resource: CAD	Resource: Production Service Technician	Resource: Service Manager

3.1.9 Separation distances

The H2Station® is installed onsite according the latest standards and codes such as NFPA 2. At sites where H2 Logic wishes to reduce separation distances the performance based option according to NFPA 2 is used. This process is performed by risk analysis as formulated in section “Risk assessment” within this chapter and will be performed in close cooperation with the responsible local AHJ.

3.1.10 Hydrogen delivery

H2 Logic has identified the safety critical functions within hydrogen delivery and transfer to ensure safe operations during the hydrogen delivery process. Relevant codes and standards which address the hydrogen delivery and unloading procedures and experiences from gas suppliers and H2 Logic are included in a risk assessment for the delivery process. This will be made at each installation site according to the same principles of risk assessment described under section “Risk assessment” within this chapter. Some of the nodes within the risk assessment are; leakage, jet flames, damage to connections, no grounding of supply vehicle, high and low temperatures, people at the site, traffic routing, and location for unloading, separation distances and

vehicle impact. The final recommended controls and features are summarized and communicated towards responsible AHJ for final approval.

In addition, the hydrogen unloading process is controlled by the H2Station® safety instrumented system and basic process control system which is implemented in accordance with IEC61511.

The process system control the process and the safety-instrumented system monitors the process system, which ensures that system goes into safe condition when the safety system is activated. H2 Logic designed the complete system from the manifold, where the delivery truck connect to, all the way downstream to the supply storage with a range of safety systems (located at the supply storage) which are designed as outcome from quantified risk assessment, input from gas suppliers and relevant design input as stated within applicable standards/codes.

The safety between the manifold and the hydrogen delivery gaseous tube trailer is performed according to the gas supplier cascade unloading procedures. H2 Logic have ongoing dialogs with gas suppliers related the safety design of the delivery truck and possible implementation of stronger administrative controls and engineered features there were deemed to be required as outcome from the H2 Logic risk assessment.

H2 Logic is responsible for site management and general safety on behalf of the Station Developer and works closely with suppliers to create a traffic plan for each proposed station site. These plans include the ingress and egress for FCEVs, daily vehicle traffic for fueling and shop access, and non-hydrogen fuel delivery trucks and trailers at the sites. Sufficient space for delivery truck turn-radius and access will be built into each site's layout and plans equipment.

While chances of hydrogen deliveries interacting with other fuel deliveries is very small, gasoline and other non-hydrogen fuel deliveries will take ingress and egress priority at station sites. To integrate hydrogen fuel into existing business landscapes with minimal impact the Station Developer will coordinate with gasoline and other liquid fuel suppliers to understand their delivery schedules, where applicable. The Station Developer will aim for early morning or nighttime deliveries during the initial phase of network rollout (i.e. when stations have lower throughputs) in compliance with all local ordinances and where possible.

Further optimizing fuel deliveries, H2 Logic designed site configuration flexibility in their fueling equipment and hydrogen delivery system allowing for large distances between the various equipment modules. The hydrogen delivery truck location is also flexible. Delivery trucks will tap into the onsite hydrogen storage at the manifold, which is connected via piping and placed at distance.

A risk assessment will be conducted before permitting to confirm locations for the under or aboveground located dump-off manifold, storage, equipment, etc. and—if necessary— Station Developer and H2 Logic will take mitigation efforts to accommodate fueling at these sites. Final delivery operations procedures can be shared with the Hydrogen Safety Panel and will be admitted at local AHJ.

3.1.11 Service, Maintenance and Operational safety

Service and maintenance including operational requirements are investigated within the same principles in defining acceptance criteria of risk, and then identify risk by a qualitative risk assessment made in a HAZOP. Then afterwards define level of risk (likelihood and severity) and compare with acceptance criteria of risk. Results are translated into operation/maintenance checklist/procedures, where i.e. operational checks, tests and maintenance are performed at adequate intervals.

In addition, the H2Station® is provided with several manuals, which includes analysis of the potential hazards in and around the hydrogen fueling equipment including requirements to obtain safety to the highest standards and safe operation. For instance it is not allowed for an operator to perform “safety related” service and maintenance that could affect the safety system design.

Access to the H2Station® control system are with different levels of access codes as where the service responsible (H2 Logic) will be the only with the ability to place the H2Station® in manual operation during relevant service work. The operator will therefore not be able to make hazardous operational safety changes within the controls of the H2Station®.

3.2 Operating Procedures

3.2.1 Main safety features provided with the H2Station®

Below are listed main safety features integrated in the H2Station® design:

- Separated safety PLC ensuring monitoring of safety critical processes during fueling
- Hydrogen dispenser with break away, tilt sensor and a sophisticated leakage monitoring
- Constant monitoring of hydrogen leaks in compressor room with hydrogen detector
- Constant monitoring of flames and sparks in compressor room with UV flame detector
- Isolated tanks with automatic shut off valves to isolate tanks from stations
- Constant monitoring of oxygen level inside compressor room
- Smoke detectors to detect fire in compressor room and control room
- Continuous mechanical EX ventilation in hazard areas to avoid occurrence of an explosive atmosphere.
- Wetted components are made of hydrogen compatible materials and relevant components tested after EN ISO 11114-4 “Test methods for selecting metallic materials resistant to H2 embrittlement”
- Higher pressure pipes are connected with C&T fittings (cone and thread)
- Multiple redundancy on critical safety and refueling parameters (pressure and temperature sensors)
- Safe release of hydrogen in case of hazards through hatches, chimneys

3.2.2 Safety System Testing, Calibration and Station Inspection

All safety systems are thoroughly tested throughout the operation of the H2Station® lifetime and must pass to continue operations, especially the initial testing before a site is deemed operational. H2 Logic will where relevant in cooperation with Station Developer develop a custom site inspection sheet during station start-up. During the station operational period H2 Logic will conduct periodic and preventative maintenance with the intervals as outlined in tables below.

Level 0 – every 3 months
• Visual inspection of entire H2Station®
• External leak detection
• Lubricating of filling equipment

Level 1 – every 6 months
• Visual inspection of entire H2Station®
• Calibration of hydrogen detector
• External leak detection
• Lubricating of filling equipment
• Change of oils & filters

Level 2 – every 12 months (includes Level 1 maintenance)
• Level 1 items (see table for Level 1)
• Compressor inspection
• Safety test of hardware and software
• Component leak test
• Inspection of cooling system
• Verification of flow meter

Level 3 – every 4.000 compressor hours (done together with Level 1 & 2 maintenance)
• Level 1 and 2 items (see tables for Level 1 and 2)
• Change of wear parts
• Change of compressor oil (only if necessary)

To minimize impacts on fueling availability during high-demand periods of the day, maintenance will be carefully and appropriately scheduled. Maintenance may also be conducted in conjunction with a service response to a downtime event, further reducing the station downtime.

The maintenance will be conducted by an H2 Logic service team, consisting of technicians qualified and trained to conduct maintenance as well as any advanced repair of the H2Station® equipment, according to internal H2 Logic procedures and this safety plan

3.2.3 Procedures

H2 Logic has a range of specific procedures for the various maintenance or repair work on the H2Station® out outlined below.

- **H2 Logic Work Clearance Form**
  This form is filled out before each maintenance job to secure safe work and make sure that the work has been coordinated between stakeholders at the site. (i.e. other sub-contractors, shop employees, delivery truck operators etc.)
- **Procedure how to use Double Block and Bleed valve**
  Instruction in how to do a safe operation of the Double Block and Bleed valve, often used before a maintenance job on the station.
- **Flushing of hydrogen storage system**
  This is used to secure that the hydrogen storage system is correct flushed before any maintenance job.
- **Procedure how to work in ATEX / classified zone/area**
  This procedure describe how to work safe in an ATEX zone: Use of ATEX tools, ATEX clothes/shoo, Personal Gas Detector etc.
- **Procedure how to work at a station with a hydrogen leakage**
  The procedure describe how to work safe in an area with a small hydrogen leakage. Typical during repair of a leakage.
- **Procedure how to leak test**
  The procedure describe how to perform a leak test of a pressurized system.

Any changes to the procedures/documentation or change of components during service and maintenance are done in Management of Change Procedures as outlined in this safety plan.

3.2.4 Instant Service Response Process

Each H2Station® will be connected to a central operations monitoring facility operated 24/7. This allows for the instantaneous, remote response to downtime events by skilled engineers and technicians. For down-time events that cannot be resolved from remote a regional service team will be dispatched to conduct addressing at the station site.

Operation events are automatically categorized by H2Station® controls according to their impact on the fueling performance offered:

- **Warning mode** (normal fueling) = minor event to be addressed later
- **Alarm mode** (limited fueling) = event affects fueling performance - instant resolution
- **Failure mode** (no fueling) = event causes down-time –instant resolution

This categorization ensures that only major events (Failure mode) cause down-time and an un-availability of fueling for consumers. Whereas, events that only impact fueling performance (Alarm mode) still allow for limited fueling (e.g. a slower or less complete fueling).

Minor events (Warning mode) that do not affect fueling performance are registered instantly, so they can be addressed at a later stage (e.g. late evening or night), so they will not impact operation and fueling availability during high-demand periods of the day (likely between 6 a.m. to 10 p.m.).

A logbook of the H2Station® operation is provided to the Station Developer on a regular basis and includes a description of all operation events such as alarms, operation modes, work performed, exchange of components and other activities performed.

3.3 Management of Change Procedures

H2 Logic has an Engineering Change Order progress with an ECO template. It is not allowed to make any changes to a hydrogen refueling design without using the ECO process as well as it is not allowed from service or production to deviate from the design without getting the design updated through an ECO.

In H2 Logic it is important to capture learnings into design guidelines and process – to ensure that all work are done according best practices and processes and procedures.

The ECO starts with a design proposal – that has to be followed by an update of the risk assessment. The ECO will as a minimum need to be approved by quality management – if it involves any changes to the safety system of the H2Station® it must also be approved by the Product Safety Committee.

The ECO's are saved for minimum 10 years

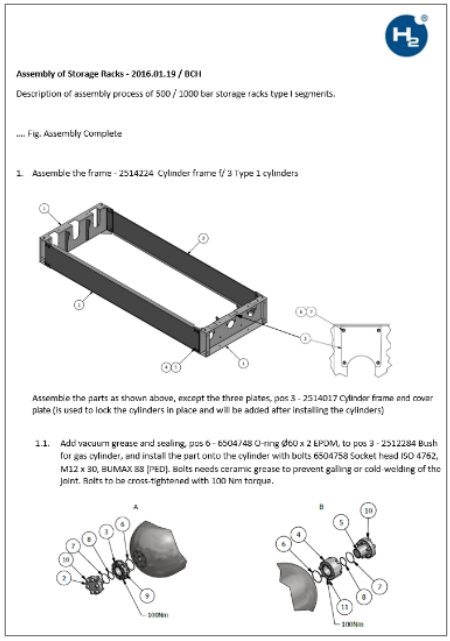
3.4 Equipment and Mechanical Integrity

3.4.1 Inbound inspection

Prior to assembly, all components of importance are submitted to inbound inspection, ensuring that the delivered components are according to the purchase specifications. Especially for hydrogen, components there are several Technical Purchase specifications (TPS), i.e. a specification covering hydrogen Embrittlement in the materials.

The assembly of the H2Station® modules are described in Standard working procedures:

1. Thorough described assembly instruction for each module
2. Detailed standard work instructions for each assembly station
3. Skill Matrix, ensuring only instructed personnel performing assembly



Assembly of Storage Racks - 2016.01.19 / BCH

Description of assembly process of 500 / 1000 bar storage racks type I segments.

.... Fig. Assembly Complete

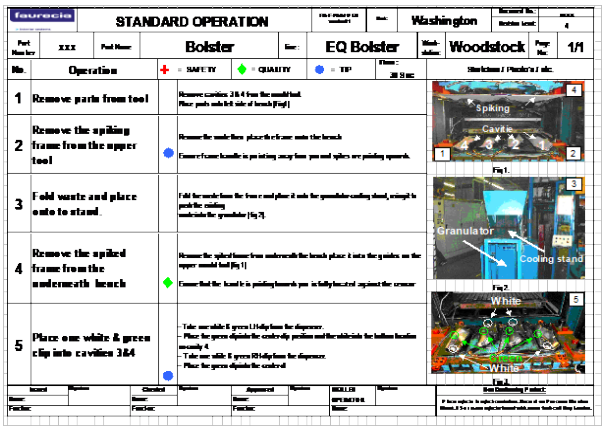
1. Assemble the frame - 2514224 Cylinder frame f/ 3 Type 1 cylinders

Assemble the parts as shown above, except the three plates, pos 3 - 2514017 Cylinder frame and cover plate (is used to lock the cylinders in place and will be added after installing the cylinders)

1.1. Add vacuum grease and sealing, pos 6 - 6504748 O-ring Ø60 x 2 EPDM, to pos 3 - 2512284 Bush for gas cylinder, and install the part onto the cylinder with bolts 6504758 Socket head ISO 4762, M12 x 30, BUMAX 88 [PED]. Bolts needs ceramic grease to prevent galling or cold welding of the joint. Bolts to be cross-tightened with 100 Nm torque.

Skill Matrix - Production

V0 - (Updated 03.01.2016)	Supervisor / Team Leader	General Safety Training	ATEX Training	Safety Passport (Shell)	Refrigerant Training	5S	Problem Solving	Audit (QC / PAT Check)	I/O Check	Incoming Quality Control	Electrical Assembly	Swagelok Training	Maximator Training	Cooling System	Tig Welding	Tooling	General Logistics	Incoming Logistics	Line Logistics
Chresten Fredriksen	●	●	◕	◕	◔	◕	◕	◑	◑	●	◕	●	●	◑	●	●	◑	◑	◑
Ole Hald	○	●	◕	◕	○	◔	◔	○	○	○	○	◕	◕	◔	●	●	○	○	○
Ole Volsmann	○	◕	◕	◕	◔	◔	◔	◕	◕	○	◕	◕	◕	◔	○	○	○	○	○
Rene Nielsen	●	◕	◕	◕	◑	◑	◑	◕	◕	○	◕	◕	◕	◔	◑	◑	◑	◑	◑
Henrik Kronborg	○	◕	◕	◕	◑	◔	◔	●	●	○	●	◕	◔	○	○	○	○	○	○
Gert Frits Jensen	○	◔	○	○	○	◔	◔	○	○	◔	○	○	○	○	○	○	●	●	●
Gert Maj	○	◔	◔	◕	○	◔	◔	○	○	○	○	◕	◕	◔	◕	◑	○	○	○
Peter H. Kristiansen	○	◔	◔	○	○	◔	○	◔	◔	○	◑	◕	◕	◑	◑	◑	○	○	○
Ole Petersen	○	◔	○	○	○	◔	◔	◔	◔	○	◑	◕	◕	◑	◕	◑	○	○	○



STANDARD OPERATION — Washington — Woodstock — Bolster — EQ Bolster — xxx — 1/1

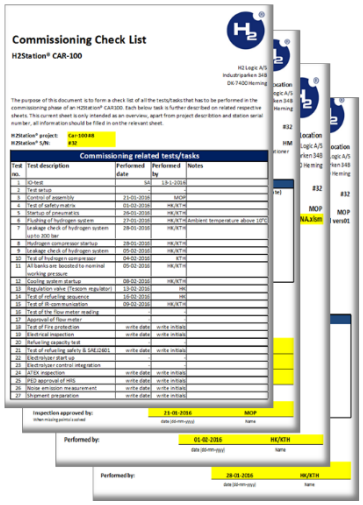
No.	Operation
1	Remove parts from tool
2	Remove the spiking frame from the upper tool
3	Fold waste and place onto to stand.
4	Remove the spiked frame from the underneath bench
5	Place one white & green clip into cavities 3&4

3.4.2 End of line test

During assembly of the H2Station® several tests are performed, to ensure the quality and function of the preassembled module or the product. The "End of line test" includes of full-scale tests of the complete assembled H2Station® system, including storage components and dispenser which is performed at the H2 Logic factory.

Some of the "End of Line tests" are formulated below:

1. I/O test - Electrical check
2. P&ID Test, control of mechanical assembly
3. Test of safety matrix
4. Startup and check of pneumatics and cooling systems
5. Flushing and leak check of hydrogen system
6. Startup and leak check of hydrogen compressor
7. Boosting of banks
8. Regulation valve check and test of refueling sequence
9. Test of IR communication and flowmeter reading
10. Fueling test according to specifications
11. Noise emission check
12. Final visual inspection of the product


Commissioning Check List
H2Station® CAR-100

Each of the test results are documented in a file, with the date and signature of the employee performing the test. The set of documents are kept under the H2Station® station unique serial number, along with approval reports from third party inspections and product documentation.

3.4.3 Third party product certification

The H2Station® are evaluated by third parties as UL LLC and DMS to all applicable standards for foreseeable safety hazardous and it suitable for installation or use.

The third parties is to determine that a H2 Logic has demonstrated the ability to produce a product that complies with requirements with respect to reasonably foreseeable risks and requirements associated with the product. As part of the service, third parties authorizes H2 Logic i.e. to use the Listing Mark on products that comply with third party requirements and establishes Follow-Up Service conducted by third party as a check of the means the manufacturer exercises to determine compliance with third party requirements.

Additionally, H2 Logic is pursuing a UL Listing for the H2Station® (as tested, certified, and "listed") by Underwriters Laboratories LLC (UL). Pending final UL certification, the H2Station® is likely to become the first hydrogen fueling station to receive a UL Listing in the world.
UL has more than a century of experience helping clients to bring products to the market. The company has more than 10,000 people and 131 testing laboratories, operating in over 39 countries. Their expertise within Testing, Certification and Inspection is unmatched and their independence is unquestioned.

3.4.4 Fueling protocol testing

H2 Logic will have all fueling test performed within the test requirements of the latest SAE J2601 standard and witnessed by third party for compliance certification. Certification take place at the H2 Logic factory and will have the same requirements as specified within the FAT "off-site" prior to installation.

3.4.5 Factory Acceptance Test

After successful "End of Line Test", the H2Station® will undergo a so-called pre-installation testing or Factory Acceptance Test (FAT). The FAT will consist of a range of test as described in relevant parts of standards such as the latest CSA HGV 4.3, ISO and H2 Logic test criteria. These test are as much as possible performed at the H2 Logic test facility, test that cannot be performed at the testing facility are performed onsite.

Requirements to the FAT "off-site location" prior to installation testing are as follow:

- the dispenser hardware and software are not modified after testing;
- the test or dispenser performance is not affected by installation, design of the station, or location of the station and dispenser (e.g., high capacity storage or distance of the chiller from the nozzle); and
- the dispenser manufacturer specifies the installation requirements for each test, including critical components, boundary of key parameters, and location of components.

3.5 Project Safety Documentation and Key responsible persons

3.5.1 Documentation processes and Key responsible persons

The H2Station® is a standardized product for installation and operation onsite designed and documented with a responsible person for each involved process step as outlined below:

	Documentation process	**Responsible person**
1.	Product specification:	Product committee – responsible person CEO
2.	R&D design and calculations	Dev. Dept. – responsible person Dev. Manager
3.	Verification testing	Dev. Dept. – responsible person Dev. Manager
4.	Safety verification review	Safety committee – responsible person COO
5.	Final design review	Product committee - responsible person CEO
6.	Final documentation	Dev. Dept. – responsible person Dev. Manager
7.	Release to NAV (purchase)	Dev. Dept. – responsible person Dev. Manager
8.	Onsite operations, reviews and documentation such as; a. HAZOP	Project dept. – responsible person Project Director

   b. Civil works incl. specifications, safety and code compliance plans
   c. Transport and lifting plans
   d. Site, Installation and operation Safety plans
   e. Emergency response plans
   f. Permit to work procedures
   g. Commissioning checklists
   h. HSSE Plans
9. Service, Maintenance: Service dept. – responsible person Service Manager

3.5.2 Maintaining documentation

After the H2Station® product documentation is released the complete product documentation is locked and placed under revision control. Any design changes that are to be made after the H2Station® product is released are to be handled according to the Engineering Change Order process. It is not allowed to make any changes to a hydrogen refueling design without using the ECO process as well as it is not allowed for service or production to deviate from the design without getting the design updated through an ECO.

3.5.3 Location of documentation and access

All released H2Station® product documentation are kept within the H2 Logic document control system "Vault" at an internal H2 Logic server. Product documentation kept in the Vault control system is "read only" for the majority of the H2 Logic employees. Only selected responsible persons are allowed to engage changes within the released product documentation according to strict internal procedures and approval by ECO from the product committee.

Product documentation at component level are divided in two parts:

1. Static documentation
2. Dynamic documentation

Static documentation is saved on the item in "vault" – such as, component manuals and Declaration of Conformity

Dynamic documentation, such as; component material certificate, declaration of Conformity and test reports, at the level of serial numbers/batch numbers, from the H2Station® are saved in SharePoint for tracking purpose of actual installed components within the H2Station® installed at site.

4. Communication Plan

4.1 Training

H2 Logic employees across the entire organization receive formal training programs and planned hazard-specific training related to the various hazards associated with development, production, testing, installation, commissioning and servicing. Within each formal education, the relevant internal and or external organization steward verifies that the specific employee have received and understood the education.

Courses that are required within the different education levels are outlined in table below:

H2Station® Service training levels				Can be combined			Can be combined			Can be combined		Specific for Denmark		Additional courses	
Education level	Example on jobs	**H2 Logic (SHELL) Safety Passport** Online course with difference training to safe work and work in high.	**H2 Logic safety and handling of gasses** Able to handle gasses and work with H2 Logic procedures. How to read the manual.	**ATEX** Able to work safe in ATEX zone	**L-AUS** Able to work safe with high voltage	**First aid** First aid training	**Fittings work** Able to work with Swagelok and Co&Tread fittings	**Leak Test** Able to perform a leak seek and leak test	**Calibration of sensor** Able to calibrate safety sensors (H2, O2, CO2)	**Lock-, tag-out** Able to use lock-, tag-out system	**Block & Bleed** Able to operate Double Block & Bleed valves	**§26 Course** Able to work safe with welding grinding	**Inspection of fire extinguishers** Inspection of Portable fire extinguishers (DS 2320)	**H2L Permit holder** Aloud to fill out a Job Hazard Analyse (JHA)	**H2L Permit Issuer** Aloud to approve and sign a JHA
	Valid:	1 year					2 year					Forever		2 year	
1	*Simple visual inspection*	X	X												
2	*Maintenance & repair together with Service technician level 3 or more*	X	X		X		X		X						
3	*Maintenance & repair alone*	X	X	X	X	X	X	X	X	X	X	X			
(+)	*Additional courses*												X	X	X

ATEX: The course is fitted to suit the needs of H2 Logic, and is for all who work with ATEX. The department leaders has selected who should participate – the course is safety related and therefore mandatory for persons who are selected. The steward is the external company TechCare who certified with an internationally recognized Achilles JQS certificating. Achilles JQS (Joint Qualification System)

HSSE: The course is for all employees that will visit and or work at a retail/installation site. CBRE is the steward of the "The Safety Passport" and provide the online course https://www.hsse-thesafetypassport.com which only after successful performance of the course/test will provide the individual The Safety Passport. CBRE have engaged heavily with their partner Shell on Safety and the mission of Goal Zero. The course is committed to the simple message that all persons should return home safely. The Safety Passport is a growing HSSE program that focuses on key knowledge and procedures so all works ate site are completed safely. Today the Passport is growing as a demonstrative sign of competency in core HSSE knowledge. H2 Logic has determined that this course is mandatory for all employees who work at Retail sites and or H2 Logic installation sites around the world. Candidates must attend Safety Passport Training and pass the qualifying test once every two years.

Permit to Work (PTW) Within the PTW course there are certification options as one Permit Holder (PH) and two Permit Issuer (PI). The course is provided by Artelia according to the Shell PTW 5.1 (or newer) system and directed to employees who will be involved with work at retail/installation sites. PI and PH candidates must attend the PTW System Training and pass the qualifying test prior to qualifying for their respective roles and once every two years thereafter. If the PI or PH candidate does not pass the qualifying test, the test may be retaken up to 3 times.

The Permit Issuer (PI) is responsible for taking all necessary steps to prepare, authorize and issue Permits. It is not necessary for the PI to remain on site for the duration of the work as the Permit Holder is responsible for verifying that the precautions are maintained throughout the work. PIs are appointed by the Custodian and must be trained and tested on the PTW System before issuing any Permits at a Retail location.

The Permit Holder (PH) is responsible for taking all necessary steps to perform the work in a safe and environmentally sound manner in accordance with the Permit. The Permit Holder (PH) is the person or subcontractor who is responsible for performing the work.

H2 Logic service training The course is fitted to suit the needs of H2 Logic, and is for all who work with Service and Maintenance. H2 Logic service manager is the steward – the course is safety related and therefore mandatory for persons within the service organization.
There are three education/certification levels:

- For simple visual inspection (Typical a local technician)
- For maintenance and repair together with a trained service technician
- For maintenance and repair alone (Fully trained service technician)

4.2 Safety Reviews

H2 Logic has performed safety review as a part of both product development and installation process and integration of H2Station® at sites.

The process for identifying the safety critical function and mitigation to ensure safe operations of the station are first to define acceptance criteria of risk, then identify risk by a qualitative risk assessment made in a HAZOP. Then afterwards define level of risk (likelihood and severity) and compare with acceptance criteria of risk. If the acceptance criteria not are met then we implement additional safe guards and thereby reduce the risk with these barriers to an acceptable level.

If risk acceptance level not fulfilled qualitatively then we proceed with making a semi quantitative risk assessment. In addition, are site-specific topics within the semi quantitative risk assessment translated to a siting checklist, which includes all potential risks that need reevaluation at each installation site.

4.3 Safety Events and Lessons Learned

H2 Logic has an established Safety Committee that evaluates each operation event that may occur. This includes an investigation together with involved employees and potentially any specialists from engineering depending on type of event. The investigations serves the purpose of implementing corrective actions and being able to report the event to authorities. If corrective action are commended this have to be approved by the Safety Committee.

All employees are trained to report near misses (NM) and potential injuries (PI), which also will be handled by the Safety Committee. The NM, PI, are a valuable source of information for updating processes and procedures. The safety Committee will also review the reported NM, PI.

In both cases the incidents and NM, PI will lead to either process changes (different steps, additional PPE etc.) or modification to the equipment via an Engineering Change Management if it is related to the product design.

The Product Safety Committee monitors the safety of the products both H2Station® in field and new products on the way to the market. If there are any safety related issues, it will be handled as a defect and turn into an 8D-report (root cause problem solving tool). The 8D is an efficient process of both getting to the root cause as well as determining the need for containment actions and potentially any updates to other products.

4.4 Emergency Response

Each H2Station® is continuously monitored using an online system to provide both operation monitoring and service response on a 24 hour basis. H2 Logic handles operation monitoring and responding to any operation event, using the “H2Station® Instant Service Response”.

In addition an Emergency Response Manual will be provided to local authorities. This manual provides a framework for planning and implementing an emergency response at a hydrogen refueling station. The aim is to provide procedures for handling emergencies and protect people, property and the environment.

Despite the precautions taken to provide a safe working environment, accidents may occur because of human error, malfunction of plant or equipment or an external influence.
The objectives of this emergency response plan are:

- Minimize adverse effects on people, property and the environment
- Control or limit the effects of an emergency;
- Communicate vital information to all relevant persons as soon as possible;
- Provide for competency-based training so that the right level of preparedness can be continually maintained
- Provide a basis for updating and reviewing emergency procedures; and
- Provide a system to manage emergencies.

The Emergency Response Manual ensures an efficient and consistent approach to any emergency. It covers hydrogen related emergencies within the H2Station® boundaries; response to neighbor's emergencies, and unintended hydrogen releases.

H2 Logic provides a 24/7 Emergency Response phone number that connects to the emergency response team member and the person will be able to guide individuals that need assistance. The Emergency Response number will also be available for any form of support towards First Responders. The Emergency response staff will have the possibility for remote access to the H2Station® and thereby support First responders. In case of emergency, H2 Logic Product Safety Committee is directly informed about the nature and status of the emergency.

Before taking the H2Station® into onsite commissioning H2 Logic will have extensive dialogs with local Fire responders to coordinate the update of the local emergency response plan so this reflects the emergency workers expectations. In addition H2 Logic advices First Responders to participate within the courses provided at The National Hydrogen and Fuel Cell Emergency Response Training Resource: http://h2tools.org/fr/nt/. H2 Logic also provides the H2Station® available for any training exercises that could assist within additional education programs over to emergency response workers.

4.5 Self- Audits

In H2 Logic the safety committee and safety groups performs regular audits both for work internally in the factory as well as in the field when performing sitting and installations as well as regular service jobs. If there are any deviations from the procedures, it will be reported to management. The safety groups consists of a safety representative and a management representative. If an employee is not following the procedures, it will have disciplinary actions and can lead to dismissal in severe or repetitive cases.

During the production and after installation, H2 Logic uses a third party to inspect that the products are built according to rules and regulations as well as the design.

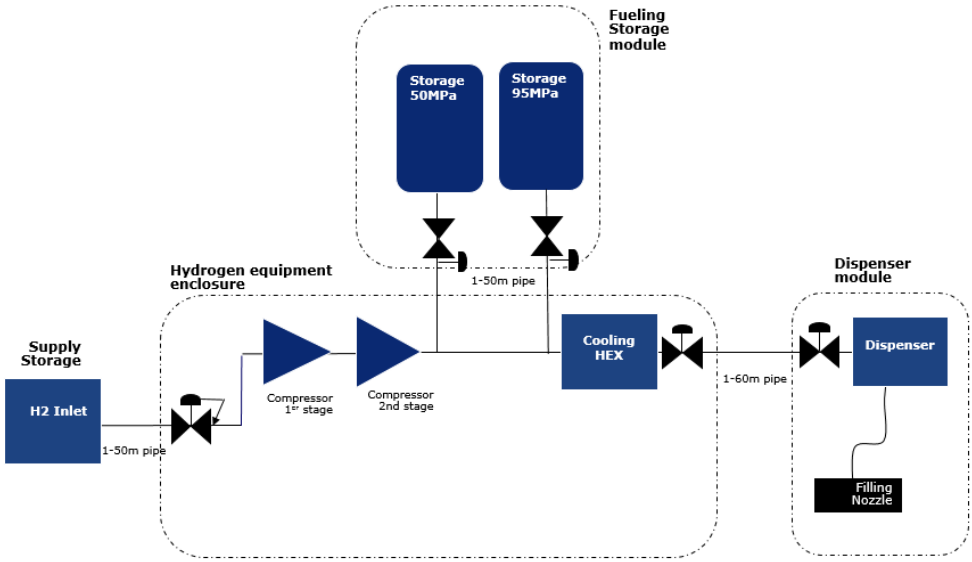
When the product has been completed, it is tested in the factory to ensure that it operates according to plan and that all the safety mechanisms are functioning correctly. During this test any deviations is reported and addressed.

When the product is installed in the field and the responsibility is handed over to the service department – they will perform regular maintenance according to a maintenance plan. The maintenances includes replacement of spare parts as well as inspections. If any safety related deviations are discovered on the product, it is fixed and an 8D process is started.

5. Additional Documentation

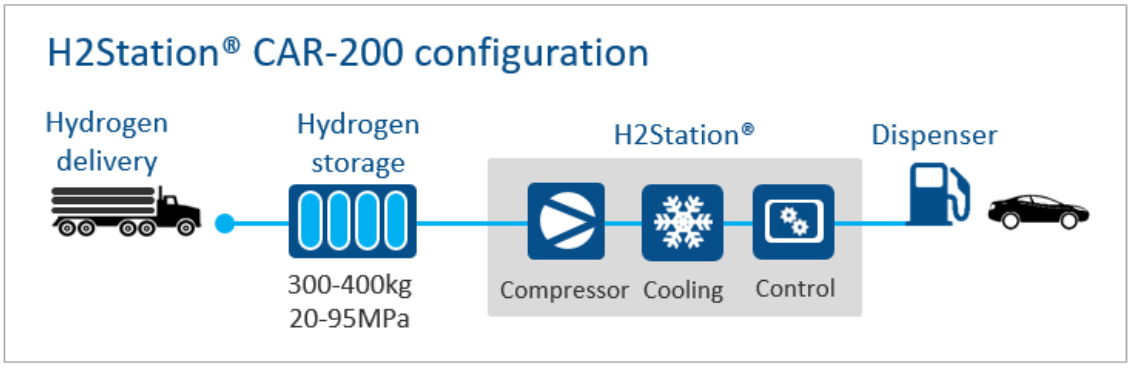
5.1 Simplified process flow diagram

Below is outlined a simplified process flow diagram for the H2Station®.



5.2 H2Station® CAR-200 configuration

Below is outlined a simplified configuration for the hydrogen refueling stations proposed



5.3 Codes and standards

H2Station® and site construction are made in compliance with relevant parts of or latest versions of a range of codes, standards and guidelines, among others the following:

NFPA 2 - 2016	Hydrogen Technologies code
NEC (NFPA 70)	National electrical code
ANSI/HGV 4.1	Hydrogen dispensing
CSA / HGV 4.3	Test methods for hydrogen fueling parameter evaluation
ANSI/HGV 4.5	Priority and sequencing
ANSI/HGV 4.6	Manually operated valves
ANSI/HGV 4.7	Automatic valves
ANSI/HGV 4.8	Hydrogen Compressor
ANSI/HGV 4.9	Hydrogen fueling stations
ANSI/HGV 4.10	Fittings
UL 508A	Electrical panels
UL 698A	Industrial control panels
UL 913	Intrinsically Safe Apparatus and zones
UL 1238	Control Equipment for Use with Flammable L Dispensing Devices
ANSI/ISA 12.12.01	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
IEC 61511	Process controlled safety instrumented system
IEC 60079-10-1	Explosive atmospheres
ASME	Hydrogen storage containers
SAE J2601	Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles
SAEJ2719	Hydrogen fuel quality
SAE J2799	Hydrogen surface to Vehicle
California Building Code	
California Mechanical Code	
California Code of Regulations (CCR)	
California Department of Food and Agriculture Division of Measurement Services	
Code of Federal Regulations (CFR)	

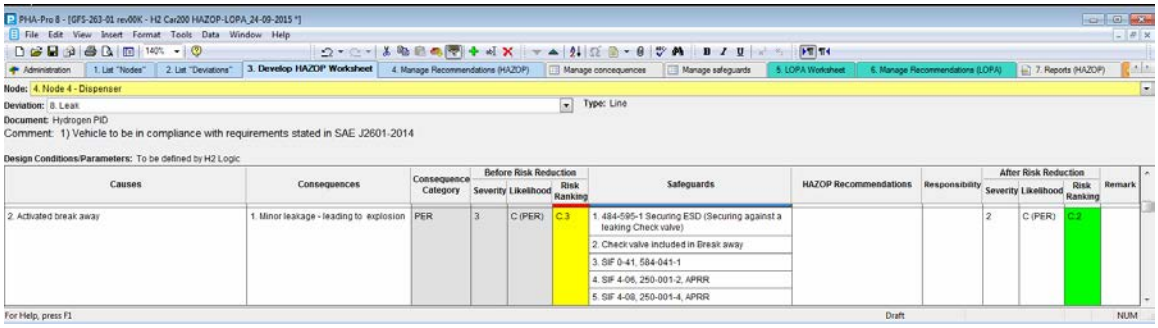
5.4 Safety risk assessment process H2Station®

- First qualitative approach, defining the risks with focus on personnel using HAZOP
- Risk assessment according to IEC 61882
- Very structured and systematic brainstorming process
- Evaluating risks in each node from a list of deviations (guide words)
- Risk reduction barriers/safe guards
- The qualitative risk assessment procedure only allows for a very limited risk reduction
- Still too high risk according to the Risk matrix -> Semi quantitative risk assessment is used - LOPA
- Take into account conditions for the scenario to happen
- In depth analyze of the different layers of protection
- Implement further barriers into design if needed (SIS/SIL and PSV)
- Calculate and verify that risk level and accept criteria's are achieved

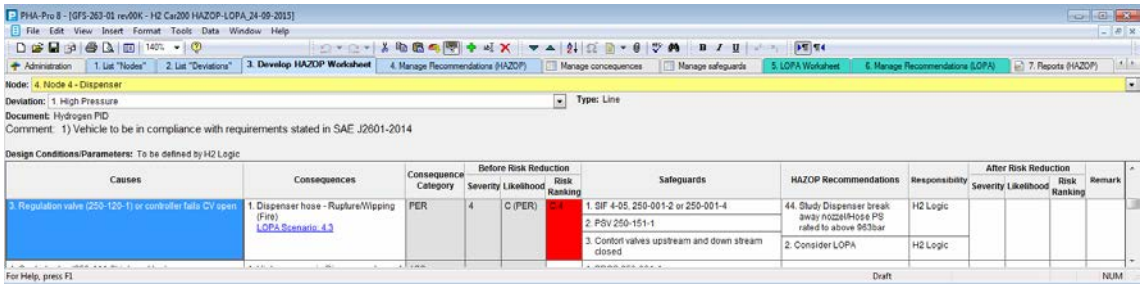
5.4.1 Example of Qualitative risk assessment process for H2Station®

- Tool: Pha-Pro
- Relevant teams
- Trained by external specialist
- More than 500 causes evaluated
- More than 2000 hours of work

For each node, each deviation case is taken and listed with causes and consequence (link to risk matrix). This example risk ranking is C.3 risk reduction to acceptable limit, by implementing safe-guard => C.2



This example risk ranking is C.4 we cannot limit the risk reduction to acceptable limit => semi quantitative assessment is needed.



- More than 150 LOPA scenarios
- Database for condition and frequency inputs
- Interactive between LOPA and HAZOP -> links and values

5.4.2 H2Station® Safety instrumented system

- To obtain a high level of security a dedicated safety instrumented system is used. H2 Logic SIS are designed and implemented and tested in accordance with IEC 61508/61511
- Software programmed according to IEC 61508/61511
- 3rd party review of HAZOP / LOPA
- SIL 1 & 2 functions
- 3rd party verification report of SIS

5.4.3 HEE Hazardous location and ventilation

- Ventilation design
- Extraction 24/7 from the ceiling
- Ventilation flow sensor
- Stops 5 min every hours during leak tests
- Inlet channel to the floor
- H2 detector at the outlet

5.4.4 Dispenser interface & refueling protocol

- Amount of H2 in dispenser is limited to pipe volume
- Compliance with the latest SAE J2601
- Refueling safety
- Implemented SAE J2601 and Dispenser Safety Instrumented Functions
- Location of the shear valve
- Flow monitoring → SIF 4-01
- Pressure ramp monitoring → SIF 4-06

4	Dispenser - Excess hydrogen flow monitoring	SIF 4-01
4	Dispenser - Hose daily leak check	SIF 4-02
4	Dispenser - Hose refueling leak check	SIF 4-03
4	Dispenser - Hydrogen delivery absolute temperature monitoring	SIF 4-04
4	Dispenser - Hydrogen delivery overpressure protection	SIF 4-05
4	Dispenser - Hydrogen delivery pressure monitoring	SIF 4-06
4	Dispenser - hydrogen delivery temperature monitoring	SIF 4-07
4	Dispenser - Hydrogen dispenser pressure monitoring	SIF 4-08
4	Dispenser - Target pressure monitoring	SIF 4-09
4	Dispenser - Vehicle tank start pressure monitoring	SIF 4-10