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Decision Document (Technical):

Industrial Activities - Permit level

New Applications and Variations

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General Information relating to Application	
Application Reference Number:	APP2025-00000069
Authorisation Number (if applicable):	n/a
Application Type:	New Application
Applicant/Authorised Person:	PlusZero Nan Eilean Limited
Proposed/Authorised Address:	Creed Hydrogen Production Facility Creed Enterprise Park Stornoway Isle of Lewis HS2 9JB
Proposed/Authorised Activity(s):	**Production of Inorganic Chemicals** (Low-risk production of hydrogen by electrolysis of water)

Purpose of the document

This document is intended to demonstrate transparency of the determination process to all interested parties. It should record all significant issues, decisions made, actions taken, and rationale for the decision made. It should be sufficiently detailed to demonstrate that all legal requirements were adhered to and provide the basis for defending any appeal.

Language used

You should use non-technical language as far as practicable, avoiding unexplained acronyms and technical terms. While aiming to be comprehensive, it must also be as brief as possible, consistent with the overriding need for clarity and accuracy. Officers should bear in mind that much of the document may be available publicly under the Freedom of Information Act etc.

Timely recording of information

Completion of the various forms should be done on a progressive basis rather than at the end of the process.

Level of detail

Officers should use their professional judgement as to the level of detail required which will depend on the complexity of the process. Officers must consider why the information is required and ensure appropriate detail is included. Each table is designed to be expanded as text is added and will obviously allow the insertion of additional rows where necessary

Applicability of any Section

Do not delete whole sections of the form unless directed to do so. If something is not applicable to your determination, please record this on the form and give a justification if appropriate indicating you have considered the issue and not just missed.

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1. Non-Technical Summary of SEPAs Determination

This section provides a non-technical summary of the proposed application and of SEPAs determination with particular focus on areas of our determination which may be regarded as contentious either by SEPA, the applicant or the public.

Provide a non-technical summary of the process and SEPA's determination:
This application is to operate a new green hydrogen production site at Creed Park Waste Process Facility located approximately 2.8km south-west of Stornoway on the Isle of Lewis. The site is named "Creed Hydrogen Production Facility" (CHPF). Hydrogen will be produced via the electrolysis of water at a maximum production rate of 51,684 kg/year. There will be two electrolysers: a pressurised alkaline electrolyser and an anion exchange membrane electrolyser. The hydrogen produced will be compressed and distributed via tube trailers or dispensed into Fuel Cell Electric Vehicles (FCEVs), with the oxygen by-products sold to local consumers. End users will include municipal vehicles, passenger cars, and commercial users, with hydrogen distribution through flexible storage solutions. The feedwater for the electrolysers will be sourced from the Scottish Water mains supply network and will be treated using reverse osmosis prior to use in the electrolysers. The proposed development will discharge non-hazardous process waters, comprising reverse osmosis (RO) reject water, air-conditioning condensate, together with domestic wastewater, to the Scottish Water foul sewer network for treatment at an off-site wastewater treatment works. Process liquids generated during maintenance activities, include liquids containing potassium hydroxide (KOH), ethylene glycol, and other non-hazardous process fluids, will be collected and stored within secure, appropriately labelled Intermediate Bulk Containers (IBCs) located within suitable secondary containment. No on-site pre-treatment or treatment of these liquids is proposed prior to removal from site. Disposal will be via appropriately authorised, and regulated, waste management contractor. All waste transfers will be undertaken in accordance with Duty of Care requirements, with appropriate waste classification, documentation and records maintained by the site operator. There are emissions to air from the venting of oxygen produced as part of the electrolysis of water. There will also be some emissions of hydrogen in the following scenarios: • Isolation and depressurisation of equipment, prior to intrusive maintenance. • Shutdown of electrolysers during normal operation, necessitating purge of the pipework with nitrogen and vent of the hydrogen/nitrogen mixture. • Control of pressure within normal operating criteria during operation. • Venting of off-spec hydrogen/oxygen during start-up or other than normal operating conditions. • Decommissioning of the system at end of life.

Glossary of Terms
BAT - Best Available Techniques BREF – Best Available Techniques Reference Document BAT-C – Best Available Technique Conclusions CO – Coordinating Office ELV – Emission Limit Value The Regulations – The Environmental Authorisations (Scotland) Regulations 2018 TFS – Transfrontier shipment of waste

2. Background to the Application

This section provides relevant context regarding the background to the application, an outline of the authorisation being applied for, and identification of important sensitive receptors.

Background to the application:
New Permit application
Outline details of the authorisation/variation applied for:
N/A – New Permit application
Identification of important and sensitive receptors – the use of Ordnance Survey map extracts can help:
The Lewis Peatlands Special Protection Area is located approx. 4km from site. The Tong Saltings Site of Special Scientific Interest lies approximately 4.8km to the northeast.

3. Confirmation of Activities and Place

Are we satisfied that the applicant has specified the correct activities?
Yes – as per application
Where a Schedule 20 activity is being undertaken are we satisfied that the applicant has correctly specified the Stationary Technical Unit and directly associated activities? For permit level activities which are not Schedule 20, has the applicant identified all processes which are part of the regulated activity?
Yes – as per application
Are we satisfied that the applicant has correctly defined the boundary of the Authorised Place/Installation?
Yes – as per application

4. Public Consultation on the Application and SEPA's response

In determining whether to consult the public on the application, reference will have been made to SEPAs '*Public Participation Statement*' as required by regulation 67(1), the specific activity pages on SEPAs website and relevant internal guidance.

Was Public Consultation on the application undertaken?	No

5. Consultation on the Application with Public Bodies and SEPA's response

In determining whether to consult the public on the application, reference will have been made to SEPAs '*Public Participation Statement*' as required by regulation 67(1), the specific activity pages on SEPAs website and relevant internal guidance.

Was Public Consultation on the application undertaken?	No
This application is for a small, low risk, Hydrogen production activity. There are no nearby receptors - the nearest designated site is a SPA located 4km to the west, and Stornoway located 3km northeast. SEPA's Public Participation Statement states "We will consult on those applications for permits and substantial variations to existing permits, which due to their nature or location have higher likelihood of environmental impact and community impact". Due to the low-risk nature of this activity, SEPA have determined that public consultation is not required for this application. The Applicant is in communication with Scottish Water regarding water supply and discharge. This will be reviewed further as part of the determination process.	

6. Other Consultations

In determining whether to consult the public on the application, reference will have been made to SEPAs '*Public Participation Statement*' as required by regulation 67(1), the specific activity pages on SEPAs website and relevant internal guidance.

Was "Off-site" consultation required?	No

Was Transboundary Consultation required?	No

7. Assessment of Impact on Protected Areas

All activities authorised by SEPA must be assessed in relation to their potential impact on designated sites under the Nature Conservation (Scotland) Act 2004 & Conservation (Natural Habitats &c.) Regulations 1994. The outcome of the nature conservation screening assessment is recorded below.

Outcome:	Activity is unlikely to have a significant effect on the qualifying interest of any SAC, SPA or RAMSAR site, and/or damage a notified feature of a SSSI

8. Consideration of other legislation in the determination

Is there any other legislation that was considered during determination of the permit (for example installations that may be impacted by the requirements of legislation involving Animal By-Products, Food Standards, TFS, etc). If yes, provide information on the legislation, action and justification below:	**No**

9. Outcome of In Control and Fit and Proper Person Assessment

In determining an application SEPA must satisfy itself that the applicant will both be in control of the proposed activity and that they are considered a fit and proper person to be in control of the activity. The criteria which we use to assess whether an applicant/authorised person is in control and a fit and proper person is outline in our 'Who can hold an authorisation' guidance. The outcome of our assessment is recorded below.

We must not grant an application if we think the applicant will not have control over the activity, or we do not think they are a fit and proper person to be in control of the activity.

Outcome:	The applicant will be in control of the activity and is considered a fit and proper person to be in control of the activity

10. Further Information

In determining an application, it may be necessary to request further information. Where further information has been requested, it will be recorded in the table below.

Has a further information notice been issued?	**Yes**
Was the notice peer reviewed/approved:	**Yes**
Information requested and justification:	Response received:
1. Site Plan Site Plan required that includes a clear Installation boundary and details of the STU and DAA. This will be used as a Site Plan in the Permit.	Suitable Site Plan provided.
2. Hydrogen Storage Please confirm the maximum volume of hydrogen to be stored on site at any one time. Please also confirm the maximum quantity of hydrogen to be produced per year.	Suitable information provided. 107.5kg maximum storage reported. Maximum production rate per year is 51,684kg/year if 100% load.
3. Hydrogen Venting The application states that during abnormal operations, hydrogen will be vented to atmosphere rather than flared. Please provide a BAT justification as to why you have chosen to use venting rather than flaring.	Suitable justification provided. Flaring is not considered due to the introduction of additional safety complexity, disproportionate cost and for the small vent quantities considered.
4. Detailed Best Available Techniques (BAT) Assessment Please provide a detailed Best Available Techniques (BAT) assessment, based on the Common Wastewater and Waste Gas Treatment/Management Systems in the Chemical Sector (CWW) BAT Conclusions. Whilst SEPA recognises that not all the CWW BAT conclusions will apply to this application, those BAT conclusions which are relevant must be discussed and any choices, decisions or proposed actions, justified.	BAT Assessment provided against CWW BAT Conclusions.
5. Hazardous Effluent Please confirm where the hazardous process liquids collected on site will be disposed of (including those	Suitable information received. Effluent collected and stored within secure, appropriately labelled

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containing KOH or ethylene glycol). Please also advise whether there will be any pre-treatment or treatment undertaken prior to disposal.	Intermediate Bulk Containers (IBCs) located within suitable secondary containment. No on-site pre-treatment or treatment of these liquids is proposed prior to removal from site. Disposal off site by an appropriately authorised and regulated waste management contractor. All waste transfers will be undertaken in accordance with Duty of Care requirements, with appropriate waste classification, documentation and records maintained by the site operator.
6. <u>Process Water Discharged to Foul Sewer</u> As part of the BAT assessment requested under Item 4 above, there is a requirement that where there are indirect emissions to the water environment (i.e. via an offsite treatment system) a demonstration is required that the treatment provided off-site provides an equivalent level of treatment and protection of the environment as if the effluent were treated on-site. Reference should be made to BAT-AELs in the CWW BAT Conclusions. Please provide the relevant information detailed to demonstrate if the discharge emission will be below the trigger condition. If the emission is above the trigger condition, SEPA Permitting will discuss this with you in due course.	The information states that the anticipated effluent characteristics have been reviewed against the relevant BAT-AEL trigger levels set out within the CWW BAT Conclusions and that the assessment confirms that the concentrations and loads of relevant pollutants in the process discharge are below the applicable BAT-AELs. A table of the relevant pollutants and their expected worst-case concentration compared with the BAT-AELs has been provided. However, the BAT-AELS from the Waste Treatment BATC's have been used, rather than the requested CWW BATc's. 05/08/2026 - Requested this be revised and reissued by 14/08/2026. Further information received 13/08/2026, however parameters remain missing. This information is requested again on 19/08/2026 to be issued by 26/08/2026. Information issued 24/08/2026 including a full table of BAT-AELs. From the information provided, it is expected that the worst case discharge emission levels at the Creed Hydrogen Facility all fall below the level which triggers BAT-AEL. Sampling plan to be included in Permit to confirm emission levels.

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7. Trade Effluent Discharge Consent In conjunction with Item 6 above, clarification is required regarding the Trade Effluent Discharge Consent. The Consent provided only details the existing Municipal Anaerobic Digester and makes no reference to this proposed Activity. Furthermore, communication provided between Green Cat Renewables Ltd. and Scottish Water appears to be focussed on pipework details, rather than the effluent itself. Please confirm the position regarding the Trade effluent consent for this activity.	Trade Effluent Discharge consent provided.
8. Proposed Water Supply Please confirm the position regarding the consent from Scottish Water utilise water from the public water supply for use in this activity.	Water supply documents provided.
9. Hazardous Substances Storage and Use Please expand Table 1.5 within "PPC Supporting Document B: Site Condition Report", to provide details of all Relevant Hazardous Substances to be used on site. This should include, but not be limited to, any hydraulic oils, fuels etc, including volumes. Please also include a description of how these will be stored, for example within bunds in accordance with CIRIA 736 guidance, where appropriate.	Suitable information received. RHS details updated.
10. Electrolyser Construction Further to information request 9 above, please provide details on the standards of infrastructure for the site, particularly around the electrolyser area.	Suitable information received. All equipment containing process fluids are located within bunded or contained areas sized to prevent releases to the surrounding environment, supporting compliance with CIRIA 736 guidance. Process pipework, valves and ancillary equipment are designed to listed standards and are subject to routine inspection and preventative maintenance to minimise the risk of leaks and loss of containment.
11. Accident Prevention Plan Please provide an Accident Prevention Plan. This may be linked to the development of an Environment Management System as per BAT Conclusion 1 of the CWW BAT Conclusions (see Item 4 above).	An Accident Prevention Plan has not yet been developed as a standalone document for the facility. A risk management consultancy has been engaged throughout the design process and have provided guidance. Additionally, they are contracted to develop and provide a comprehensive Emergency Response Plan. The Accident Prevention

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	Plan will be prepared and implemented as part of the development and roll-out of the site's Environmental Management System (EMS), in accordance with BAT Conclusion. Upon completion of the EMS, the Accident Prevention Plan will be documented, implemented, and maintained to ensure appropriate measures are in place to prevent, mitigate, and respond to environmental incidents and accidents. This is acceptable though Permit Conditions may be required to reflect this.
Was a compliant response provided?	**Yes**
Comments:	

11. SEPAs Assessment of the Applicants Environmental Management Systems and Risk Assessments

The Determining Officer should assess if the applicant has:

- Demonstrated that the General Aims specified in Regulation 9 of The Regulations will be met.
- Demonstrated that Best Available Techniques will be used (where applicable).
- For Schedule 20 and Schedule 10 activities demonstrated that the waste hierarchy will be appropriately implemented.
- Demonstrate that no significant pollution will be caused.

Reference should be made below to the sections in the application where the demonstration is made. Where non-standard conditions are required to be added to the Authorisation to provide additional environmental controls or provide additional assurance to SEPA or the public these should be referenced below and detailed in section 14.

Where relevant each BAT conclusion should be referred to and confirmation provided that it has been met.

The basis for ELVs and/or equivalent technical parameters/measures should be referenced below and detailed in section **Error! Reference source not found.**.

Relevant Guidance used for determination
Commission Implementing Decision (EU) 2016/902 of 30 May 2016 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for Common Wastewater and Waste Gas Treatment/Management Systems in the Chemical Sector (subsequently referred to as the CWW BAT-C).

Management of the site
Environmental Management System:
CHPF will be operated under an EMS covering normal operation, start-up/shutdown, Other Than Normal Operating Conditions (OTNOC), incidents, maintenance, emissions monitoring, event recording and corrective actions. The EMS will incorporate wastewater, air emissions, venting, noise, chemical storage, waste, accident response and commissioning controls. An EMS has not yet been developed but will be completed prior to site commissioning/operation to confirm certification status, management responsibilities, procedures and pre-operational commitments. This can be reviewed as part of routine regulatory effort at the site as required. Standard Permit conditions 2.1 Written Management System will be included.
Accidents and their Consequences:
An Accident Prevention Plan is under development as a standalone document for the facility. A risk management consultancy has been engaged throughout the design process and has provided guidance. The Accident Prevention Plan will be prepared and implemented as part of the development and roll-out of the site's Environmental Management System (EMS), in accordance with BAT Conclusion. Upon completion of the EMS, the Accident Prevention Plan will be implemented, and maintained to ensure appropriate measures are in place to prevent, mitigate, and respond to environmental incidents and accidents. Additionally, the consultant will develop and provide a comprehensive Emergency Response Plan. A main accident scenario from an environmental perspective is a release of raw materials/chemicals, during storage. The containment arrangements for these materials will be inspected when the facility is brought into operation. All equipment containing process fluids is located within appropriately bunded or contained areas sized to prevent releases to the surrounding environment, supporting compliance with CIRIA 736 guidance. Containment will be not less than 110% of the largest container's storage capacity, or 25% of the aggregate storage capacity, whichever is greater and will be located on impermeable sealed drainage to collect any contaminated run-off. This is representative BAT. Process pipework, valves and ancillary equipment are designed to published standards and are subject to routine inspection and preventative maintenance to minimise the potential for leaks and loss of containment. The standard liquid storage Permit condition 5.2 has been included. Waste will be stored in a dedicated bunded storage area. As part of the site management systems, emergency response procedures will be put in place, with staff being trained in spillage response. Management systems will include routine inspections of storage areas, containment systems, bunding and drainage systems. Spillage kits will be located nearby storage areas for use should a spillage occur.

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Any spillages will be captured in a sealed sump which will be emptied when required. Effluent from the sump will be tested to decide on the appropriate disposal route. If possible, effluent will be sent to the on-site WTP.

BAT 1 of the CWW BAT-Cs require the EMS to contain an OTNOC management plan for emissions to air, so there is no need to specify one in permit conditions.

Commissiong and Decommissioning:

A draft Commissioning/Decommissioning Plan has been provided as part of the application.

As part of the installation commissioning plan, details of the performance validation tests required to demonstrate that the installation will be operated without harm to the environment and human health and demonstrating compliance with relevant BAT emission limits in the shortest possible time will be included.

The decommissioning plan, will outline the safe, environmentally responsible closure of the green hydrogen production facility. Key elements will include:

- Site Assessment: A full environmental audit will be conducted to identify any contamination or residual hazards, including water discharge points, chemical storage areas, and hydrogen infrastructure.
- Dismantling and Removal: All electrolysis units, compressors, storage tanks, and associated infrastructure will be dismantled using best available techniques (BAT) to minimize emissions, noise, and waste.
- Waste Management: Equipment and materials will be segregated for reuse, recycling, or disposal in accordance with SEPA waste regulations. Hazardous materials will be handled by licensed contractors.
- Environmental Restoration: The site will be restored to its original condition or to a state agreed with SEPA, including soil remediation if required and removal of impermeable surfaces to allow natural drainage.
- Monitoring and Reporting: Post-decommissioning environmental monitoring will be conducted to ensure no residual pollution remains. A final report will be submitted to SEPA detailing compliance with PPC permit conditions.
- Permit Surrender: The PPC permit will be formally surrendered following SEPA's guidance, confirming that all environmental obligations have been met.

The final commissioning/decommissioning plan will be produced as part of the site EMS.

There are no specific closure/decommissioning requirements arising at this time so the standard Permit conditions 2.2 Commissioning and 2.3 Decommissioning and 2.4 Ceasing Operations will be included the permit.

Emissions to Air and Monitoring

Point Source emission to air:

Hydrogen Vent:
Hydrogen will be vented during system start-up until gas purity is achieved, during process upsets resulting in off-spec gas, and during routine maintenance or emergency depressurisation. It will also be released after each dispensing operation to safely depressurise hoses.

There are three localised hydrogen vents, and one main hydrogen vent stack.

The hydrogen equipment located within the production hall that have hydrogen vents include:

- The Hydrogen Balance of Plant
- Electrolyser Units
- Hydrogen Purification Unit
- Hydrogen Compressor.

Each individual vent will connect to a manifold directing the vented hydrogen to a designated main hydrogen vent stack (designated “Main H2 Vent 1” on the site plan). This main stack is located externally and designed to ensure safe dispersion of gas above occupied areas and ignition sources. The system is designed in accordance with published hydrogen safety standards. The hydrogen is vented (at least) 1.5 m above the roof and the roof height is approx. 5m above ground level.

This main hydrogen vent will have a potential release rate of 55.93 Nm^3/hr.

Individual hydrogen vents are also located outside the production hall on the following locations:

- Low pressure storage (designated “H2 Vent 3” on the site plan)
- High pressure storage (designated “H2 Vent 4” on the site plan
- Dispenser (designated “H2 Vent 2” on the site plan)

Each of the external vents is designed to mitigate potential overpressure or emergency release scenarios. The vents are sited and oriented to ensure safe atmospheric dispersion, avoid gas build-up in confined areas, and maintain separation from ignition sources and occupied zones.

Risk of ignition is minimised by installing the hydrogen vents at a minimum distance of 5m from the oxygen vents to avoid mixing. Hydrogen’s low molecular weight and high diffusivity ensure rapid dispersion in the event of a release significantly reducing the likelihood of flammable concentrations persisting in open air. In addition, hydrogen flame and gas detectors will be deployed in all high-risk areas to ensure early leak detection and automatic response through interlocked emergency shutdown systems.

Oxygen Vent:
There will be a dedicated low-pressure oxygen vent designed to safely release oxygen to atmosphere under specific operational scenarios, as well as an emergency vent on the oxygen compressor for fault or abnormal pressure conditions.

An oxygen vent manifold collects vent gases from the oxygen side of the system, including:

- Oxygen Balance of Plant
- Electrolyser units
- Oxygen Purification Unit

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The oxygen vent manifold (designated “O2 vent” on the site plan) discharges via a dedicated oxygen vent stack, physically separated from the hydrogen vent to eliminate potential ignition or reaction risks. The oxygen vent is designed for safe atmospheric discharge and includes backflow prevention and flow control elements.

Once the Potassium Hydroxide (KOH) has been removed from the oxygen, the oxygen will travel vertically through an enclosed pipe before being vented (at least) 1.5 m above the roof. The roof height is approx. 5m above ground level. An in-line gas analyser will be used to identify individual gas concentrations.

The vent is designed with protective features to prevent ingress of rainwater or external moisture, safeguarding system integrity and maintaining pressure stability. The low-pressure vent will have a maximum release rate of 38.75 Nm^3/hr.

An additional emergency vent is located on the oxygen compressor. This vent activates under fault conditions or during an emergency shutdown to relieve excess pressure. It is rarely used and is considered a contingency safety measure. Due to the temperature within the electrolyser, oxygen released will be neutral or slightly buoyant and will not be in contact with building roofs.

Risk of ignition will be minimised by installing the oxygen vents a minimum of 5m from hydrogen vents to prevent mixing. Plant and pipework will be installed by competent and qualified engineers. All plant and equipment will be operated and maintained in accordance with the manufacturer’s requirements

Nitrogen

Nitrogen will be released only during any shutdown of the electrolyser, including both routine and emergency shutdowns, as part of the system's purging process. In these instances, a hydrogen/nitrogen gas mixture will be safely vented through the designated hydrogen vent system. This venting is an integral part of the electrolyser’s shutdown sequence to ensure safe depressurisation and system integrity. Regular maintenance and process monitoring, conducted in line with the manufacturer’s specifications, will be implemented to minimise the likelihood of unplanned shutdowns and to ensure controlled, low-risk venting during routine operations.

Nitrogen is delivered to site in the form of manifold cylinder pallets (MCPs, storage pressure between 200-300 barg), which are connected to the distribution system and supplies regulated nitrogen to equipment at a minimum pressure of 8 barg. The nitrogen flowrate required for normal operation is 63 Nm^3/hr, with a peak flowrate of the 113 Nm3/hr for prior to maintenance. In cases of emergency shutdown nitrogen will be used for purging and then released through the hydrogen vents. Each complete purge of the hydrogen production system requires approximately 6 Nm^3 (HOLD) of nitrogen, ensuring the system is safely cleared of any hydrogen before resuming operations.

Nitrogen Oxides (NOx)

The Applicant states that no Nitrogen Oxides will be emitted.

Venting Justification:

Safe disposal of hydrogen is a necessary component of electrolytic hydrogen production. Vent and manual blowdown of equipment will be required for the following reasons:

- Isolation and depressurisation of equipment, prior to breaking into the system to conduct intrusive maintenance.
- Shutdown of electrolysers during normal operation, necessitating purge of the pipework with nitrogen and vent of the hydrogen/nitrogen mixture.
- Control of pressure within normal operating bands during operation.
- Venting of off-spec hydrogen/oxygen during start-up or upset conditions.
- Decommissioning of the system at end of life.

Pressure relief systems have been designed in accordance with API 521 Pressure Relieving and Depressurisation Systems. Vents designed as per EIGA 211/24 and CGA G-5.5. “ANSI/AIAA G-095A-2017” (Guide to Safety of Hydrogen and Hydrogen Systems) provides recommended practices and safety considerations for hydrogen systems, including venting, disposal of hydrogen releases, hazard management, and some discussion of flaring, which the Applicant has referenced when justifying the practice of venting rather than flaring.

The Applicant states:
“ANSI/AIAA G-095A notes successful venting of hydrogen at flow rates of 0.113–0.226 kg/s from elevated vents, while industry guidance generally recognises that flaring is not normally required for typical gaseous hydrogen systems and introduces additional operational and safety complexity associated with pilot ignition, flame stability, and flame-out protection.
Based on [available] information, the design approach at CHPF shall be to use local individual vents on equipment externally and co-locate process vents for equipment within the process hall where practical. The oxygen and hydrogen vents will also be separated. Flaring is not considered due to the introduction of additional safety complexity, disproportionate cost and for the small vent quantities considered. Under normal operation, venting of small quantities, 0.0017kg/s, is only expected during short-term transient start-up and shut-down activities. The design requirements provided in API 521 shall be followed with the physical location of these vent points to be confirmed during detailed design”.
All vents and associated infrastructure will be subject to regular inspection and maintenance as part of the facility's integrity management and safety assurance programme.

As most of the venting (and thus, emissions) will be associated with start-up and shut-down events, the controls to minimise emissions are present in the restrictions on start-up and shut down via Permit Condition 3.1 Start-up and Shut-down.

Given the nature of the facility i.e. the commercial production of hydrogen, it is expected that the Operator will take all appropriate and reasonable measures to minimise venting of hydrogen. This is required by the standard Permit condition 2.5.1.

Fugitive emissions to air:

Potential fugitive emissions to air may include a release of instrument air or an emergency release of hydrogen, which could occur in the event of a system malfunction or safety incident.

Potential releases would be controlled and minimised by the facility’s safety systems, which include pressure relief devices and venting systems designed to prevent accumulation of hydrogen in enclosed areas.

Any fugitive emissions of hydrogen would rapidly dissipate into the atmosphere due to its low density and highly diffusive properties, significantly reducing the risk to air quality. While

hydrogen is non-toxic and disperses rapidly due to its low molecular weight and high diffusivity, it is still considered an indirect greenhouse gas because it can interact with atmospheric chemistry and influence levels of methane and ozone—both potent GHGs. As such, any unplanned hydrogen release, although not contributing directly to CO_2-equivalent emissions, may have downstream environmental impacts and is treated as a GHG concern under emerging regulatory guidance.

The facility also incorporates leak detection and repair programmes to minimise any unintentional emissions from valves, flanges, and connections. The programme includes routine inspections, use of calibrated leak detection equipment, and corrective actions in line with best available techniques (BAT).

Standard template Permit conditions 3.2.3 and 6.4.

Odour:

Any oxygen or hydrogen released will be odourless and therefore there are no odour emissions anticipated because of the hydrogen production facility.

BAT 20 of the CWW BAT-C, requires that the EMS contains an Odour Management Plan. The Applicant has stated no Odour Management Plan is required due to no odour emissions being anticipated. BAT is to develop an EMS, which will include odour assessments.

There are no anticipated additional Permit requirements and the standard odour control in Permit conditions 3.2.1 and 3.2.4 will be included.

Emissions to Water and Monitoring (where relevant)

Point Source Emissions to Surface Water and Sewer:

The proposed development will discharge only non-hazardous process waters, comprising reverse osmosis (RO) reject water and air-conditioning condensate, together with domestic wastewater, directed to the Scottish Water sewer connection in the north-east of the site through an underground pipe. A Trade Effluent Consent has been approved by Scottish Water detailing approval to discharge “condensate from hydrogen and oxygen purification”. Limits have been placed on the discharge volume, rate, temperature and pH.

The anticipated effluent characteristics have been reviewed against the relevant BAT-AEL trigger levels set out within the CWW BAT Conclusions. The assessment confirms that the concentrations and loads of relevant pollutants in the process discharge are below the applicable BAT-AELs trigger levels. Consequently, the proposed indirect discharge is not expected to result in significant environmental effects, and the existing Scottish Water treatment infrastructure is considered appropriate for the management of these wastewater streams. Therefore, no further demonstration of equivalent treatment performance is required under the BAT assessment process.

A sampling plan will be included in the Permit to confirm emission levels.

Process liquids generated during maintenance activities, including liquids containing potassium hydroxide (KOH), ethylene glycol and other non-hazardous process fluids, will be collected and stored within secure, appropriately labelled Intermediate Bulk Containers (IBCs) located within suitable secondary containment. No on-site pre-treatment or treatment of these liquids is proposed prior to removal from site.

The CWW BAT-C specify BAT-AELs which apply where emissions are above mass emission trigger limits. The applicant has reviewed emissions against these trigger limits. This assessment shown in the table below uses maximum expected figures:

	Trigger level (kg/yr)	Annual emission (kg/yr)	Does the annual emission exceed the trigger level?	Permit requirements
Total organic carbon	3300	1.1	No	Sampling monthly to confirm design data.
Chemical oxygen demand	BAT-AEL does not apply as the either the BAT-AEL for TOC or COD applies. TOC is the preferred option.		No	None
Total suspended solids	3500	3.2	No	Sampling monthly to confirm design data.
Total nitrogen	BAT-AEL does not apply as the installation does not have biological waste water treatment		No	None
Total inorganic nitrogen	BAT-AEL does not apply as the installation does not have biological waste water treatment		No	None
Total phosphorus	300	0 – Not expected to be present	No	Sampling monthly to confirm design data.
Adsorbable organically bound halogens	100	0.013	No	None
Chromium	2.5	0.0005	No	Sampling monthly to confirm design data.
Copper	5	0.006	No	Sampling monthly to confirm design data.
Nickel	5	0.0005	No	Sampling monthly to confirm design data.
Zinc	30	0 – Not expected to be present	No	Sampling monthly to confirm design data.

As none of the annual emissions are expected to exceed the trigger levels, the BAT-AELs do not apply and ELVs do not need to be set, and regulation of the emissions to sewer will be by Scottish Water.

A sampling programme will be required to confirm that actual emissions are below the trigger limit. SEPA has included a requirement for a 24-month sampling programme to establish discharge characteristics with an assessment report submitted within 30 months of start of operation to confirm verified emissions. This is detailed in Permit Conditions 3.6.

Point Source Emissions to Groundwater:

Not applicable – there are no point source emissions to Groundwater.

Fugitive Emissions to Water:

Not applicable – surface water is captured and discharged to Sewer.

Noise Emissions and Monitoring

The operation and maintenance of the installation may result in some noise emissions. After construction, the electrolysers, compressors, and cooling units are expected to be the only significant noise sources.

The nearest residential receptors are located approximately 0.9km north of the development. As such, noise emissions are not expected to result in significant impact and at this distance are likely to be below typical rural background sound levels.

BAT 23 of the CWW BAT-C details preventing or reducing noise using operational measures, low-noise equipment, noise control equipment, attenuation, and appropriate siting.

Vehicles will be switched off when not in use. Routine deliveries and collections will be planned during the working hours of 08:00-17:00 to avoid disruption. Trips will be planned to minimise the quantity and avoid unnecessary noise. Any complaints will be recorded, and additional noise monitoring will be implemented where necessary.

CHPF includes the use of enclosures for process equipment, use of low-noise plant, noise schedule for planned events, and records for emergency events as appropriate. Should additional mitigation be required, acoustic barriers can be installed along the northern side of the development area. Additionally, noise reducing enclosures could be installed around specific sources. Regular maintenance of all plant and equipment will take place in accordance with the manufacturer's guidance.

The production of the EMS will confirm final equipment acoustic data, design (enclosures etc), maintenance/testing noise and (any) generator noise. Standard permit Condition 3.2.1 is included which references that measures must be taken to minimise noise.

BAT 22 of the CWW BAT-C, requires the EMS to contain a noise management plan and so one does not need to be specified in the Permit conditions.

Permit Condition 6.1.7 has been included for the submission of a report detailing the implementation of Best Available Techniques (BAT) for noise at the installation prior to commissioning of the installation. The report must:

a) confirm the techniques to be used for the control of emissions of noise and vibration from the installation during normal, abnormal and emergency conditions; and
b) explain how BAT has been applied to prevent or reduce noise from individual noise sources.

Resource Utilisation and Monitoring

Water use:

Water is the raw material for the manufacture of hydrogen using electrolyser technologies. Business Stream (a Scottish Water company) has approved a permanent mains water supply for the site.

The standard template Permit contains Permit condition 2.5.1 that requires that water be used efficiently.

No further conditions are required.

Energy use and generation:

The facility will utilise renewable energy generated by a single 300kW wind turbine currently operating at the site and supplemented by the National Grid to help maintain a stable energy input.

The Operator is required to record and report electricity use as part of the resource efficiency requirements of Permit Condition 6.8.

No further conditions are required.

Raw Materials Selection and Use:

The Site Condition Report, which identifies Relative Hazardous Substances has been reviewed as part of this determination. Additional substances were identified through the information returned in response to a Further Information Notice. These included nitrogen, fluorinated liquid, refrigerants, hydraulic and lubricating oils, diesel, ethylene glycol, and Potassium Hydroxide electrolyte.

Whilst some additional information is required SEPA can accept the details supplied so far with the caveat that the Site Condition Report is updated when the Soil and Groundwater Monitoring Plan is prepared. This plan will require the inclusion of a Baseline Report.

The choice of raw materials is dictated by the technology chosen, therefore, alternatives are not possible for some aspects.

Waste Management, Handling and Monitoring

Waste Minimisation:

Non-hazardous process effluent/wastewater produced during operation will be discharged to Scottish Water foul sewer.

A Site Waste Management Plan (SWMP) will be developed as part of the site EMS and will consider the waste hierarchy to prevent, recover or recycle wastes as far as practicable, before considering disposal.

BAT 1 of the CWW BAT-C requires the EMS to contain a waste management plan, so there is no requirement to specify one in the Permit conditions.

Site Condition Report, Baseline Report and Soil and Groundwater Monitoring (where relevant)

Supporting documents included with the application include a Non-Technical Summary, Site Condition Report, and Environmental Risk Assessment. Additional information includes an inventory of hazardous chemicals to be used on site. These have been reviewed during the determination process.

Due to the nature of the process, it is not expected that the installation will have any significant emissions to soil and groundwater.

The information presented as part of the application is acceptable, though an updated Site Condition Report with baseline will need to be submitted. It is recommended this be submitted as part of the Soil and Groundwater Monitoring Plan.

The standard soil and groundwater monitoring conditions are included as Permit condition 4.2.

Additional pre-operational conditions have been added to the permit:

i. requiring an updated site condition and baseline report, confirming the condition of the authorised place to be provided to SEPA prior to operation as per Permit conditions 6.1.1 and 6.1.2.

ii. requiring final design details of key infrastructure as per Permit conditions 6.1.3, 6.1.4, 6.1.5, 6.1.6 and 6.1.7.

Standard condition 5.1 is included in the permit to ensure that the site surfaces are maintained in good condition.

Due to the limited relevant hazardous substances present on site and the nature of the site it is considered that an appropriate monitoring period for groundwater is every 5 years and soil every 10 years – these have been incorporated into the standard conditions.

Consideration of Appropriate Measures and BAT

A BAT assessment has been completed using the identified the BAT Conclusions, BAT Reference Documents (BREF's), and relevant cross-sector guidance considered applicable to the installation. Where hydrogen electrolysis-specific BAT Conclusions are not available, relevant horizontal and cross-sector guidance has been used to assess the environmental performance of the proposed design, including guidance relating to wastewater and waste gas management, emissions to air, emissions to water, storage, monitoring, energy efficiency, noise, waste and environmental management.

Reference has been made to the Common Wastewater and Waste Gas Treatment / Management Systems in the Chemical Sector BAT Conclusions.

Many of the BAT Conclusions have been suitably detailed and compliance is expected. There remain some outstanding items that require addressing prior to site commissioning and operation. These include:

BAT 1: Development of the site EMS.
BAT 2: An inventory of wastewater and waste gas streams has been provided. An updated Site Condition Report with baseline will need to be submitted as part of the Soil and Groundwater Monitoring Plan.
BAT 3: Location of the discharge point to foul sewer when sampling will be undertaken is to be confirmed.
BAT 4: The anticipated effluent characteristics have been reviewed against the relevant BAT-AEL trigger levels set out within the CWW BAT Conclusions. The assessment confirms that the concentrations and loads of relevant pollutants in the process discharge are below the applicable BAT-AELs trigger levels. A sampling programme will be required to confirm that actual emissions are below the trigger limit.
BAT 6: The application states an Odour Management Plan is not required due to no odour sources been present, However, BAT 1 requires one to be developed as part of the EMS.
BAT 11: See BAT 3 and BAT 4.
BAT 20 and 21: See BAT 6.

Bat 22: Noise management will be included within the EMS, which will confirm final equipment acoustic data, design (enclosures etc), maintenance/testing noise and (any) generator noise. Standard Permit conditions apply.

12. Consideration of Environmental Impact Assessment

For Schedule 20 - 24 activities, if an applicant has confirmed to us in the application that the proposal is subject to an environmental impact assessment under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, then we must record how we have considered any relevant information obtained or conclusions arrived at from the EIA.

Was the activity to which this application relates to, subject to an EIA?	No

13. Extension to the permit determination time

Has an extension to the permit determination period been requested?	Yes
Did the applicant provide written agreement to extend the determination period?	Yes
Where agreed has the permissioning platform been updated?	Yes
Where the applicant has not given written agreement to extend the determination period, have they notified SEPA that they wish the application to be deemed refused?	Choose an item.
Comments:	

14. Details of the draft permit

Do you propose placing any non-standard conditions in the permit?		Yes
Do you propose making changes to existing text, tables or diagrams within the permit?		Choose an item.
Outline the changes required and provide justification below:		
Condition Number:	Proposed Change	Justification
3.6	Monitoring of emissions to sewer for 24 months and submission of a report detailing emissions to mains sewer.	To confirm that actual emissions are below the BAT-AEL trigger values.
5.3.2	Inclusion of a register of raw materials and wastes.	To confirm final details required and to identify if changes are required to

		the monitoring of relevant hazardous substances throughout the operation of the installation.
6.1.1 and 6.1.2	Pre-operation conditions – update site condition and baseline reports	To confirm site condition and provide baseline data.
6.1.3 and 6.1.4 and 6.1.5 and 6.1.6	Pre-operation conditions – final design details	To confirm final design details to identify if variation is required prior to operation.
6.1.7	Pre-operation conditions – noise.	To confirm that the final design is BAT for noise.

15. Informal Consultation with Applicant/Authorised Person

Has informal consultation with the applicant/authorised person on the draft determination been carried out?	Yes
Draft sent to the applicant:	14/10/2026
Date given to return comments:	27/10/2026
Date Comments returned:	30/10/2026

Summary of contents and SEPAs response giving justification

1.1.5 – Addition of collection and compression of oxygen produced by the electrolysis as a DAA.

3.6.3 – Removal of reference to a deleted Condition that does not apply to this Permit.

Table 3 – Query regarding specific daily sampling frequency for TOC, TSS and P. This has been changed to once every month in line with other parameters in this table.

5.2 – Confirmation that liquid storage applies to liquids containing potential Relative Hazardous Substances and that these should be confirmed in the site EMS.

5.3 – Clarification required on what wastes and raw materials are being referred to. Applicant states that in operation, the process 'raw material' is mains water and the 'waste' is the effluent discharge referred to above. SEPA's response is "This will tie in with the production of the Site Waste Management Plan (SWMP) as part of the EMS.
Waste will also include the handling and storage of the process effluent to be disposed of off site, along with any containers of eg. hydraulic oils, diesel etc.
Raw materials would include any general cleaning materials, diesel, hydraulic oils, refrigerants, glycol".

6.1 – Confirmation by the Applicant in agreement to this Condition.

6.1.3 – Applicant queries if they need to re-submit previously supplied information. The location, heights and diameters of these have previously been provided. The temperature and velocities will be variable – ranges can be provided, but these will not be confirmed in the time frame required. As previously advised, there is a small chance of minor changes to the detail of the vents during installation/commissioning and an updated 'as built' submission will be made during the commissioning period. SEPA's response is "This is only to cover any changes that may occur during development that differ from that already submitted. I have amended the wording slightly to say "during commissioning" as we are not anticipating any major changes. If there are no changes to the information already submitted, then this can be considered already completed".

6.1.5 – As above for Condition 6.1.3.

6.1.7 - Applicant queries if they need to re-submit previously supplied information. Information on noise emissions has previously been provided, with the closest residential receptors 0.9km away. Noise levels will be measured during commissioning to confirm that the facility does not impact existing background noise levels. SEPA's response is "The operation and maintenance of the installation may result in some noise emissions. After construction, the electrolysers, compressors, and cooling units are expected to be the only significant noise sources.
The nearest residential receptors are located approximately 0.9km north of the development. As such, noise emissions are not expected to result in significant impact and at this distance are likely to be below typical rural background sound levels.
BAT 23 of the CWW BAT-C details preventing or reducing noise using operational measures, low-noise equipment, noise control equipment, attenuation, and appropriate siting.
BAT 22 of the CWW BAT-C, requires the EMS to contain a noise management plan.
The BAT assessment submitted with the application states: "Bat 22: Noise management will be included within the EMS, which will confirm final equipment acoustic data, design (enclosures etc), maintenance/testing noise and (any) generator noise. Standard Permit conditions apply".
Similar to above comments, I have changed the wording to during commissioning so that levels can be quantified and to allow the production of an EMS which is to include the noise management plan".

6.5 – Applicant requires confirmation that this refers to venting outwith normal operation. Small venting events (measured in seconds and a few grams of hydrogen release) are likely as part of normal operation and would require daily contact with SEPA if these were to be included in this requirement. SEPA's response is "This is correct. Conditions 6.5.1 and 6.5.2 are only for major emergency vents that may cause community impact when operating. This is **planned** venting, requires 7 days notice and venting can only be from the emission points specified.
If there is any **unplanned** venting/flaring from the vents/flares specified in 6.5.1, they must be treated as an event under Schedule 2 (as per condition 6.5.2).
Condition 6.5.3 requires all venting and flaring to be recorded and submitted to SEPA annually, so this would be the daily, normal operation minimal venting. This condition covers all emission points where venting may take place. The reason for this condition is because not all venting/flaring will be an event (i.e. meet the criteria for an event under Schedule 2)".

6.5.4 - Applicant requires confirmation that this refers to events outwith normal operation and maintenance. Vents may be out of service during operation and maintenance when the equipment attached to them is inactive. SEPA's response is "Correct - This condition does not include periods when the vents are out of service when the equipment attached to them is inactive.
It is also understood that a vent may need to be taken out of service with less than 24 hours' notice. This condition does not stop this happening. Were it to happen then a notification should be submitted at the earliest opportunity to explain this and why. If this can be justified, then this would not be considered non-compliant with the condition".

6.7.2 – Applicant requires document reference IND-T-001. This can be found on SEPA's website or can be issued by a SEPA Officer if required.

6.8.1 – Frequency of four-yearly assessment queried given frequency of soil and groundwater monitoring. SEPA's response is "Groundwater monitoring is every 5 years, soil every 10 years. These frequencies are flexible Permit Conditions which can change throughout the duration of a Permit, and differ across sites. The four-yearly assessment is a standard Permit condition across all SEPA Permits and provides a fixed assessment period, independent of the groundwater and soil monitoring".

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Table 6 – Updated reporting date for pre-commissioning reports as detailed above.

16. Public Consultation on SEPA's Draft Decision

Was Public Consultation on the draft decision undertaken?	Yes
Date draft determination placed on SEPA's Website:	Click or tap to enter a date.
Date public consultation on draft consultation closed:	Click or tap to enter a date.
Details of any other 'appropriate means' used to advertise the draft. Seek advice from the communication department	
Have all individuals who responded to the consultation on the application been informed of our draft decision?	Choose an item.
Were representations received?	Choose an item.
Summary of responses and how they were considered:	

17. Final Decision

Outcome:	Grant
If "**Refuse**" or "**Grant in Part**" summarise the grounds for refusal:	

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