



SGN
Fullarton House
1 Fullarton Drive
Cambuslang
Glasgow
G32 8FD

By email only: [REDACTED]

16 January 2023

Dear [REDACTED]

Request for Information under Environmental Information (Scotland) Regulations 2004 ("the EIR Regulations")

Thank you for your request received on 13th December 2022.

You asked the following:

'I understand that SGN commissioned Kiwa Gastec to do a Hydrogen Consequence Testing study for the H100 project.

Phase 1 of the study investigated the behaviours and consequences of hydrogen leakage into properties by conducting experimental and destructive testing with natural gas and hydrogen in order to compare the results between the two.

Please provide [numbering added]:

- 1. The location (address or coordinates) where the simulated explosions took place*
- 2. The dates and times of the simulations*
- 3. Any high-speed videos and or photographs of the simulated explosions*
- 4. Any charts or diagrams showing measurements taken during the simulated explosions and comparing values of hydrogen and natural gas*
- 5. A list of the simulation scenarios (gas mixtures, leak sizes, gas concentration levels, and whether the simulated leaks were in the pipes or in the appliances)*
- 6. Any documents containing conclusions of the study or executive summaries of the findings on ignition probability of natural gas and hydrogen.'*

Our Response

Scotland Gas Networks Plc (**SGN**) is a public authority for the purposes of the EIR Regulations. It is therefore required to consider requests for environmental information under the EIR Regulations and release such information where it does not fall within one of the exceptions set out under Regulation 10. We can confirm that SGN does hold the environmental information regarding Phase 1 which you have outlined in your request and have set out our response to each of your requests in turn, as follows:

- *[Request 1] The location (address or coordinates) where the simulated explosions took place*

Gas escapes of methane and hydrogen into a domestic kitchen were simulated through the injection of fuel gas into Fire Investigation Boxes at the Fire Service College, London Road, Moreton in Marsh, GL56 ORH.

- *[Request 2] The dates and times of the simulations*

The simulations took place at the following dates and times:

16/01/2018 15:17
18/01/2018 14:50
22/01/2018 12:46
24/01/2018 13:00
26/01/2018 13:10
30/01/2018 13:00

- *[Request 5] A list of the simulation scenarios (gas mixtures, leak sizes, gas concentration levels, and whether the simulated leaks were in the pipes or in the appliances)*

The gases used for the simulation scenarios were methane and hydrogen.

For each of the simulations, gas was injected into a floor mounted sink cabinet via a 28mm diameter copper pipe.

The leak rate of fuel gas from a particular orifice is dependent on the physical properties of the gas. These include the density, Wobbe Index and calorific value. Because of the large difference in density and calorific value of hydrogen and methane, the leak rate (l/minute) from a particular orifice will be significantly different for each gas, (hydrogen rate = almost 3 times methane rate). However, this results in a very similar rate in terms of energy flow. The release rates of hydrogen were further modified by the ratio of the Wobbe indices of the two gases. The chosen release rates for the simulations were as follows:



Test Set	Fuel Gas	Release rate (kW)			
		Small	Medium	Large	Very Large
A	CH ₄ (G20)	4.0	16.0	64.0	-
B	H ₂	-	14.6	58.3	100.2
Roughly equivalent to:		Consumption of: Hob (2x 2kW)	Consumption of: Hob (4x 2kW) Oven (3kW) Gas fire (6kW)	Consumption of: Hob (6x 2kW) Ovens (2x 3kW) Gas fires (2x 6kW) Boiler (30kW) i.e. the upper limit of any conceivable domestic use	Larger than any conceivable domestic use i.e. could only be due to damaged pipework (A hole in a pipe of ~8mm diameter would be required for a leak of this size at 20mbar)

However, our position is that SGN is not required to disclose environmental information regarding requests 3, 4 and 6 under the EIR Regulations on the grounds that the information sought is subject to an exception pursuant to those Regulations.

Explanation for Refusal Regarding Requests 3, 4 and 6

Exception – Regulation 10(5)(e) Confidentiality of commercial or industrial information.

SGN successfully bid for funding from Ofgem to deliver the H100 Fife project (the **Project**), which is a first of its kind trial project to implement and evaluate the supply of hydrogen into people's home from September 2024. In the Project's first phase, the network will heat around 300 local homes using clean gas produced by a dedicated electrolysis plant, powered by a nearby offshore wind turbine.

Prior to submission of the bid, SGN were required to develop a body of scientific research to establish that hydrogen is capable of safely heating homes and businesses.

SGN has received public funding from Ofgem for the Project but has also provided significant shareholder investment. Participation in the Project works on a voluntary basis. This means that it requires informed engagement and buy-in from members of the local community. Work is still ongoing ahead of the Project's go-live date in 2024. We consider that the premature release of any information or reports could unnecessarily damage participation and undermine the funding and continued viability of the Project as well as its purpose, which is to investigate low-carbon heating alternatives to natural gas.



Additionally, both the public feedback and scientific output from this Project is intended to feed into the wider UK Government low-carbon policy and its ultimate decision on the viability of hydrogen heating, which will be taken in 2026. There would therefore also be implications for the UK's net zero strategy and transition to a low carbon future if this Project did not proceed.

Having considered and applied the public interest test, we consider that disclosure of the information requested at this stage is not in the public interest. Release of information contained within requests 3, 4 and 6 without the wider context which that information sits within could ultimately and unreasonably undermine the Project and result in the removal of its funding, despite the huge investment SGN has made to ensure it is a success and the loss of public funding which has been provided.

To be clear, SGN is committed to engaging the public with the Project and explaining the safety aspects of hydrogen use which have arisen from the research, but it is not considered in the public interest at this time to release such scientific research out of context which could cause unnecessary alarm and be misinterpreted.

Complaints Procedure

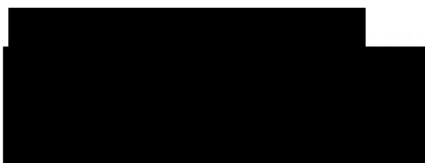
If you are in any way unhappy with this response to your request, you may ask for an internal review. Please email SGN Data Protection Team in the first instance at Data.Protection@sgn.co.uk setting out the reasons why you believe we have not complied with its requirements with regard to your request.

Regulation 16(2) of the EIR Regulations states that you must send a request for internal review to SGN no later than 40 working days after the date of this letter. We will arrange an internal review of your request and we will notify you of its decision no later than 20 working days following receipt of your complaint.

Under the EIR Regulations, if you are not content with the outcome of the internal review, you have the right to appeal the decision to the Scottish Information Commissioner. The Scottish Information Commissioner can be contacted at:

Kinburn Castle, Doubledykes Road, St Andrews, Fife, KY16 9DS

Yours sincerely



Trainee Solicitor
SGN Legal Services