



## Work Package 5 – Deliverable 6


### Certification of all vehicles for safe refuelling at public stations

Before fuelling can take place at an Air Products operated fuelling station, the vehicle provider is obliged to complete a 'safe to fill' form. This means that the vehicle operator has confirmed that the vehicle meets all technical requirements to fuel at the station.

A safe to fill form was completed by Intelligent Energy regarding the fuel cell taxis (see below). All other vehicles providers using the London station will be obliged to complete a similar form prior to their first fill.

This information has been shared with the City of Copenhagen (CoC) so that they could implement their own processes at the Copenhagen stations. The position of the CoC is as follows:

*CoC believes it is not necessary for the vehicles users to sign a "safe to fill" document. The City of Copenhagen has already 6 FCEVs which are used by its city servants and they have already good knowledge of driving and refuelling FCEVs. The next generation of FCEVs and refueling stations are even more standardized and both the FCEVs and the fueling station can handle fast and safe refueling according to SAE J2601 standard. Further the FCEVs may in theory be used by any of the thousands employees within CoC, thus practically making a signing/training event not possible. Instead a refueling training of super-users at the CoC has been conducted. These super-users are then to pass this on to their colleagues who plan to use the FCEVs.*

	
<b>Safe to Fill Certificate</b>	
Subject:	Safe Filling of Hydrogen vehicle(s) at Air Products' Fuelling Station
Location / Filling Station:	Hytec Fuelling station, Heathrow Airport
Purpose:	In order to ensure that that the maximum fill pressures of the filling station set out below do not exceed the maximum allowable working pressures of the vehicle(s), Intelligent Energy Ltd. confirms that all vehicle(s) presented for filling at the above hydrogen refuelling station, will be certified by the vehicle operator(s) to meet the vehicle criteria set out below:
Filling Station	
Design Fill Pressure of Station at 15°C/288K	350 bar (35MPa)
Maximum operating ambient temperature of filling station	40°C / 313 K
Fill Pressure at maximum allowed ambient temperature	382 bar / 38.2MPa
Vehicles(s)	
Herewith, the vehicle operator confirms	
1. The vehicle system MAWP pressure is minimum 437.5 bar	Yes _____
1.1 If system design pressure is less, state pressure <sup>*1</sup>	_____
2. Vehicle is equipped with Type III tank	Yes _____
2.1 If the vehicle tank is not a Type III tank, state the type <sup>*1</sup> :	_____
3. The test pressure of the vehicle system is 525bar or better	See below _____
3.1.If the test pressure is less than 525 bar, state actual test pressure <sup>*1</sup>	_____
4. Piping and inline components are all from metal	See below _____
4.1 If piping and inline components are not from metal, state material <sup>*1</sup>	_____
<sup>*1</sup> in these cases fuelling is not permitted until approved by an Air Products representative	
Vehicle Vendor	Intelligent Energy Ltd.
Responsible Vehicle Operator:	Intelligent Energy Ltd.
Date of Issue:	25/9/12
Location, date	INTELLIGENT ENERGY LOUGHBOROUGH. _____ Signature <i>SAMES EDWARDS</i>
Notes: Full high pressure system tested to 525bar by Dynetek before delivery. High pressure regulator replaced with identical component and retested in-situ to 438bar. All high pressure pipework is stainless steel, low pressure (5.5bar) delivery line to fuel cell is stainless braided PTFE, protected by 8.0bar PRV.	
Vehicles included: HY02 TAX, HY03 TAX, HY04 TAX, HY05 TAX & HY06 TAX	