Alternative Fuels
HYDROGEN

Politicians and the media seem obsessed with the use of hydrogen gas as a motor fuel. A few years ago Insite published an article about hydrogen which is still available on the PEIMF web site. Apart from an up date on the research facilities in the US mentioned, nothing else has changed and still worth reading. It spelled out the technical use of the gas in generating power in a vehicle.

The principle sources of hydrogen will,in the long term, come from the cracking of water and natural gas. As ready sources ie 'off the shelf' supplies are limited to a few sites in the UK. One long term source is a by-product of the salt process from the mines in Cheshire and the other, again as a by product, from some chemical plants. These volumes are relatively small compared with the cracking processes of natural gas and water. Both of these processes as the **Insite** article states, require energy to be expended to release the hydrogen. With natural gas we have the obvious dilema of the competitive situation with the current usage of the gas in the domestic environment and secondly, it is a heat source in generating electricity in power stations. Both of these are subject to the adding of VAT to the bill to the end user, albeit at a reduced amount – at the moment!

Governments have long encouraged the moves into alternative fuels, promising all manner of incentives, until the lure of levying taxes rears it ugly head. LPG is the classic example, which was the darling of the dual fuel vehicles and relatively easy to deal with and installed on the forecourt. Myriads of converting companies sprouted and it was on its way. But the progress was slow with LPG seemingly unable to punch its weight with the motoring public, especially when the Government got its hands on a new likely source of tax revenue, despite earlier promises not to do so.

So what of the future of hydrogen as a motor fuel? As a gas it is excellent with no emissions when used, emitting water exhaust only. A recent report stated that used as a direct fuel, engines can cope with little alteration to the engine. If that was the case, then why is it not already being used? The short answer is twofold. Vehicle manufacturers won't take the risk of mass production until it can see the availability of enough filling stations to supply the motorist and secondly, filling station owners will not commit until there is a guaranteed supply in place. In other words a 'chicken and egg' situation.

The only sites supplying hydrogen in the UK number four only. Three are on university campuses in Birmingham, Loughborough and Glamorgan. The fourth site is owned by ITM Power a research company based in Sheffield. *(Source: The Times)* There are more planned, including those for the transport to support the Olympic games in 2012 But further progress will come down to confidence as before.

The safety measures that are required to store and dispense hydrogen with the general public being involved as now, gives great cause for concern. It will be stored in gaseous form as liquid hydrogen requires more elaborate engineering, involving the likelihood of encasement in a liquid nitrogen jacket with a surrounding vacuum interstitial space. It is the vacuum that makes this very different and costly if the authorities want it. The petroleum downstream industry at the moment is not geared to such a standard of engineering products. However it may not come to that. We'll see.

The storage and handling of hydrogen gas involving the general public is worrying. It is of course highly inflammable and very hot when ignited. It has no significant smell *(the same as crude North Sea natural gas)* and will likely require a stench to be added for ready detection on leakage. However, the smallest pin prick sized hole in a container passing hydrogen, due to its characteristics, can lead to the heating up of the orifice and causing automatic combustion. A hydrogen flame cannot readily seen unlike petroleum, resulting in handlers being in danger of literally walking into it.

The storage of gaseus hydrogen under pressure is another issue that has to be addressed. Quantities will determine the risk factor as with any stored fuel, but again sites will require more space to install the gas at the correct distance from the surrounding area buildings and other hazards.

All of this sounds very negative, but it is now that at least an outline plan needs to mapped out before any investment is considered. When we hear that BMW has pulled out of its plans to market a hydrogen vehicle, then the mould is being set for the time being.

Frank Hare *2.3.2010*

Durapipe celebrates supply milestone with D Berry & Co Ltd

Durapipe UK is celebrating its milestone 1,000th service station project with one of the UK's leading distribution suppliers, D.Berry & Co. Ltd this month.

A motorway service station and hotel project in Beaconsfield marks the impressive landmark for Durapipe UK, in which Durapipe PLX Secondary Containment pipework is used within the service station on site to transfer fuel from the underground storage tanks to the service station fuel dispensers.

D.Berry & Co. Ltd is a leading product and service distributer of a wide variety of service station equipment extending from Durapipe UK pipework to pump stands, offset fill and vent frames, vapour recovery and overfill prevention equipment, pollution control, monitoring wells, manhole covers and the highly successful ATLAS range of products.

Durapipe UK is the preferred fuel pipework manufacturer for the service station network supplier because its market leading PLX system offers the ultimate in combining durability with performance. The range is manufactured in a robust Polyethylene material, which provides exceptional resistance to rapid crack propagation and long term stress cracking, whilst a visible Polyamide liner allows increased resistance to all types of fuel blends, ensuring there is no permeation of fuel through to the atmosphere. Also very important is both D Berry & Co and Durapipe manufacturing plant and facility are based in the midlands centre of England and ideally located for supply, installaiton and service anywhere in the UK.

Having worked with Durapipe UK for many years to provide service stations and supermarkets with Durapipe PLX Secondary Containment and Single Wall pipework for either pressure or suction systems to safely transfer fuel from underground tanks to the fuel pumps, this milestone demonstrates the successful relationship that Durapipe holds with D. Berry & Co. Ltd.

Tom Hocking, Operations Director at D.Berry and Co. Ltd commented: *"The quality and performance of Durapipe PLX products, combined with the service from the technical and support team, has always been exceptional and key to our successful relationship. We initially chose to utilise Durapipe UK as our pipework supplier for its forward thinking when it comes to product development – something that we continue to be impressed by."*