

preparing to transfer their 16 owned company operated sites to the private sector and some investment will be needed in the future. That said there are signs that similarities are occurring to that of the USA and Europe where sites often have other facilities such as Vehicle Repair Workshops and Convenience Stores that offer a wide selection of goods



Typical attended site at Central Market

but one fundamental difference is that all sites are Attended Service,

We left after four days and experienced some wonderful hospitality from our hosts and the working relationship we forged back in 2007 was again enhanced and the trainers involved, Bob Conlin, Jamie

Thompson, Rodney Carter and myself, believe we have furthered the Association's growing reputation outside the UK. Who knows, maybe one day we will see a Branch inaugurated in Bahrain.



Left to right: Bob Conlin, Brian Baker, Jamie Thompson, Rodney Carter

Temporary Petrol Filling Station, a Success...

By Jacquie Holt, Terence Barker Ltd

In 2006 we designed on paper, a modular aboveground fuel station; the idea a modular unmanned, self service fuel station using the Convault aboveground protected fuel tank; the safety of the tanks already proven as they are in use at US military bases across the UK and Europe. Our hope, this fuel station could answer the problems that people living in rural areas are now faced with regarding the distance driven to a fuel station to refuel. The intention, that the unit could be erected on an owner's prepared base in a matter of days; civil engineering works would be minimal and an advantage, avoiding the potential risk to pollute the soil and groundwater. They were designed as free standing, debit / credit card operated, able to hold up to 3 products and allow 4 vehicles to fill simultaneously.

Two years later in the Autumn of 2008 we were approached by Williams Southern Ltd with regard to producing a Temporary Petrol Filling Station (TPFS) for Sainsbury's based around the Convault Above Ground Protected Tank. The idea was that the TPFS would be on site and

dispensing fuel whilst the existing fuel forecourt was being refurbished by Williams Southern Ltd, the lead contractors, for a period of about 13 weeks. It was Sainsbury's intention, to move the TPFS to other stores around the country where further forecourt refurbishments work would take place.

We attended the first meeting at Martindales' offices at Oakington in early November 2008 attended by Alan Howard of Sainsbury's;

representatives from Martindales & Williams Southern Ltd and the electrical contractors, T. E Ramm and Co.

It was agreed that two 41,600 litre banded Convault Tanks with two compartments in each were required; each Convault would hold Petrol and Diesel. Also required as part of the project would be the gauging system, the tanks fitted with OPW contents gauges which indicate any water detected in the fuels together with high level alarm with audible warning.

Also required, a secure cabinet containing the uplift pumps, the electrics and the Stage IB vapour collection point, the dispensing pumps were supplied by Sainsbury's, each tank supplying fuel to four Dresser Opus 9000 twin nozzle





dispensers, eight in total, all of which have built-in Stage II vapour recovery.

The uplift pumps deliver the fuel into the tanks from a gravity feed tanker via an 800 LPM centrifugal ATEX approved uplift pump. It takes approximately 10 minutes to off load 7,500 litres of fuel, and while fuel deliveries are taking place the site is closed.

It was a specific requirement that each of the four compartments, two holding unleaded petrol and two road diesel, would have its own designated uplift pump, but in the event of an emergency it would be possible to divert the fuel into the other appropriate compartment holding like fuel. To ensure no cross contamination would take place the pumps, corresponding pipework and compartments are all clearly labelled; also, each compartment within the Convault is built as an individual tank and tested as an individual tank. The tanks remain under pressure for a minimum of 5 days until after the inner tanks have been encased in concrete and the mould holding the concrete released.

We received the order in early December for delivery to site on the 1st March this year so that the TPFS could be operational on Monday 16th March at 8.00 a.m. We were very conscious that this would be a very sharp learning curve appreciating that we would need to rely heavily on the experts to ensure the project would be approved with all the necessary safety mechanisms in place.

"The Petroleum Group of the London Fire and Emergency Planning Authority (LFEPA) working under the Lead Authority Partnership agreement they have with Sainsbury's liaised with the architects, consultants, contractors, the fuel supplying oil company and

the local Petroleum Licensing Authority from the inception of the project to ensure that the Mobile Temporary Petrol Filling Station (MTPFS) complied with national guidance and was suitable for licensing under the Petroleum (Consolidation) Act 1928. Documentation listing all the equipment used to construct the MTPFS, and the arrangements to that must be agreed locally with each Petroleum Licensing Authority has been produced. The main local arrangements to be considered are: location, impermeable forecourt area with suitable drainage to a Class 1 separator, tanker route, and the site specific risk assessments.

The LFEPA oversaw the construction and the first installation of the MTPFS to be satisfied of compliance, and has advised on improvements and modifications that have been found to be necessary or desirable once the unit was brought into use." Ray Blake HEAD OF PETROLEUM LONDON FIRE BRIGADE

Working closely with Ray Blake regarding licensing issues, late January he raised a valid question, in the event of the transfer pump failing midst delivery what would the tanker driver do with the fuel in his line? This potential problem was overcome with the help of Roger Wyatt, our fuel consultant, who suggested a modification to the pump tanker connection. Roger helped design a means of draining out the fuel lines with the aid of ATEX approved hand pumps, one for Derv and one for petrol, the fuel to be drained into small dump tanks positioned at the rear of the uplift pump cabinet. Each one of these two dump tanks was to be fitted with an air-operated pump for returning the fuel back into the appropriate compartment. The dump tanks were installed, each

had a capacity of 40 litres with an 80mm filling point, this could also be used when weights and measures carried out checks on the dispensing pumps, the fuel could be returned to the dump tanks via a funnel and returned to the main tanks in the same way.

A few weeks after the TPFS had been installed our fitters returned to Hankridge Farm, and replaced the 40 litre tanks with larger tanks of 225 litre capacity, this simple system has been working perfectly since.

Each 41,600 litre Convault Tank used in this project contains 18 cubic metres of concrete, weighs 48 tonnes and is 10.7 metres in length. The component parts consisting of two of these tanks, a large self-contained uplift pump lockable cabinet, fascias, stands and pipework were loaded in our yard on the afternoon of Friday 27th February and arrived on site at Taunton on Sunday, 1st March at 7.00 pm and by midnight were off-loaded and in position in the car park of the superstore. The units took up 32 car park spaces to one end of the car park, Sainsbury's also installed two kiosks for easy payment for their customers; fundamentally it was important that Sainsbury's' very valuable customers were not inconvenienced and could refuel their vehicles at the same time as buying their weekly shop. Sainsbury's were not prepared to lose valuable customers to the competition with both the fuel trade and supermarket trade. The site at Taunton is manned and open for fuel sales 24 hours a day.

The TPFS was in use from Monday 16th March until our fitters started to dismantle on the 8th July ready for transporting to the second site for renovation, Deepdale Preston. Before being transported to Preston the tanks and dispensers were drained down; de-gassing was not a requirement. The only requirement necessary was that the drivers needed ADR licenses to carry the tanks on the road.

Continually reviewing the design of the project with all involved it became apparent that there was a requirement to eliminate the 'human element' with the potential to overflow the tank, options were reviewed and it was decided that the uplift pumps needed a failsafe cut-off system that would shut the active uplift pump down when the tank reached its safe working capacity and more importantly, a system that could not be over-

ridden. The Scully system, an industry standard over the last 30 years, met all requirements and is now incorporated in the specification

The TPFS at Taunton always received manned deliveries and it was agreed that the installation and training on the Scully system would be carried out when the TPFS arrived at Preston. The system operates with a probe in the top of the compartment with a prism which continually self checks 30 times

per second. On the Sainsbury TPFS project it is effective when the fuel delivery operator misses the overfill alarm and continues to fill. Each compartment has a probe which is linked to the corresponding uplift pump; if the fuel exceeds the high level alarm and reaches the probe, the operational pump will completely shut down preventing any further fuel from being delivered to the compartment. Each compartment has its own designated uplift pump and the Scully will only shut down the pump

that relates to the specific compartment being filled allowing other pumps to other compartments to continue filling. This system has



been adopted at Bunsfield and meets SEL 2 safety requirements.

"The delivery of this project involved a wide and dedicated team managed by myself with Martindales responsible for the design and logistical implementation of this facility. Williams Southern were instrumental in ensuring this was delivered to market as an operational solution. We sought advice from our Lead Petroleum Officer Ray Blake and were also superbly supported by our fuel supplier.

The tanks and supporting systems are robust and Terence Barker Ltd worked hard in ensuring we could deliver to the required market within the required time frame. The system is versatile and can be used in various layouts where a permanent over-ground tank solution is required and Sainsbury's were impressed with the manufacturing process, advice and professionalism of Terence Barker Limited.

The facility we installed at Taunton performed very well and if well managed is capable of trading in excess of 300,000 litres per week – far more than some permanent petrol filling stations." ALAN HOWARD, SAINSBURY'S SDG
To conclude, the TPFS has been considered a success by all those involved and now there is a proven system on the ground, with a second to follow; the TPFS is an alternative to the more traditional fuel storage options available in the UK without the risk of groundwater pollution.