



Incident report: Stores Fire at EnerSys Newport

Report prepared by Gavin Thomas

1. Introduction

The following report is in relation to the recent fire within the stores department at the Newport Facility. The report will cover the sequence of events, summary of relevant evidence and conclusions including corrective action.

2 Background

During the night of the 13th November 2015, a fire started within the stores department situated in building A1, figure 1 shows the location of the fire in context of the site. The fire started in the 'resin racking', the sprinkler system activated confining the fire and resultant damage to racking and nearby structures. The fire service attended site and assisted in the extinguishing of the fire. The fire fight resulted in fire water being generated. The fire water allowed the resin to spread to other areas, namely the offices. This resulted in the floors becoming contaminated with the resin. Figure 2 shows these locations,

Detailed below are the sequence of events on the night of 13th November 2015.

2.1 SEQUENCE OF EVENTS

- Fire alarm was activated at 00.12, indicating a fire in building A1 (material storage area).
- The suspected fire was investigated by maintenance crew Mr S Craven, Mr D Payne and Supervisor C2, Mr T Prosser.
- Reported a large amount of smoke in stores area.
- This triggered a request to call out the local fire brigade at 00.17hrs this was completed by security.
- Fire Brigade arrived on site at 00.22hrs, initially 2 x fire units, 1 x chemical handling unit.

- Police attended later at 00.35hrs.
- The fire brigade instructed security to silence the alarm at 00.43hrs.
- Security issued access key to maintenance to turn off Gas supply at 01.19hrs
- At 01.55 D Payne accessed the pump house to turn off the sprinkler system.
- The fire brigade left site at 03.10hrs.

Following the intervention from the fire brigade a series of phone calls were made to initiate the recovery operation.

Following the fire and subsequent fire water, the site isolated the interceptor to contain any contaminated water and protect susceptible receptors, the reen (brook).

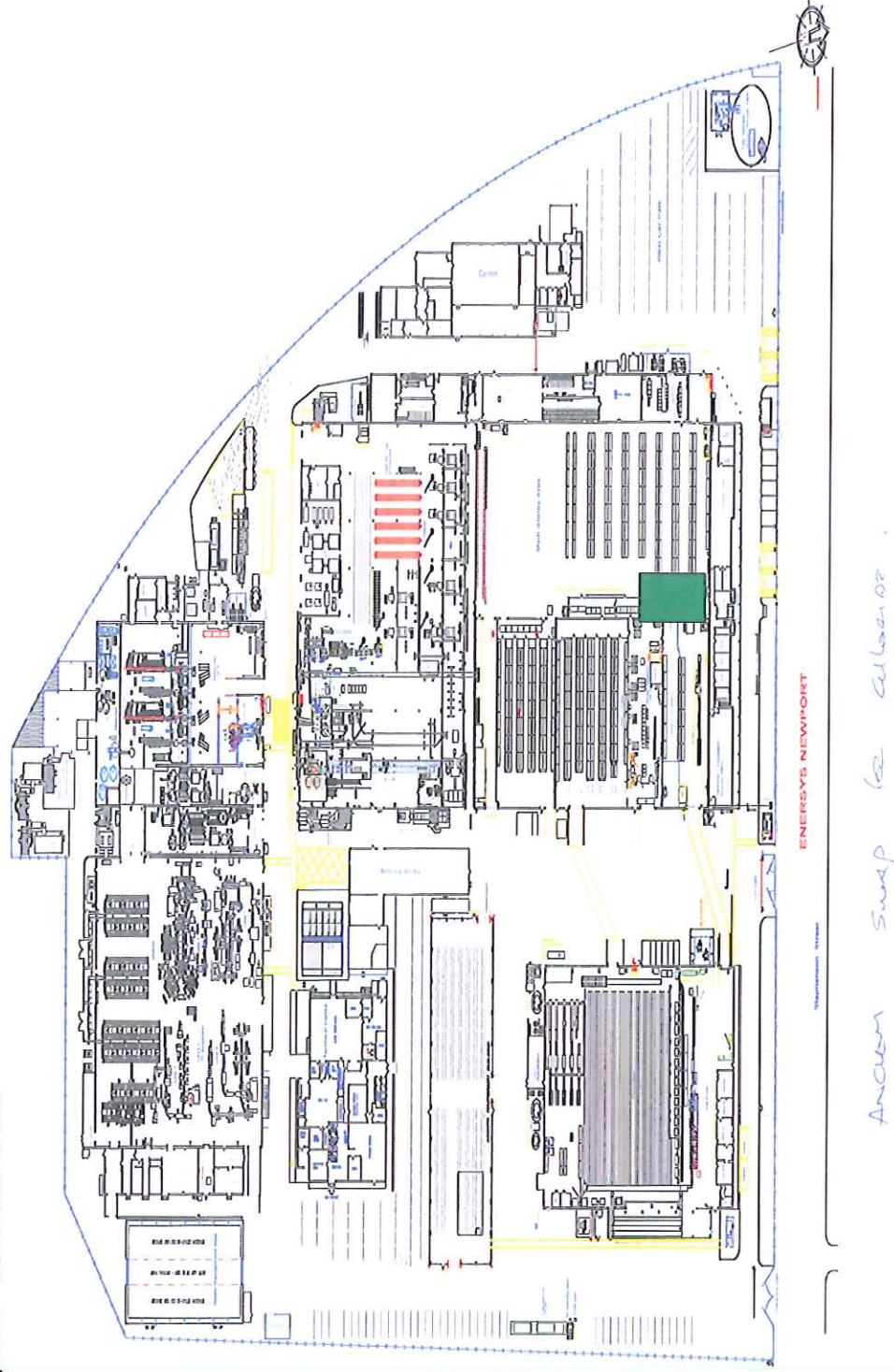
At 07.50hrs Gavin Thomas (GT) contacted Qualitech (Industrial Cleaning Services) to begin the cleaning operation.

At 07.55hrs Natural Resources Wales (NRW) were contacted, Dave Griffiths (DG) was advised about the situation, and that bunding had been deployed throughout the vicinity so the resins were contained within the building, DG stated that he had received notification from the fire brigade that only 200lt of water had been deployed from the fire unit.

As part of that conversation DG advised GT that with the recent heavy rain, river-water levels were extremely high and that he had no initial concerns over contamination as only 200lt of water was deployed, and was comfortable that the spill response kits had been deployed.

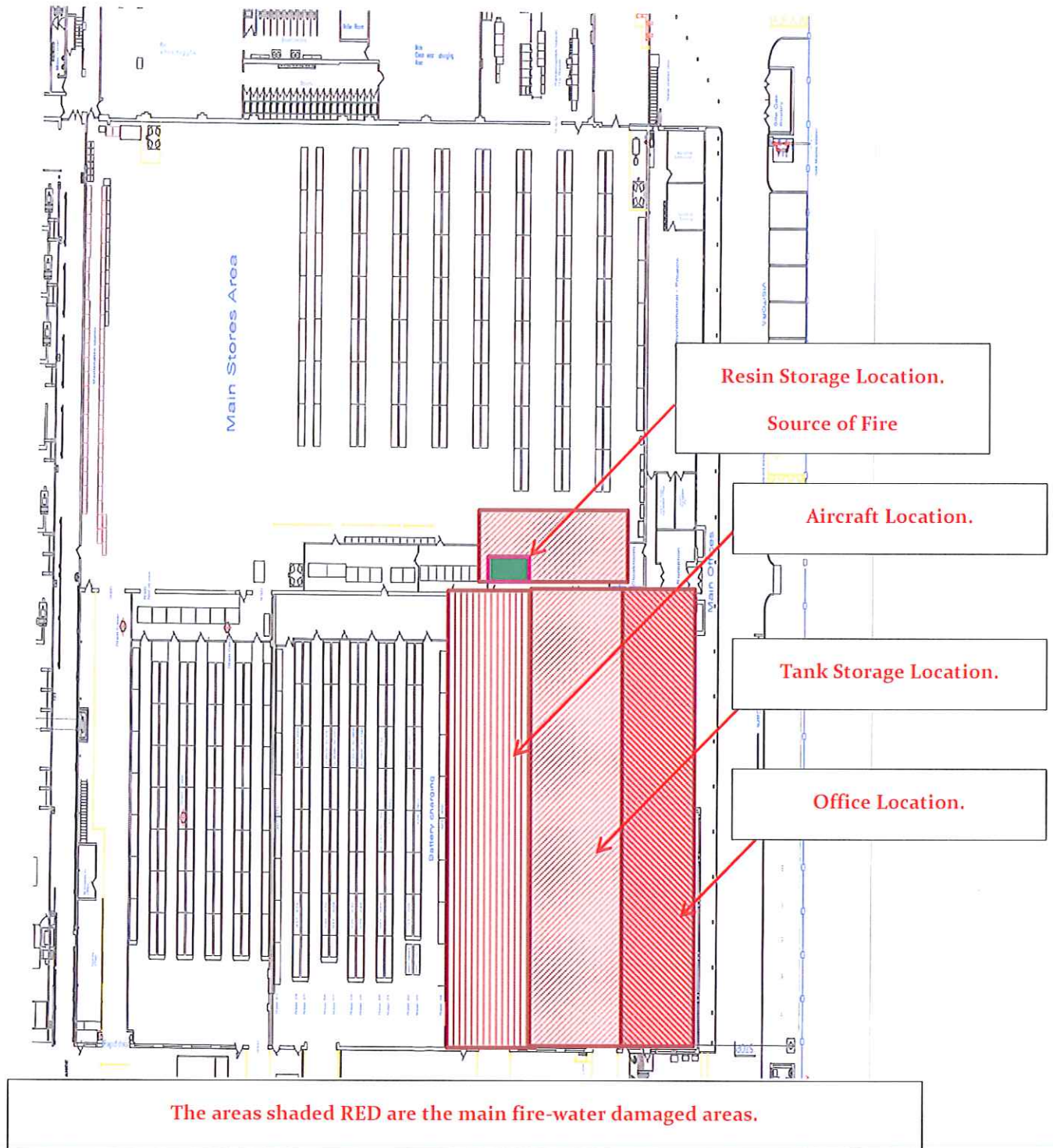
At 08.07 Jason Casey (Director of Qualitech) advised that 5 x operatives were being deployed to Stephenson Street using a series of high powered pressure washers to remove the resin and fire water debris, along with a waste water tanker to vacuum the spent water from the pressure washing / cleaning.

Figure 1 – Location of fire



Location of the fire identified by 'green' box.

Figure 2 – Firewater damage.

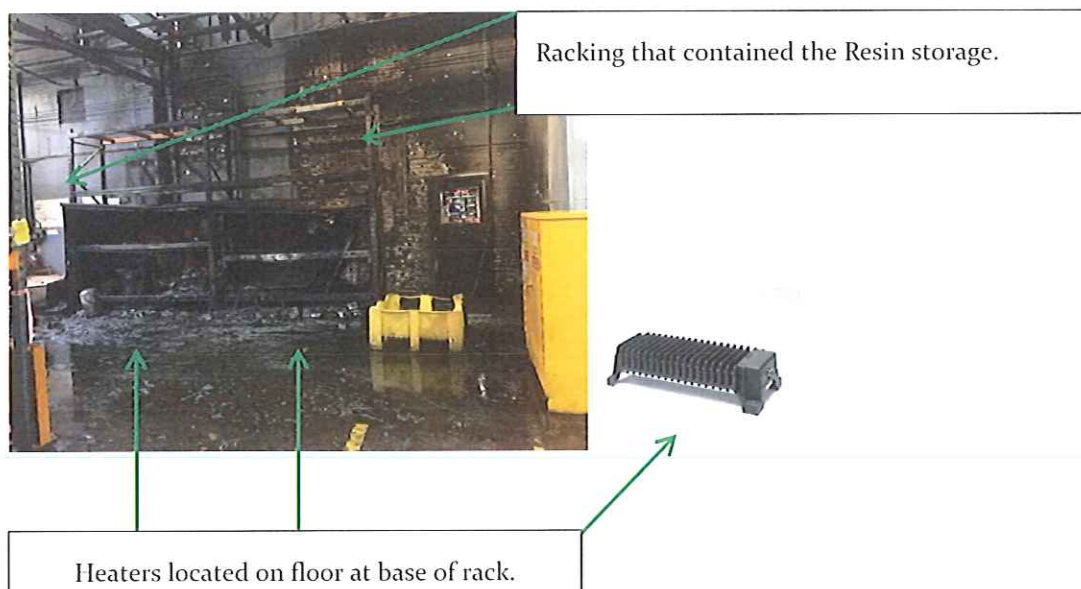


2.2 RESIN RACKING

The racking resin was essentially 2 bays of racking with the resins stored on the first level and the hardeners stored above. The racking, and heating system were installed in 2004. A rough layout can be seen in figure 3 below. The wiring used was high temperature grade. The chemicals required a stable temperature to ensure the correct viscosity was maintained. The temperature range was 15-25°C. Floor heaters were placed under the chemicals to ensure the range could be achieved. Each bay of racking had two 1kw heaters. These were controlled by thermostats, one per bay. As part of the quality management system, a daily check on the temperature was undertaken. Any readings outside of the range were reported to Maintenance who could then fix the issue/concern.

On the day of the fire Andy Block carried out his daily check and noted that the temperature on the left hand bay, as you faced racking, were slightly low at 17 °C. Andy promptly reported this to Maintenance who in turn ordered new heaters. The heaters on the right hand side were recorded at 21 °C, this was considered normal. The daily record sheet was filled in and filed next to the racking. Unfortunately this record was lost in the fire.

Figure 3 – Racking layout.



2.3 CLEAN UP

As mentioned above, following the initial actions to contain the fire etc. a specialized industrial cleaning company was engaged. The following pictures show the clean-up and actions to address environmental concerns such as, spill containment and tanker use for liquid wastes generated.



At 14.22 Fire impairment notice was sent to risk-support at Zurich, notifying them of Section A1 of the site did not have sprinkler cover, (because sprinkler head needed to be replaced).

Throughout Saturday and Sunday the Qualitech team and a strong team effort from Managers and employees continued to clean up / recover the situation, removing damaged materials and fire-water / resin remains, including office furniture.

Monday the recovery operation continued across all shifts. Waste was removed by Tradebe and GD Environmental, who were appointed by Qualitech. Two tankers of firewater and interceptor water were removed by Tradebe and four skips of office and production equipment that had been ruined by the fire and or water were removed by GD Environmental. Heavily resin contaminated materials in drums and plastic bins were also removed by Tradebe.

Tuesday the insurance representative arrived on site. Property loss adjuster Anthony Matthews (AM) looking to quantify losses and forensic examiner Camilla Gosling (CG) attempting to find root cause of the fire. We await the full report, however early indications suggest an electrical fault.

Wednesday at 11.30 Rebecca Green (NRW) came to site to investigate risk to the environment.

We explained the sequence of events which included the closing down of the Gas Main supply, the closure of the interceptor gate, deployment of numerous spill response kits to contain any contaminated water with the building. We had taken water samples from the local Reen and interceptor, these were analyzed for Pb and signs of hydrocarbons, both were clear of contamination.

Date	Location	pH	Lead (ppm)	Visible Signs of Hydrocarbons
Friday 13 th Nov	Interceptor	7.6	0.44	None
Saturday 14 th Nov	Interceptor	7.8	0.42	None
Sunday 15 th Nov	Interceptor	7.8	0.34	None
Monday 16 th Nov	Reen	7.5	0.08	None

As a result of this NRW investigation, we were advised that a non-compliance would not need to be issued.

There were no witnesses to the incident. Although CCTV footage is available it provides little evidence in determining the cause of the fire.

3 Conclusions

The fire caused extensive localized damage and therefore destroyed the critical evidence. That being said, the 'witness' marks on the wall adjacent and behind the rack indicate that the heat from the fire was more intense. This could indicate that the fire started on the right hand bay of the rack. Furthermore, the wood on side of racking and the fact that some containers on the left hand side weren't fully burnt certainly support this theory.

The heaters were checked after the fire, however, the checks were limited due to the fire damage. However, the checks did indicate that the 13 amp fuses were still in place and did not blow. This could possibly rule out a short circuit as had that occurred you would expect the fuses to blow and de-energize the systems.

The investigation continues.

4 Corrective Actions

The need to locate the resins inside the material storage building and additionally the requirement for the resins to be heated whilst in storage has been reviewed.

Following the fire the site was keen to seek best practice for the storage location and use of the resins, our sister plant in Warrensburg USA, use the same Bitrez resins, they were contacted to discuss how they store and use the resins on their site; as a result of these discussions it was established that Warrensburg received the Bitrez resin in 55-gallon drums, 4 drums/pallet, and several pallets each per order. The storage is confined to an isolated section of the manufacturing floor, Individual drums are then taken to the Subassembly lines where they get consumed in roughly 5-7 days. Manufacturing floor is climate controlled to 70-85 degrees F with average temperatures maintained between 70-75 degrees F.

The resin products are stored in a flammable storage room which is force ventilated to building exterior. Climate control is similar to that of our manufacturing floor of 70-85 degrees F with average temperatures maintained between 70-75 degrees F.

Added Comment: Flammable storage room is under an Aqueous Film-Foaming Foam (AFFF) System for fire suppression control.

The preferred option for Newport would be to purchase an external temperature controlled storage unit sited in close proximity to the Assembly area, so that when called for use the Bitrez resins are at a suitable temperature for production use.

The temperature controlled, and bunded external storage unit will be purchased from Chemstore and will also have fire protection built in.

Please see product example below.

Chemstore Quote CUK55303

32DSD - FireVault Flammables Store



Available with hinged or sliding access doors at no change in cost.

32DSD Firevault Flammables Store:	£ 10,869
Optional Grid Decking:	£ 565
Optional Hi-AB Off-loading:	£ 400
Lead-time:	4 – 6 Weeks from receipt of order.

All figures are exclusive of Vat.

Offloading can be carried out by suitable site forktruck or crane if preferred.

Unloading is otherwise the responsibility of the client company.

Standard Chemstore terms & conditions apply - www.chemstore.co.uk/terms-and-conditions/

Storage:	8xPallets, 32x210L drums (8x1000L IBC's) on 2 levels.
Overall dimensions:	6,100L x 1,900W x 3,300H mm
Construction:	Robust all welded 100x50mm steel box section frame. 3mm welded sheet steel sump.
Segregation:	Full height segregation, allowing storage of 6 pallets in one section, 3 above 3, 2 pallets 1 above the other in the second section
Wall Cladding:	The 100mm thick Fire-rated panels are fabricated from high quality resin bonded Conrock slab and are securely fixed using the tongue and groove method, for added stability, to the robust welded steel box framework.

When tested in accordance with BS 476 part 22 1987 the panels exhibit the following results:

Resistance to the passage of flames 98 mins.
Insulation on temperature 98 mins.
Stability >98 mins

There is, therefore fire resistance to the wall construction of 98 mins.

ATEX Optional Extras

Chemstore units must be supplied by a clean RCBO supply – rather than the RCD / MCB devices. Power rating dependent on installed components.

Extraction:	Flameproof extractor suitable for zone 1 and zone 2. Complete with externally mounted on/off switch giving minimum of 10 air changes/hour. Cost including fitting: £ 1750
Light Fitting:	1 x 1500mm (5") twin fluorescent light fitting suitable for use in zone 1 and zone 2 flammable areas. Complete with on/off switch. Cost including fitting: £ 610 1 x 915mm (3") twin fluorescent light fitting suitable for use in zone 1 and zone 2 flammable areas. Complete with on/off switch. Cost including fitting: £ 510
Static Heater with thermostat:	1 x 3kW ATEX rated heater suitable for use within a flammable Zone II atmosphere. Adjustable and settable thermostat is used to control the internal air temperature from approximately 5°C to 15°C. Cost including fitting: £ 1155 1 x 2kW (1200mm) ATEX rated heater suitable for use within a flammable Zone II atmosphere. Adjustable and settable thermostat is used to control the internal air temperature from approximately 5°C to 15°C Cost including fitting: £ 975
Access Ramp:	Non-slip aluminium checker plate fixed to polyurethane coated mild steel framework. Cost: £ 225