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COMPLETION REPORT

Client	:	**Hospital**
Project Brief	:	**The Internal Lining of Tank # 1 of 1 No. Split, Sectional GRP Tank**
Site Address	:	**UK**
System Spec	:	**3M Scotchkote™ 165PW** (Formerly Known as COPON Hycote 165PW)
Film Thickness	:	**1000 Microns**
Completion Date	:	**26th November 2008**
Compiled By	:	**David Snell**
Covac Ref	:	**795**

SUMMARY OF WORKS

The Brief

1 No. externally bolted sectional (apart from the internal floor), GRP cold-water storage tank split into 2no. compartments and located within the rooftop tank room of the hospital and are each sized at approximately:

Tank #1	4.8 x 2.4 x 1.8mtr high
Tank #2	4.2 x 2.4 x 1.8mtr high

The main concern was that Tank #1, which was being taken out of service due to excessive water loss from various joints on the bottom sectional panels, some of which were serious and needed immediate attention. Leaking from the joints is due to the deterioration of the mastic used between the sectional GRP panels and this, combined with the excessive structural movement of the plastic has led to the eventual leaking of the tank.

The consequential loss of water and subsequent chemical dosing through these joints could be catastrophic as well as generating an unsafe surrounding working platform.

There were also signs of the internal gel coat blistering; This problem starts to occur when the water molecules migrating into the GRP encounter other chemicals inside the laminate, primarily water-soluble materials (WSMs) such as the emulsion binders used to hold the glass mat together before it is moulded, or pockets of uncured or only partly cured resins in the moulding. The water molecules can then have a chemical reaction with these substances, forming larger molecules of a new chemical, often acidic – which unlike the original small water molecules cannot carry on passing through the GRP. These larger molecules are then trapped. This is the point at which osmosis actually starts.

Osmotic blistering of the GRP substrate due to water permeation can also lead to deterioration of the gel coat and, subsequently, a surface which is highly likely to harbour and promote the growth of micro-aquatic organisms.

If left untreated such internal water osmotic blisters would eventually burst putting their contents into the potable water. These chemicals not only have a very unpleasant taste but are also toxic! **For this reason, GRP is not recommended or approved by the DWI for drinking water tanks.**

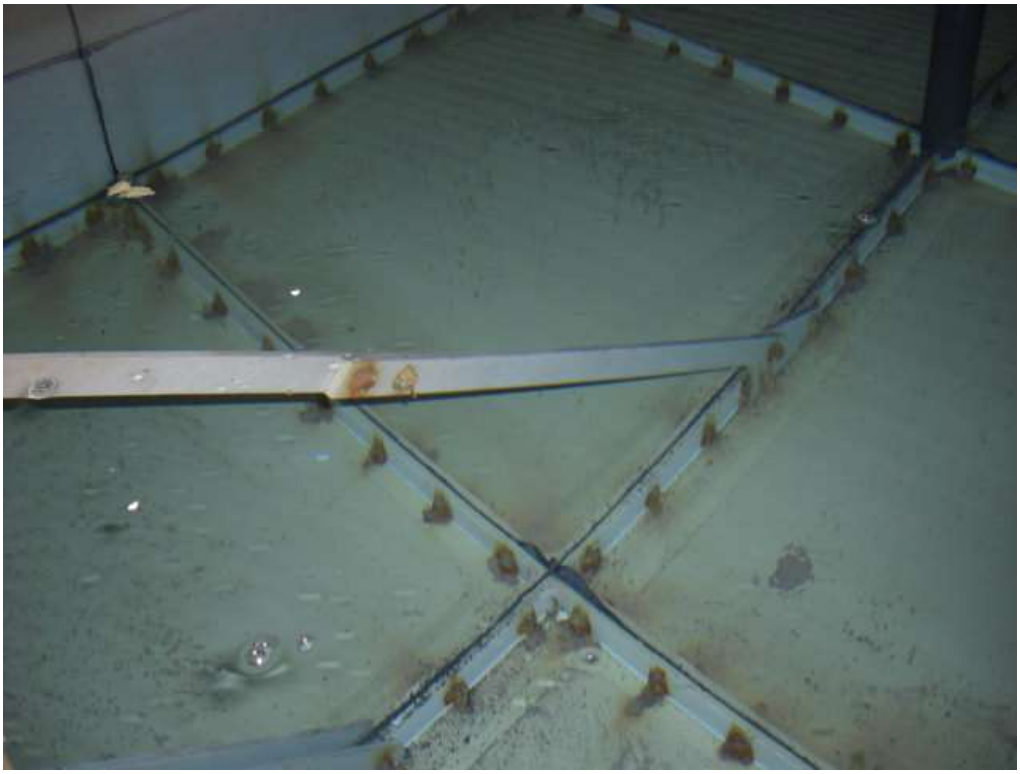
There can also be numerous areas of corrosion to the steel fastenings which hold the GRP panels together. Black spore fungi which are notorious for spreading on various grades of GRP, predominantly where they is a combination of water and air at an ambient temperature can also be a major problem.

If left untreated, the internal surfaces would have continued to be at risk from bacterial growth including Legionella, Pseudomonas and Biofilm; this could have led to further deterioration in the tank's surface structure and contamination of the down services with the supply of unhygienic water to the outlets.

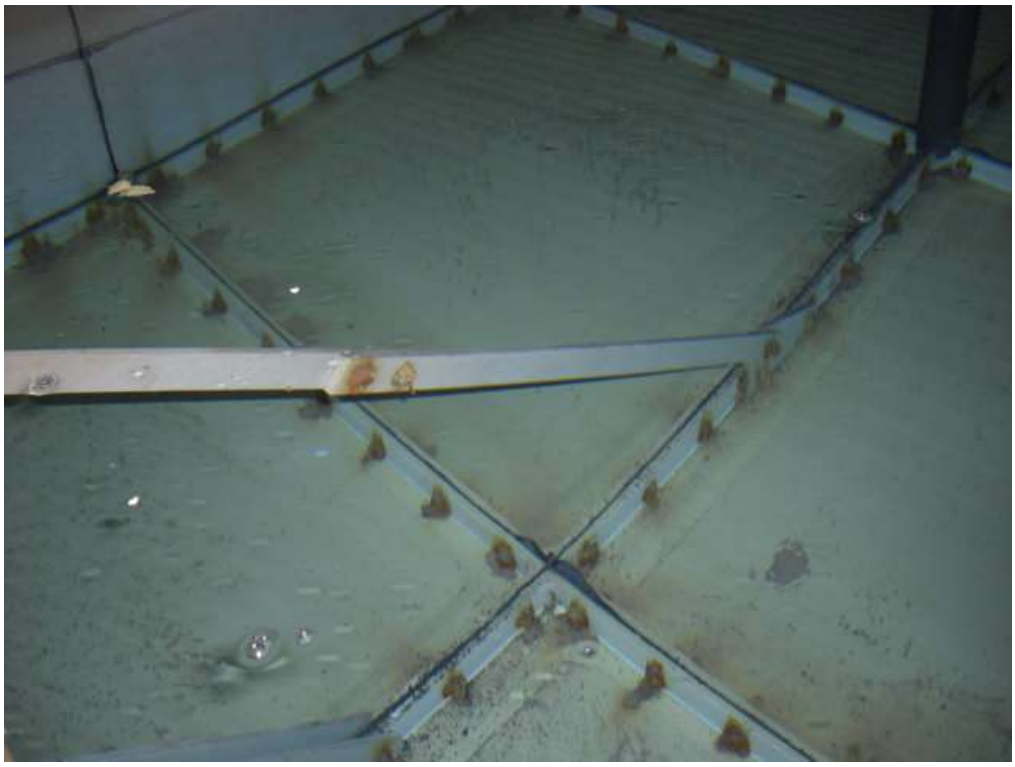
We, therefore, proposed the following: -

GRP Manual Preparation

Brush & Roller Application



These photographs show the leaking tank and the internal surfaces prior to work commencing.



These pictures show the tank having been drained of all water and the COVAC Operative cutting back the now failing mastic used between the sectional GRP panels.

The pictures here show the internal substrate of tank # 1 both during and after preparation by the COVAC Operatives, to ensure that a suitable surface profile was raised for the 3M coating system to adhere to.

All joints were treated to prevent leaks and allowed to cure.

The following photographs show the full and final application of 3M Scotchkote™ 165PW (grey).