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COVAC COMPLETION REPORT

Client	-	**XXXXXX Foods (UK) Ltd**
Address	-	**East England**
Site Contact	-	
Project Details	-	**The Internal Re-Lining of 1 No. Sectional Steel Braithwaite Water Retaining Structure**
System Specification	-	**COPON Hycote 165PW Solvent Free Polyurethane**
Nominal Dry Film Thickness	-	**1000 Microns (1mm)**
COVAC Site Supervisor	-	**Tim Ray**
Completion Date	-	**27th May 2004**
Report Prepared by	-	**Adrian Emmett**
COVAC Contract Ref	-	**332**

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SUMMARY OF WORKS

The Brief

1 No. steel, sectional, water retaining structure sized at approximately 8.4m x 9.6m x 3.6m with a 'domed' steel cover. Approximately ten of the steel plates, which make up the domed roof of the tank, were severely corroded. XXX Foods (UK) Ltd agreed to repair these areas using galvanised sheeting. The internal walls and floor of the structure were also severely corroded which, if left untreated, would potentially support the growth of bacteria such as micro-aquatic organisms. We therefore, recommended the following System Specification:-

Mechanical Preparation

All internal surfaces of the tank was prepared in accordance with Swedish Standard SA 2.5 BS7079 Part A1 1989 utilizing dry abrasive blasting equipment in order to remove any existing coatings and / or contamination. The abrasive used was capable of producing a surface profile of 50 – 75 Microns corresponding to the 'medium' in accordance with BS7079 Part C4, to promote adhesion of the lining system. Any minor holes found due to corrosion were repaired utilizing COPON Metal-Tech SG Metal Epoxy Filler. Larger holes were repaired utilizing a combination of COPON Hycote 165 PW and fibreglass webbing.

Immediately after blast cleaning all dust, residues and debris left on the surfaces were completely removed.

Spray Application

COPON Hycote 165 PW was applied by plural component hot airless spray equipment.

As with all high build solvent free linings, **COPON Hycote 165 PW** requires heat to bring the material down to a spray able viscosity. With two pack products the useable pot life reduces with increase in temperature, thus the most suitable method of application is by plural component hot airless spray equipment. A minimum spraying temperature (temperature of mixed base and activator at the gun) of 35-40°C, is required.

The spraying equipment works on the following principle:-

a) The Base component and Activator are usually heated separately by either or a combination of the following:-

   i) Individual drum heaters for Base and Activator, each heater fitted with a variable thermostatic control.

   ii) In line heaters, fitted onto the Base and Activator lines at the pump. 100 volt heaters for site work fitted with variable thermostats.

b) The Base and Activator are pumped individually to the airless proportioning pump and recirculated either through the Base and Activator lines back to the heaters, through the lines, back into the Base and Activator containers or back into the heated tanks.

In practice, the heated Base and Activator are kept separate throughout the system until they meet at the mixer head of each individual coating feed line. This minimises temperature losses and the feed lines are insulated and the spray gun is attached by a single whip end paint line to the mixer head. Because this line contains mixed coating at elevated temperature the length of the line is kept to a minimum. To also avoid heat loss the 'whip end' line can also be insulated.

During start up and when spraying stops, the Base and Activator are recirculated down the Base and Activator return lines and left on recirculation to ensure that the coating in the lines is maintained at a constant temperature.

To maintain the specified film thickness at welds, edges, bolt heads and other sharp protuberances, a stripe coat was applied by brush to these areas prior to carrying out the overall application.

During application all crevices and deeply pitted surfaces were completely penetrated and coated particularly edges, bolt heads, weld runs, etc.

During application our operatives carried out regular checks of wet thickness with a wet film thickness guage to ensure the specified thickness is applied.

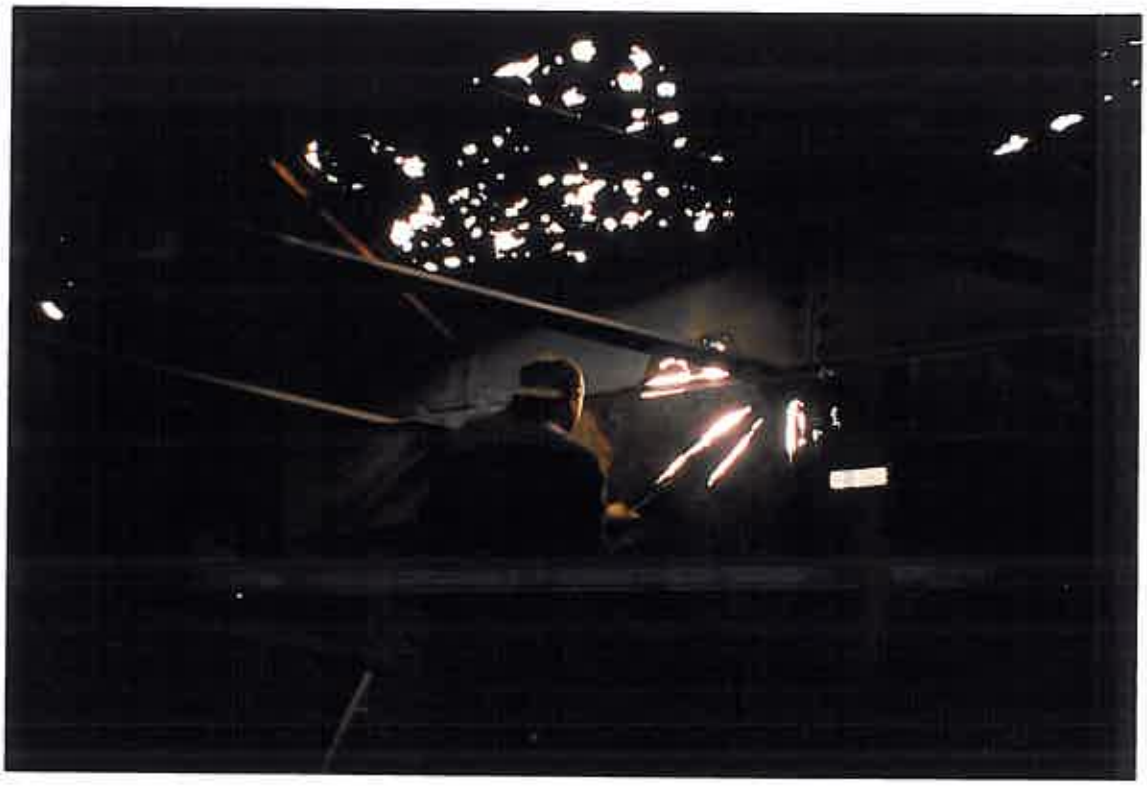
COPON Hycote 165PW was applied as evenly as possible to the specified thickness and excessive build up of coating was avoided. Each area coated was visually checked for misses or holidays.

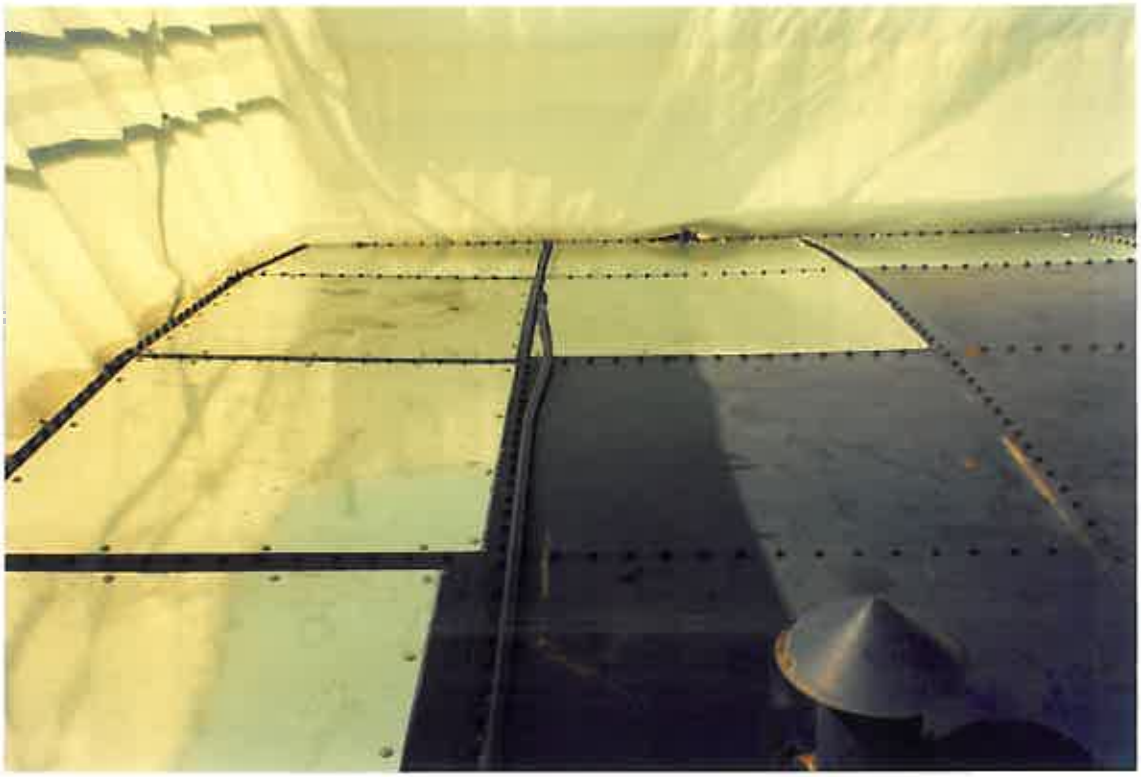
These photographs show the external of the tank

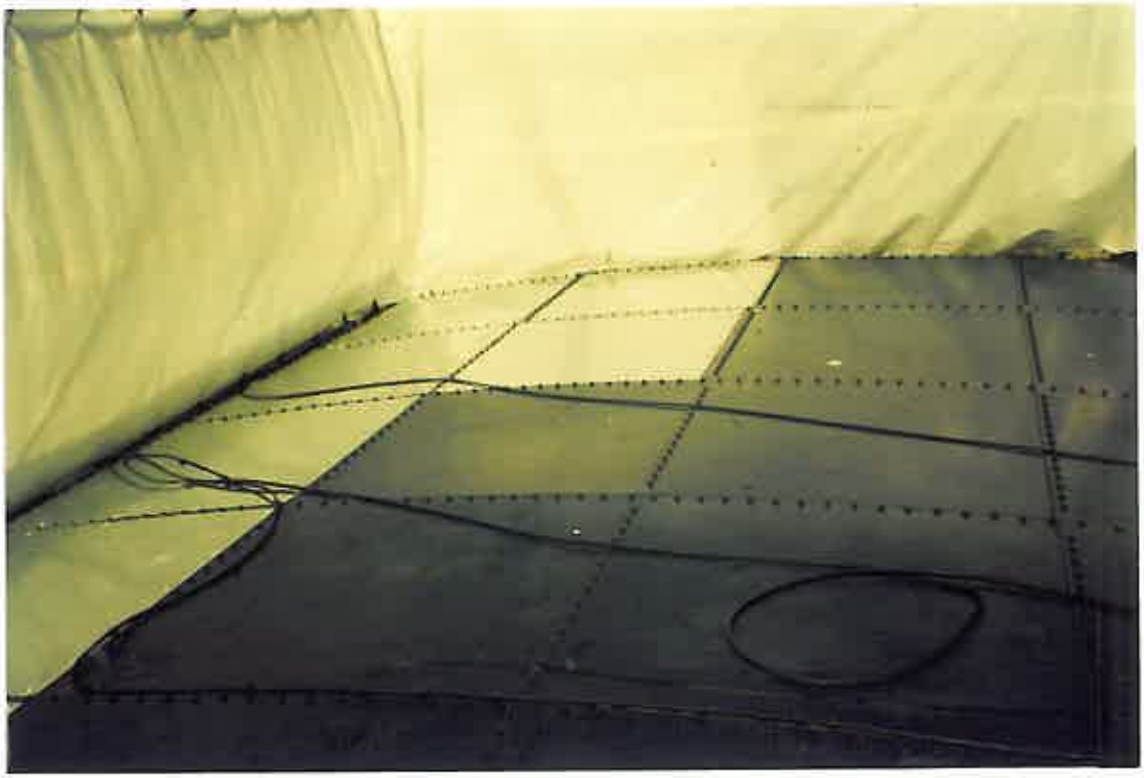
These photographs show the removal of one of the bottom, sectional panels from the tank. This was a vast improvement on the original roof entrance point in terms of ease of access and health and safety aspects.

These photographs show the severity of the corrosion to the internal surfaces of the tank.

These photographs show how the corrosion had attacked the steel roof. These holes were eventually cut to firm edge, prior to being repaired utilizing new flat, steel, galvanised sheeting.

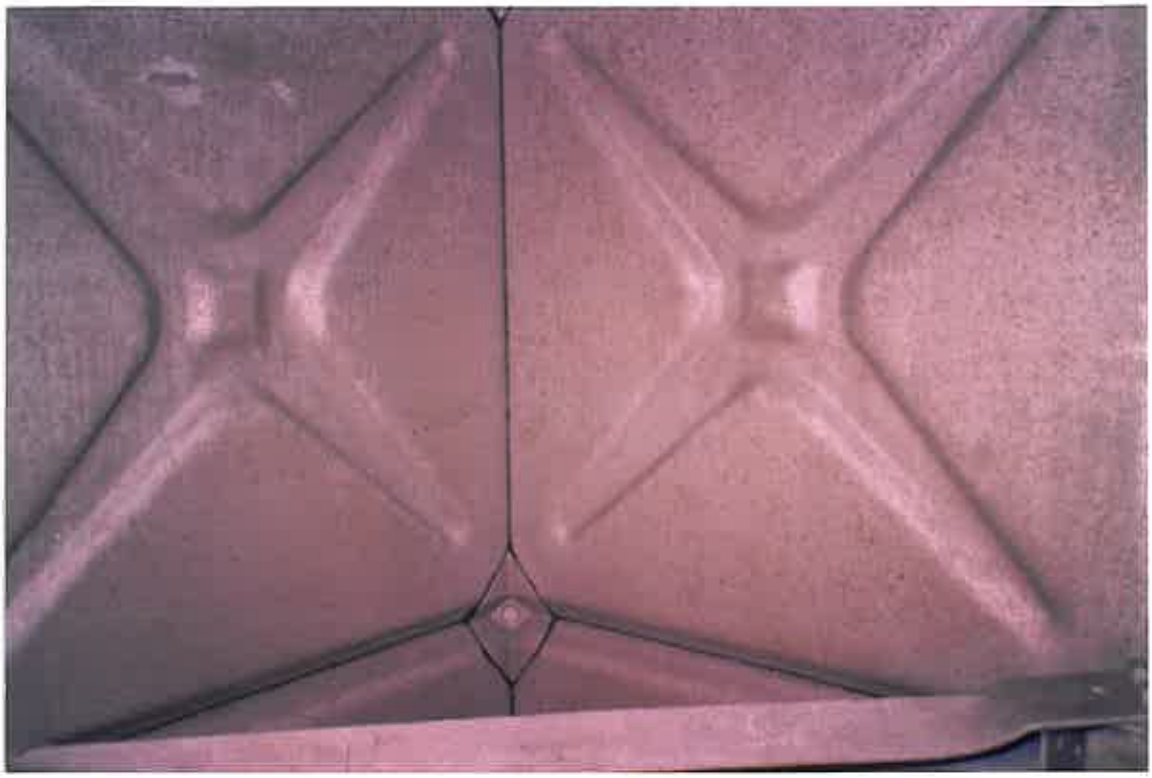


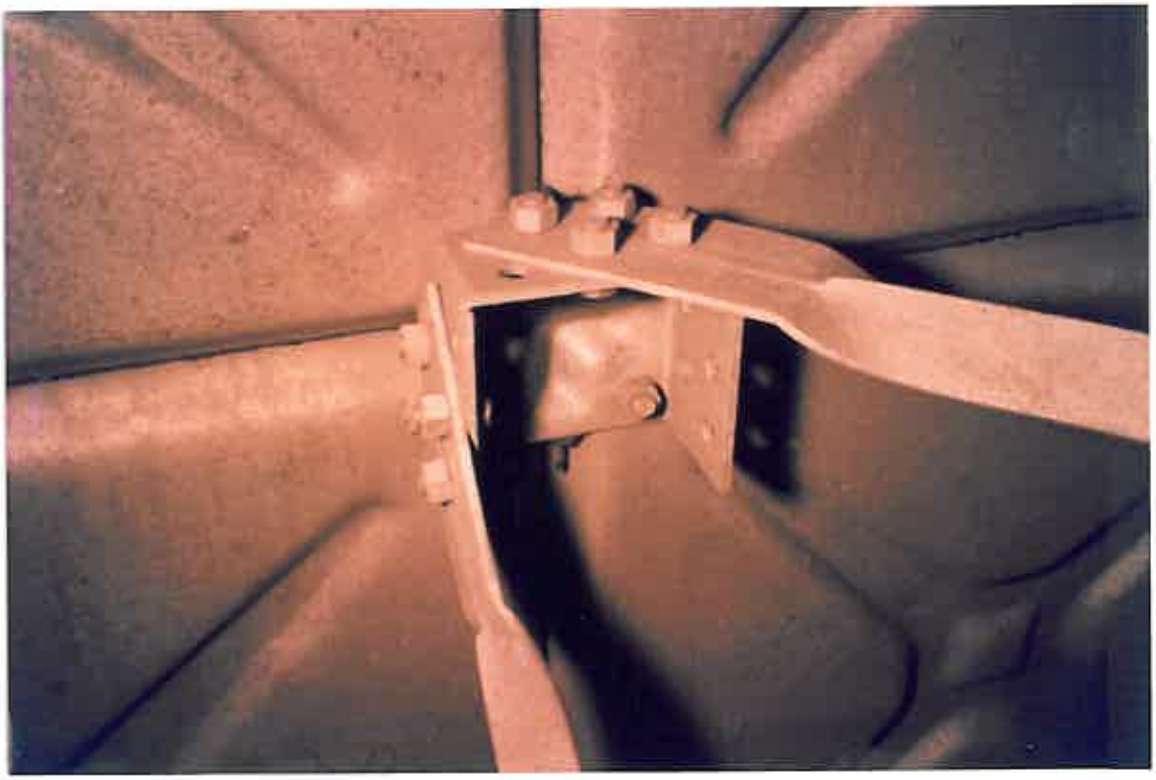




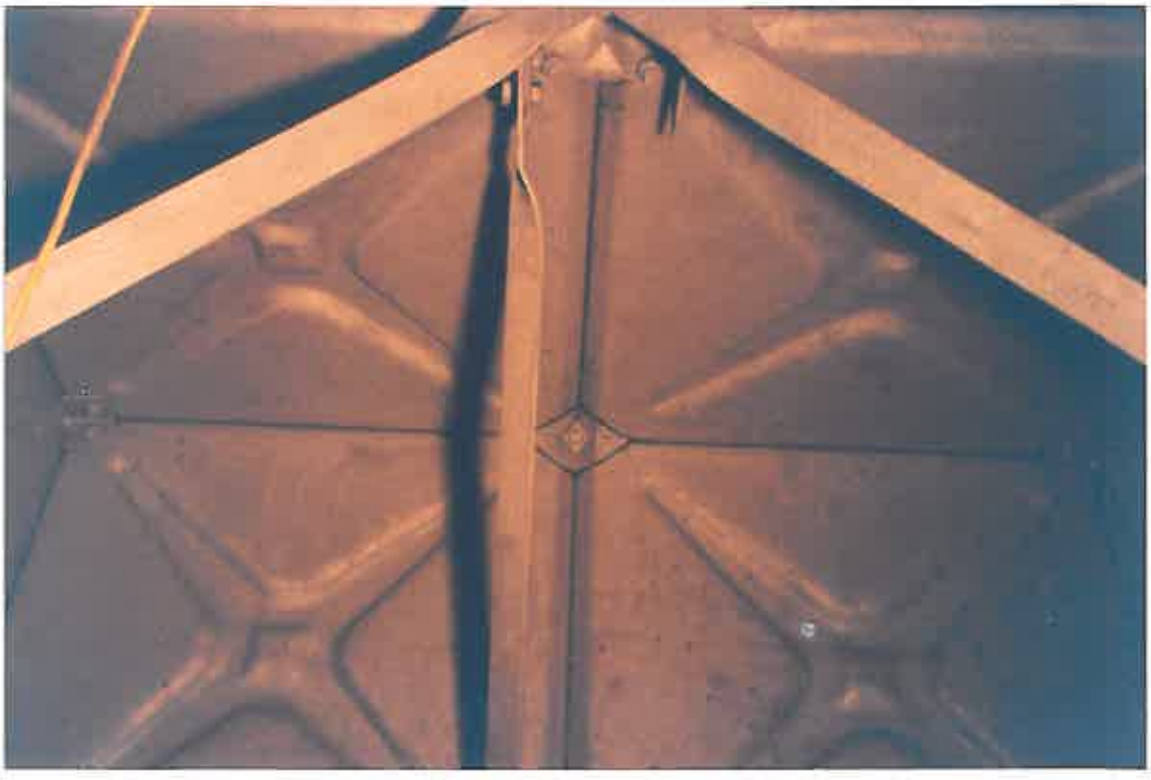
These photographs show the external of the roof of the tank having been repaired utilizing flat steel, galvanised plates.

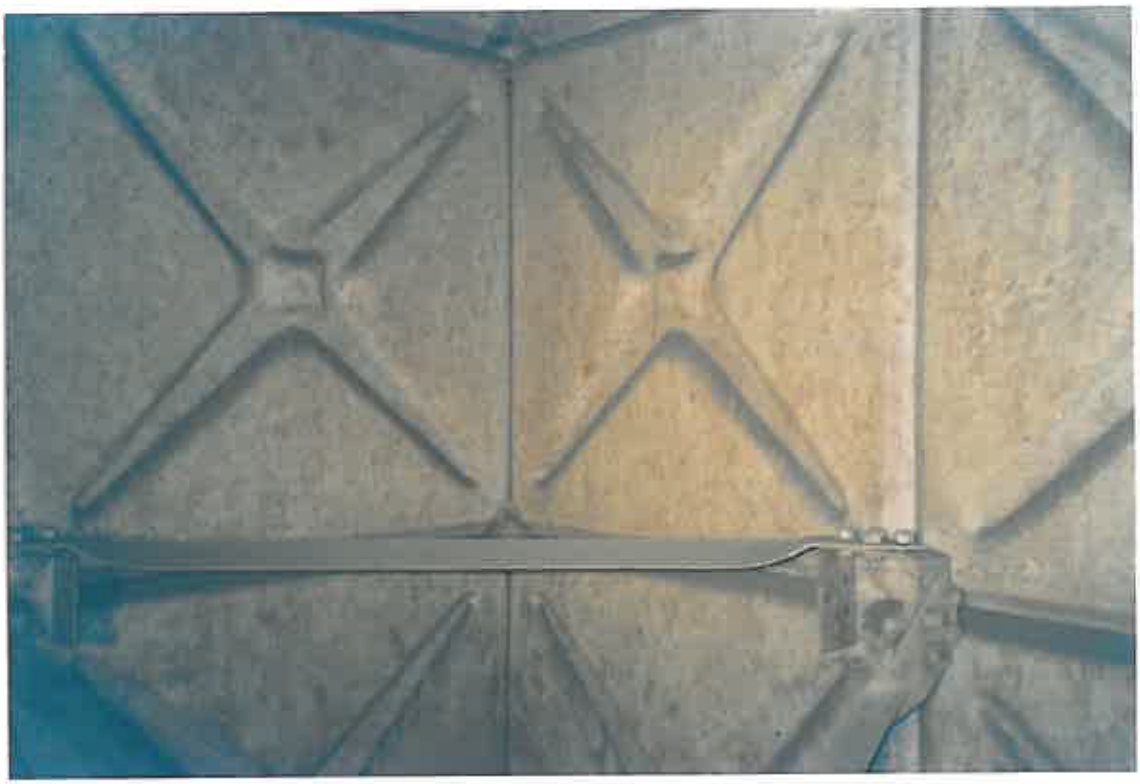
These photographs show the extent of damage caused to at least eight of the steel, support struts of the tank. These struts were made good by welding approximately sized angle iron to damaged areas.

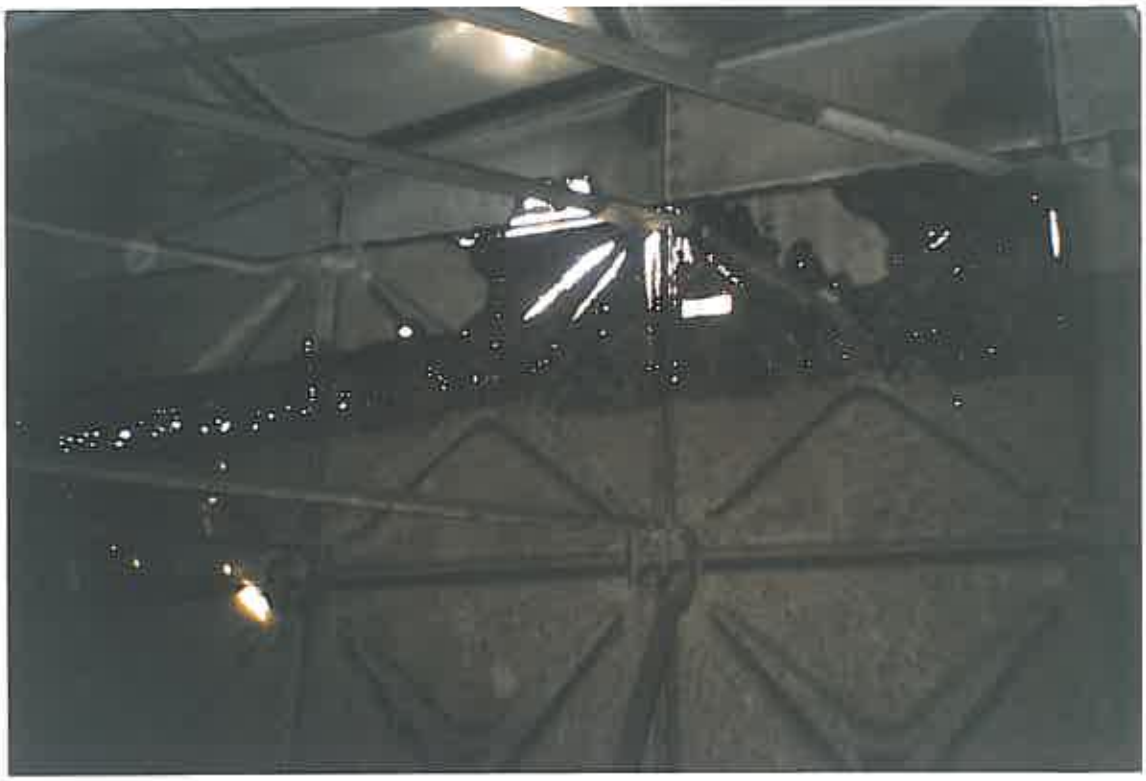




These photographs show the internal surfaces, having been prepared by means of dry abrasive girt blasting equipment.

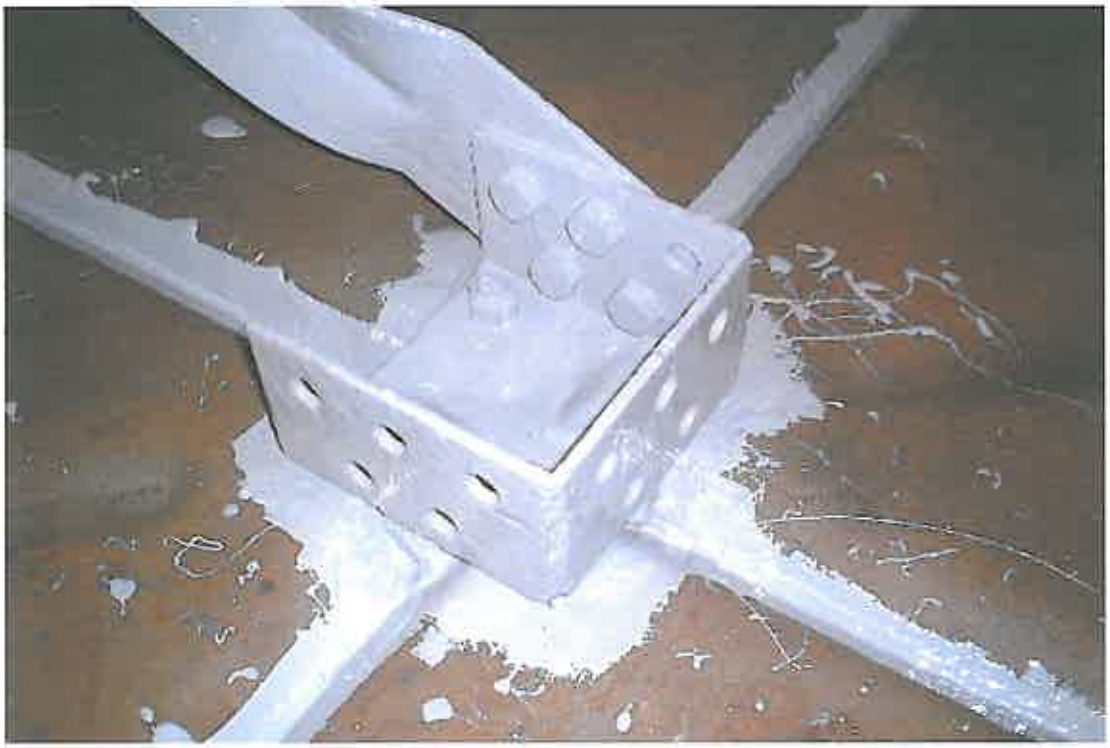




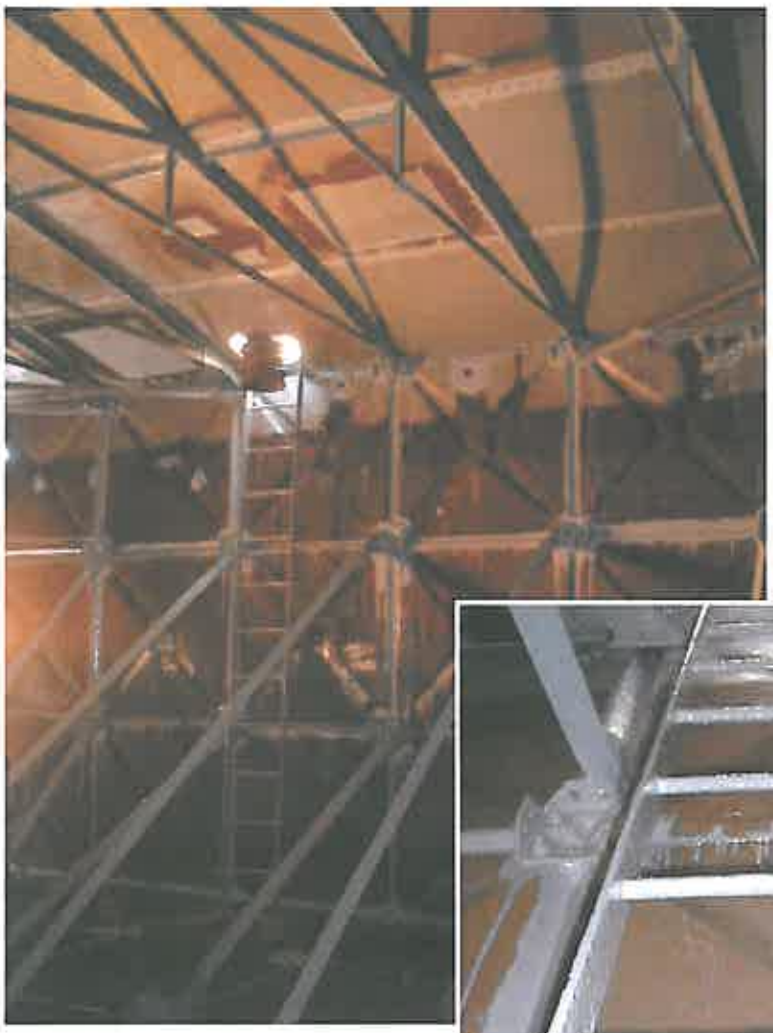


These photographs show the results of extreme corrosion post preparation around the oxygen exchange line of the tank. These areas were heavily pitted with corrosion and holes had formed in the steelwork. Most of these holes were small (approx. 1cm dia.) and were repaired utilizing metal epoxy filler. Some holes, however, were much larger and had to be repaired utilizing a combination of COPON Hycote 165 PW and fibreglass webbing.

These photographs show the larger holes above the oxygen exchange line being repaired, utilizing a combination of COPON Hycote 165 PW and fibreglass webbing.

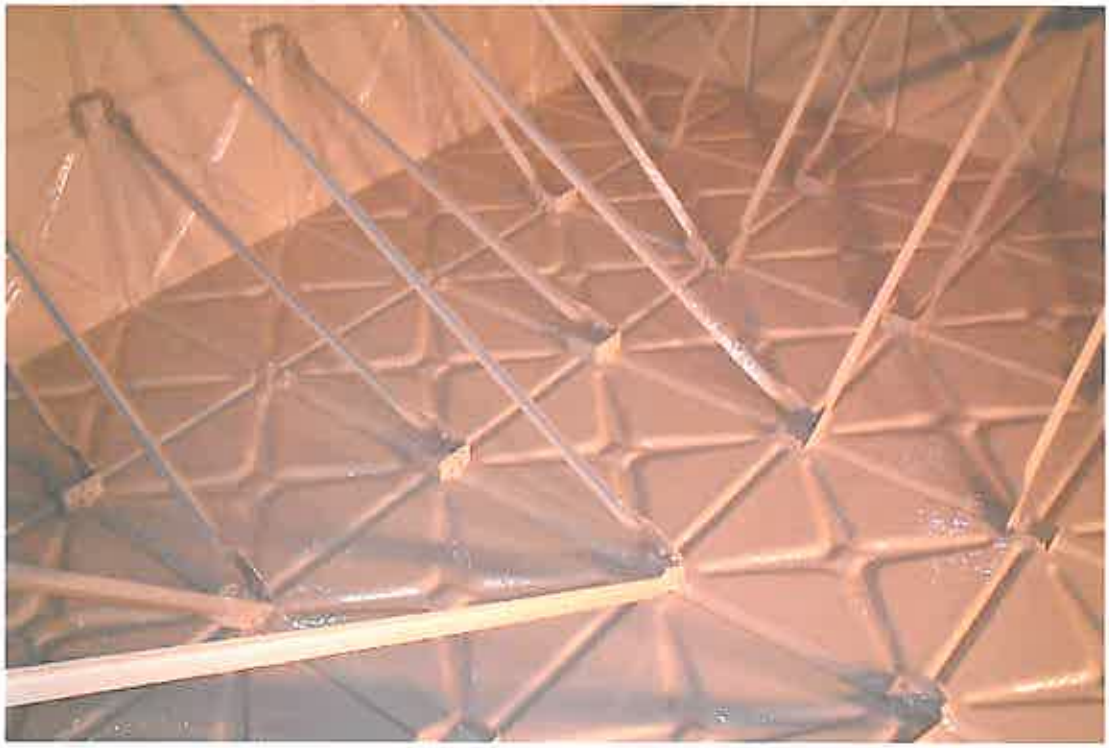


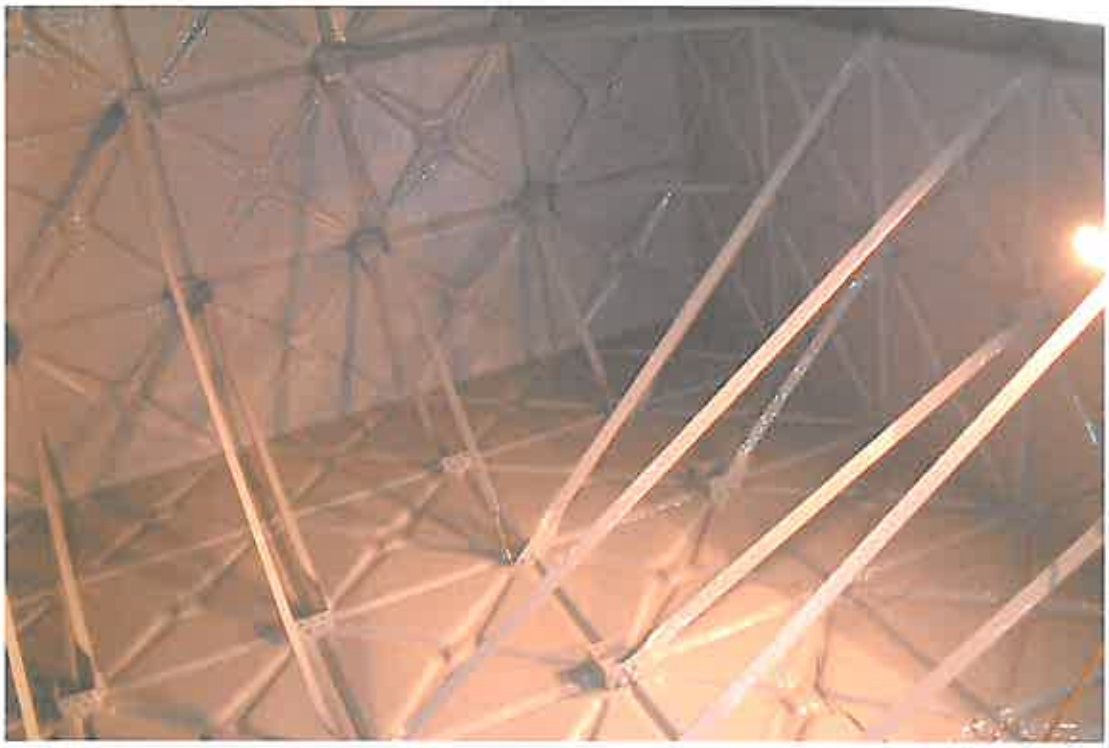
These photographs show the 'stripe coating' (by means of brush) of all welds, joints, edges, bolt heads and other sharp protuberances in order to maintain the specified film thickness to these areas.



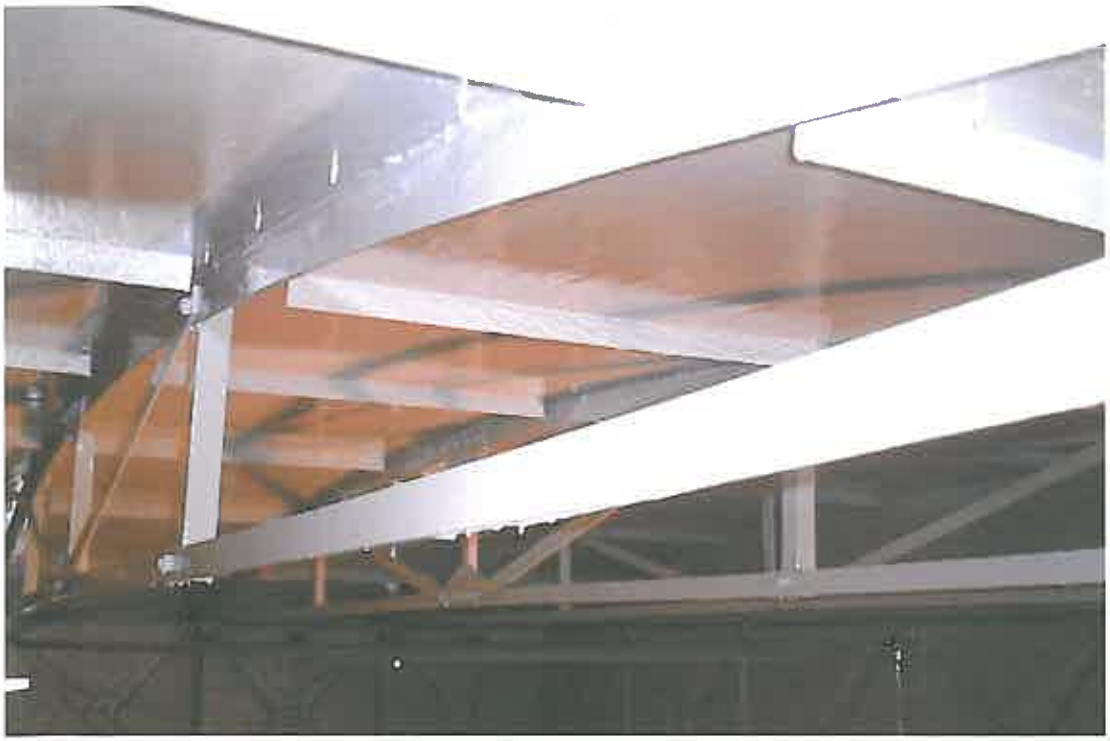
These photographs show the Plural Component, Spraying Equipment, located near to the access point of the tank.

These photographs show COPON Hycote 165 PW Solvent Free Polyurethane being spray applied by means of Plural Component, Hot Applied Spraying Equipment.





These photographs show the tank completely re-lined with COPON Hycote 165 PW Solent Free Polyurethane.



This photograph shows the original, steel roof access hatch having been internally prepared and re-lined with COPON Hycote prior to being re-fitted.

These photographs show the bottom panel (having been prepared and re-lined) being replaced by our operatives.