



# Completion Report

Refurbishment of Cooling Tower Sump – AUGUST 2015



# Project Brief

**Key Environmental Services** were asked to provide a solution to refurbish the cooling tower sump tank which had started to show signs of corrosion both internally and externally. We proposed that the tank internals be given long term protection by the application of a solvent free polyurethane coating and the externals coated with a high build, rubberised acrylic water proof coating,

The product employed internally was ACOTHANE DW, which offers numerous economic, technical and environmental features and benefits, some of which are highlighted below:

- WRAS / DWI Approved
- Complete Solvent Free Technology
- Extremely Fast Curing Times, even at low temperatures
- High degree of flexibility @ > 35%, capable of accommodating structural movement compared with resin / epoxy / bitumastic coatings of <1.0%
- Superb adhesion to steel, concrete, GRP and many other substrates.
- High levels of impact and chemical resistance.
- Reduced downtime of storage tanks and process vessels - refill after minimum of 6hrs after completion.
- Long life performance with minimal maintenance
- Easy clean, ceramic tile-like finish
- Application by brush / roller or plural component spray equipment
- Excellent track record for applications such as drinking water tanks, cooling towers, reservoirs etc.

For the external coating, RB MEMBRANE was applied.

The following pages show the methodology employed.

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# Methodology

Internally, the existing coating was starting to fail and corrosion was evident



Externally, there was also signs of localized corrosion



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When preparation of the internal surfaces started, the existing GRP lining to the tank walls delaminated and had to be removed. The internals were then manually prepared with a scabblatex to create a surface profile of 75 micron in order to accept the ACOTHANE DW coating



Likewise, the external surfaces were also prepared to accept the new coating.



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The internal surfaces were then coated with Acothane DW applied to build up a nominal thickness of 0.5mm



The external surfaces of the tank, and underside of the cooling tower, were then coated with a 0.5mm coat of RB MEMBRANE



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A second coat of RB MEMBRANE was applied the following day applied again at a nominal thickness of 0.5mm



The internals were given a second coat of ACOTHANE DW applied again at a nominal thickness of 0.5mm



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## FORM OF GUARANTEE

**Client:**

*(hereinafter called "The Employer")*

**Description of Work:** **Re-lining of cooling tower sump storage tank - 15J1238**

*(hereinafter called "The Works")*

We, **KEY ENVIRONMENTAL SERVICES LTD** (hereinafter called "The Contractor"), hereby guarantee The Works for a period of 10 years from 24/08/15 being the date of practical completion (hereinafter called "The Guarantee Period"). If any defect in The Works develops and is reported to The Contractor in the Guarantee Period and is proved to be due to the use of defective materials or faulty workmanship, The Contractor will rectify the defect without charge to The Employer. This applies to the internal coating only.

### EXCLUSIONS

*There shall be no liability under this guarantee in respect of: -*

1. Degradation of or damage to The Works due to external causes, for example, change of use of or structural failure of the contract location, fire, vandalism, attack by animals, birds or insects, chemical spillage, pollution etc.
2. Consequential Loss of any kind.
3. Subsequent work affecting The Works executed by another contractor or other authorised party.
4. The application of loadings to the surface of The Works otherwise than in accordance with the procedure recommended by The Contractor.
5. Damage to or degradation of The Works due to the failure of The Employer to carry out any reasonable recommendations of The Contractor.
6. Any guarantee exclusions specific to The Works in any estimate, quotation, contract or specification or as otherwise communicated in writing to The Employer.
7. The service environment of The Works changes from that originally stated (e.g. overdosing with chemicals such as Bromine, Chlorine Dioxide, Sodium Hypochlorite, etc)
8. Any temperature changes other than that communicated in writing by The Employer.
9. The general structural integrity of The Works

### CONDITIONS

The observance of the following conditions shall be precedent to liability hereunder: -

- 1 Full payment for The Works having been made in accordance with the terms of the contract between The Employer and The Contractor.
- 2 A competent representative of The Employer should inspect the coated structure on an annual basis throughout the Guarantee Period. Written confirmation of each inspection should be sent to The Contractor within 3 weeks of inspection date.
- 3 Any alleged defect being reported to The Contractor in writing immediately upon its discovery.
- 4 Notice in writing being given to The Contractor before The Works are disturbed in any way, apart from any necessary emergency action, whether in the course of inspection or otherwise, to enable The Contractor to investigate the alleged defect.
- 5 All facilities which may be reasonably required to facilitate inspection of the alleged defect being made available without delay and the co-operation and collaboration of The Employer being forthcoming.
- 6 The Employer agreeing to the rectification of the defect being executed by The Contractor.
- 7 All preliminary works necessary to facilitate investigation of the alleged defect and its rectification if proven being commenced without delay.
- 8 The Contractor being permitted by The Employer to commence rectification work immediately the appropriate method of rectification has been mutually agreed.
- 9 A tolerance level of 1% of the total surface area coated will be effective throughout the Guarantee Period. In summary, this means, that if a very minor defect/s are discovered within the Guarantee Period, which equate to 1% or less than the total surface area coated, The Contractor will supply product only, free of charge. An agreed fee will be charged to apply the product to the effected areas in accordance with the manufacturer's recommendations. This procedure will be, however, carried out F.O.C. by The Contractor within the first year of the guarantee (if necessary)



**CON O'SHEA**

DIRECTOR

Dated: 01/09/15

For and on behalf of Key Environmental Services Ltd