Case study

18.122

SWART & SONS

Adelaide Desalination Plant, Lonsdale

In July 2018 Swart & Sons were contracted by Adelaide Aqua Pty Ltd to carry out repair works on a concrete overflow tank. Works consisted of concrete repairs, abrasive blasting and application of protective coatings to the walls and floors of the tank. Due to the nature of the tank, work was considered to be 'high risk construction work', which incorporated working in confined spaces, risk of a person falling more than two metres plus working in an area with movement of powered mobile plant.

Problem

As works were undertaken inside a tank, the full extent of the work to be carried out was unknown until we commenced breaking out areas of damaged concrete and conducting the initial blasting works.

Solution

Once the full extent of the work was confirmed, a defect map was prepared which documented the locations requiring repair.

This map can now be used by Adelaide Aqua to assist if additional repairs are required in the future.

Result

Concrete was remediated, where required, using a solvent free epoxy binder/structural adhesive.

Subsequent to the concrete repair a specialist epoxy coating suitable for water handling structures and floors was applied to the internal walls and floor of the tank.

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The project scope

This project was carried out in a confined space, so not only did we need to ensure all work was carried out to the highest standard, we also needed to ensure it was carried out in accordance with all applicable legislation.

This included working safely at heights, entering and working in a confined space and ensuring workers were wearing and using appropriate breathing apparatus.

Additionally, the tank required full containment with negative air dust extraction systems in place to prevent injury to any workers and to protect the environment.

All works were carried out without incident to either workers or the environment.

Quality assurance testing

A number of quality assurance tests were undertaken during this project to ensure the protective coatings were applied in accordance with technical specifications.

These tests included:

- profile test
- weather conditions
- DFT readings
- spark test on completion of coatings

Protecting areas before abrasive blasting to ensure debris does not escape the blasting area

Concrete repair at junction of water pipe and floor with epoxy binder/structural adhesive, subsequent to blasting and before application of protective coatings

Final coat of protective epoxy to floor and walls of overflow tank

Service checklist

These services were utilised in the planning and implementation of this project:

Passive fire protection

- [ ] Fire-rated sealouts
- [ ] Fire-rated ductwork
- [ ] Petrochemical fire-proofing
- [ ] Fire sprays

Concrete repairs

- [ ] Building maintenance
- [x] Coating and protection for concrete structures
- [ ] Epoxy injection
- [ ] Slabjacking
- [x] Concrete repair

Waterproofing

- [ ] Water seepage control
- [ ] Torch-on membranes
- [ ] Liquid membranes
- [ ] Water-reactive polyurethane injection
- [ ] Hyperlon membranes

Floor treatments

- [ ] Floor sealants
- [ ] Epoxy-based coatings

Other services

- [ ] Industrial grouting
- [x] Abrasive blasting
- [ ] Specialty protective coatings
- [ ] Heritage restoration

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