

Remediating treatment plant structures that you can't shut down: a case study

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Project summary:

Inlet works structures in wastewater treatment plants are hostile environments. Incoming sewage flows release hydrogen sulphide gas which can cause degradation of concrete and create risk of structural collapse. These structures often receive continuous inflows and can be difficult to isolate.

This paper presents a case study regarding the remediation two such structures at Belmont and Cessnock, NSW, each of which could only be isolated for 2-4 hours at a time during the middle of the night. The works required planning works in 15 minute increments to ensure risks associated with heights, confined space entry and engulfment were managed without safety or environmental incident.

Three different repair strategies were employed to safely achieve repair of concrete and protective lining. These involved different strategies such as:

- design, submergence, empty and grouting of prefabricated stainless steel structures
- accelerated spot repairs of concrete through use of intermediary, fast-setting concrete repair mortars coupled with polymer linings
- implementation of hydraulic diversions using staged implementation of pipework.

Degradation of concrete structures such as this one is a common problem and lessons learned through implementation of these strategies will be relevant to numerous assets across Australia and internationally.

The project was selected as the winner of for IPWEA NSW's award for innovation in water and wastewater.

Video link summary:

<http://www.hunterh2o.com.au/project/belmont-cessnock-wastewater-treatment-plant-inlet-works-remediation>