Project Profile

Gas Main Emergency Response

Client	Origin Energy
Location	Christies Creek at O'Sullivan's Beach, South Australia
Duration	3 days - May 2009
Contract	Gas Main Emergency Response
Cost	$59,000

Project Overview

The scope of this project was to provide immediate support to a gas main undermined by the natural force of water in the creek. The gas main supplied gas to the whole of the southern suburbs and the client would incur significant penalties if disconnected. Due to the emergency status of the project, an on-site meeting / inspection was promptly arranged with the APA representative (the controllers of gas infrastructure in South Australia).

The urgent requirements were to support the gas main, remove the remaining section of concrete slab situated directly above the gas main without damaging or placing further weight, and to ensure protection in the future. All these works needed to be undertaken without compromising the heritage listed bridge structure upstream of the gas main.

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Numerous methods were considered with the APA as well as representatives from the City of Onkaparinga who are responsible for the heritage bridge and the Christies Creek. By the next morning, in a meeting with all stakeholders present, the methodology, budget cost estimate, risk assessment and Job Safety Analysis were produced and approved. By 11am the same day, all the required plant, material and labour were quickly mobilised to the site to commence work. The job demanded immediate relocation of McMahon Services operatives from other sites to O'Sullivan's Beach.

The critical activity was to ensure that the gas main was supported as quickly as possible to avoid potential damage by the weight of the large section of concrete that remained on top. This was done by mass filling the creek using 40mm ballast material and creating a 'v' shape below the gas main. The 'v' shape was lined with Fortecon and Geotextile to seal and a cement stabilised material using a concrete boom pump was placed in the 'v' shape, below and around the gas main to provide support. The cement stabilised material was left overnight to gain sufficient strength.

On the next morning it was determined that the cement stabilised material had gained sufficient strength to permit the task of breaking out and removing the remaining concrete slab that was situated directly above the gas main without causing damage. APA arranged to have their operatives in attendance at valve control points to reduce the flow of gas through the main whilst the concrete break out works were undertaken. The APA operatives remained at the valve control points to enable immediate shut down of the gas main should there be a requirement to completely switch off the main.

The break out of the concrete above the gas main was undertaken by a rotating team of 6 labourers. It was a tedious and painstaking operation as the concrete was found to be extremely hard and would only shatter in slivers.

When the concrete was removed from above the gas main to the satisfaction of the APA representative, the main was then covered with sand. Additional ballast was placed to shape the concrete apron and spillway. Geofabric was placed to seal the ballast. Reinforcing steel mesh and dowels were installed to tie the new concrete to the existing concrete. Rapid setting concrete was required in order to ensure that the concrete was set prior to the forecasted heavy rain on Saturday night and Sunday. The concrete was placed using a concrete boom pump and works were completed at 4.30pm in the afternoon.

Due the prediction of heavy rain and the fact that the Christies Creek captures all the local rain fall and can flow at a very high volume, the project manager attended the site the following morning and at regular intervals during the day to ensure that the concrete had not been damaged or potentially washed away.

APA was extremely pleased with the rapid response, care taken during the works, the speedy execution as well as the cost of the project.