working in partnership with

Composites Construction UK

PROJECT PROFILE: WATER LINE REPAIR TYFO® SYSTEM

EMERGENCY WATER LINE REPAIR FOR MAJOR UK POWER COMPANY

Location: Flintshire, North Wales UK

OVERVIEW

When E.ON Energy, a UK power company, identified internal corrosion to water cooling lines that serviced its Connah's Quay gas-fired Power Station in Flintshire, North Wales it called on Fyfe FRP's UK approved applicator, Construction Composites UK (CCUK), to carry out emergency repairs.

The company's design and maintenance team had carried out internal surveys of the lines and learned that the concrete encased steel pipes were corroded internally to a point where an exposed section of the pipe, that sat above the ground was at risk of failing.

The team understood that was a clear risk of failure if repairs were not immediate to the 900mm diameter cooling water lines. These lines are used to carry water from a nearby river to the condensers at the power plant.

If left to fail the power plant would be forced to halt operations resulting in a lengthy disruption to the power supply of E.ON's residential and business customers. The company would also be faced with a costly bill to replace the condenser lines all together.

The corrosion was likely caused by decades of continuous use; for large diameter pipes made from steel, ductile iron, or concrete, corrosion can lead to deterioration - threatening the structural integrity of the networks.

SOLUTION

CCUK worked with E.ON's technical team to design an external composite wrap system that was able to take the full pressure of the line should a fail occur. Using a combination of bidirectional and unidirectional composite Fyfe FRP strengthening system, an emergency repair was carried out.

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A section of the pipe was excavated to allow surface preparation including crack repair works to the host pipe and the formation of a smooth transition where pipe diameters reduced using specialist epoxy mortars. All works were carried out during planned shutdowns and each repair took days under reduced pressure without significantly affecting the running of the station.

The power station now has a fully encapsulated high pressure repair, complete with UV stable coating in place, that is deigned to take the full water pressure within the line.

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