

Hydro-Electric Power Station – Low Head High Pressure Pipeline – Pipe Section Replacement

EKSPAN were instructed to remove and replace the damaged carbon wrap pipe with a new pipe section, including installation of an additional moving joint. The low head high pressure pipeline connected to the hydro-electric power station in Conwy North Wales carries water vital to power the turbines.

A previous temporary emergency repair had been carried out to a damaged section of the pipeline using carbon wrap, the wall thickness of this pipe section had started to erode and showed signs of water leaking through, this section required removal and replacement. EKSPAN, having already carried out previous pipeline refurbishment work, were selected by NPower Renewables to carry out all necessary works to resolve this problem.



JOB BRIEF

- Supplied: Manufacture and installation of 1 no new pipe section
- Project Team
- Client: NPower Renewables Ltd.
- Main Contractor: EKSPAN
- Start Date: September 2011
- Completion Date: October 2011

PROJECT IMPACT

EKSPAN were instructed to remove and replace the damaged carbon wrap pipe with a new pipe section, including installation of an additional moving joint.

Pre-works operations involved establishment and setup of the site compound for delivery and positioning of site cabins, offloading of equipment and materials and preparation of plant and hydraulic equipment to enable jacking of the pipeline.

Temporary saddles were positioned beneath the pipe and on top of specifically designed and built concrete bases to support the pipe during the works. These temporary supports were monitored throughout the works process for displacement. The existing foundations were then dug and removed to allow installation of the new pipe section. The old pipe was removed using a lathe to accurately machine cut.

A new section was fabricated complete with support bracket. The old section was machined to accept a Viking Johnson joint. The 2 (1 old, 1 new) pipe sections were welded (new) and bolted (old) in position. Once installation was complete the pipe section was painted and the surface areas prepared where the new pipe and saddle had been welded together.

Mating the new pipe to the old and sealing the high pressure system made this additionally challenging. All work procedures had to be planned to accommodate the outage times (pipeline shut down time for maintenance work to be carried out) fixed by the client, therefore strategic planning was key to get all stages of the project completed safely and on time.

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