



CLIENT: **Amco Construction**
 SERVICE: **Amex[®]-10-Seal**
 PROJECT: **Joint repair to 900mm pipeline on gradients of upto 50%**

INTERNAL AMEX-10-SEAL REPAIR OF HYDROELECTRIC PIPELINE BY PMP

PMP was recently appointed by AMCO Construction to carry out remedial works to a number of joints on a buried pipeline. The pipeline forms the penstock for one of Scotland's newest hydro electric schemes at Kingairloch, which is located on the East side of the Morvern peninsula, 23 miles south west of Fort William.

Kingairloch Hydro Scheme has a generation capacity of 3.5 megawatts with a gross operating head of 143m. The scheme is located on the Kingairloch Estate on the Morvern Peninsula within the Abhainn na Coinnich river catchment. It includes a storage reservoir at Loch Uisge with water diverted from a number of tributaries of the Abhainn na Coinnich.

The penstock includes approximately 4500 m of buried pipe made up from approximately 3500 meters of 1200 mm diameter and 1000 meters of 900 mm diameter. The penstock pipeline is buried in a trench over upland terrain at variable gradients up to 50 % and is rated between PN 6 and PN 25. The pipeline had to be laid to very tight dimensional tolerances. Subsequently a number of the joints between sections of the pipeline did not conform to the specification.

AMCO Construction contacted PMP for a solution to the out-of-tolerance joints. PMP proposed using the Amex-10-Seal, which is a low profile mechanical seal for internal repair of leaking pipe joints. A robust

section of rubber that spans the joint is fitted using hydraulic expansion of stainless steel compression rings, thus eliminating the use of chemical adhesives and their associated hazards. The seal accommodates substantial joint movement and is abrasion resistant. Each seal has an independently verified life expectancy of more than 50 years.

PMP engineers used roped access skills to fit the unique Amex-10-Seals from within the pipe. By completing all repairs internally, trenching and service costs were avoided. The Kingairloch scheme presented PMP with difficult working conditions. PMP's Stephen Taylor explained that roped access was required to reach down to pipe joints where the operating pressure approached 25 bar. Working from a removed section of the 900mm pipe, the PMP engineer was lowered to the location of each leaking joint, in order to carry out the preparation and fitting of the seals. In total 28 seals were fitted over a period of 2-3 months.

"PMP did a superb job in arduous conditions. Their service was very effective with a rapid response."

Paul Owen

Contracts Manager, Amco Construction