

11kV SWITCHGEAR REPLACEMENT

YORKSHIRE WATER MARSH WPS

(Water Pumping Station)

CLIENT



LOCATION

Marsh WPS, Huddersfield

OVERVIEW

Marsh WPS is a treated water pumping station in Huddersfield located at the side of Marsh Service Reservoir in a residential area. The pumping station was built in the 1990's as part of the drought alleviation scheme. It also serves to assist the Yorkshire Water (YW) grid team with the regions treated water network and stock, supporting Black Moor Foot when required. The purpose of the scheme was to replace the existing Igranic 11kV circuit breaker (CB), which had reached the end of its asset life with a new CB. The existing CB with incoming cable box was supplied from a separate Northern Powergrid substation onsite.

IUS confirmed the design, supply, installation and commission of the switchgear replacement to meet with requirements, including water industry standards.

The switchgear installed was the new Schneider Electric AirSeT RN2Air-T2-C-21 non-extensible SF6 free ring main unit 200A with VIP400 protection. This was the first time IUS had installed this switchgear and YW had not installed this HV equipment on any of their sites, so there was a learning opportunity for both parties.

SERVICES PROVIDED

- Design of 11kV substation
- Engagement with Northern Powergrid for 11kV supply outage
- Civil work
- Senior Authorised Person (SAP) safe system of works
- Electrical Fitting and Cable Jointing
- Full Turnkey solution



11kV SWITCHGEAR REPLACEMENT

YORKSHIRE WATER MARSH WPS

(Water Pumping Station)

THE PROJECT

Following the Yorkshire Water (YW) generator connection activity to maintain essential supplies at the start of the outage, IUS carried out a series of key works. Firstly, IUS completed the site isolation on behalf of Northern Powergrid. Once all permits were in place, the team disconnected the existing Igranic switchgear and removed it from the switchgear room. To enable cable preparation, access to the floor void was required; IUS lifted the floor plates and surveyed the cable locations to assess the potential for re-termination of existing cables, subject to their length and condition.

As part of the upgrade works, both the 11kV cable loop to the transformer and the 11kV loop to the Northern Powergrid metering circuit breaker were replaced and terminated. The replacement AirSeT switchgear was then positioned, including all associated pre-commissioning and installation activities. In addition, the existing earthing system was reconnected and adapted to suit the new switchgear.

Further works included the cable connection and commissioning of the emergency power off system, located in the existing metering room, which was configured to trip the circuit breaker via the existing 30V DC battery unit. IUS then completed all switchgear and cabling works, including full testing and commissioning, as well as protection systems and emergency power off functionality.

To support the new installation, a new 24V Battery Tripping Unit and associated wiring were provided to facilitate lanyard operation of the new switchgear. Finally, the Northern Powergrid supply was re-energised to the switch disconnector, followed by energisation of the transformer via the Yorkshire Water transformer circuit breaker.

"Thank you from the specialist projects team for your support in the successful replacement of the 11kV HV switchgear at Marsh WPS. This is one of two projects that represent a milestone for Yorkshire Water as they are our first install of a new SF6 free 11kv AirSeT ring main units which have much reduced environmental impact over traditional SF6 switchgear."

Daniel Crossfield - Project Technician - Yorkshire Water