



## Environmental Management Services

### **Flood Defence Cable Entry Sealing - Case Study**

---

#### **Summary**

We were commissioned by a major electricity distribution company to undertake retrofit cable entry sealing as part of a flood defence project for a 1 in 1,000 year flood event.

The project required flood defence works to be undertaken in different areas on site and consisting of both voids and ducts.

Based on our assessment the chosen technology was CSD RISE, a mastic type sealant which when properly installed provides a "gas tight and water tight" seal and "up to four hours fire protection"\*\*.

\*All work is quality checked and scored on the basis of the work. A perfect seal cannot always be guaranteed.

\*\*List of manufacturer's testing standards available at <http://csdsealingsystems.co.uk>

We were initially asked to evaluate the feasibility of retrofitting cable entry seals as part of a major flood defence project on a high voltage substation. Any water ingress into the assets could cause partial discharge from the switchgear housed in the sites control room.

After assessing the configuration of the ducts and voids we recommended CSD RISE, a high quality silicone based, fire stopping, and water-resistant sealant which can be applied to any sized and shaped openings in both vertical and horizontal conditions.

Packers inserted into ducts



Ducts effectively sealed



Cables organised and void cleaned



Wall constructed around cables



The RISE system is extremely pliable and can be compacted into otherwise inaccessible fail points. It also allows flexibility to remove or add cables at a later date making it extremely effective on this type of retrofit project.

To allow the effective installation of the seals specialist civil alterations had to be conducted where the cables entered the assets through large voids as opposed to plastic rigiducts.

The approach adopted consists of organising and lifting the cables into split rigiducts, constructing a reinforced wall around the ducts which is sealed with a waterproof render to prevent any water ingress around the ducts. The split ducts are organised internally using specialist packers and then sealed with the CSD RISE mastic sealant.

Many of the existing ducts had previously been filled with expanding foam which had clearly failed to form a water tight seal; this was removed and the cables cleaned in preparation for sealing.

Several of the ducts also required the existing duct to be cut away to allow an effective seal to be installed; in these instances the duct was carefully cut away using industry approved techniques.



Duct protruding from wall



Duct safely cut back, packers inserted into duct



Duct effectively sealed

The project required over one hundred ducts to be sealed, housing hundreds of various sized cables. Several of the voids were in hard to access areas and confined spaces meaning the work needed to be undertaken by our CSE trained staff utilising CSE and Breathing Apparatus equipment.



Void during initial inspection



Void once cables organised



Wall constructed around cables



Void effectively sealed