 Summary of Operational Sites for Severn Trent Services

# Dawdon & Horden

## Purpose

These are preventative schemes using mine water pumping to protect a drinking water aquifer. The pumped mine water is transferred by a long pipe lines to their respective treatment schemes. Treated mine waters are discharged to the sea. Although both schemes are physically separate, they both pump from the same body of mine water. Hence, they must be managed together. The scheme at Dawdon is an active, HDS plant, whilst the scheme at Horden is passive treatment.

## Critical pumping and flow management

### Normal Operation

Maintain sufficient pumping to retain water levels within specified control bands (as specified in latest “Pumping Control and Risks Table”). The control levels are assessed by comparing both Horden and Dawdon water levels

The majority of the mine water is to be pumped at Dawdon and pumping at Horden must not exceed its capacity of 40 L/s.

The mine water gradient should be kept so that Dawdon is lower than Horden.

Avoid non-compliance with the abstraction licences.

### Issues

No known uncontrolled discharges into the aquifer have occurred.

Known connections between various mine shafts and the aquifer.

Excessive pumping at Horden causes overtopping of water transfer channels which results in mine water potentially flowing down in to the aquifer.

Excessive pumping at Horden makes the water quality become worse.

The mine water levels show significant diurnal variations. Assessment of water levels requires use of datalogger (or telemetry) data.

## Critical water treatment

### Normal Operation

Maintain sufficient treatment to avoid non-compliance with discharge permits.

### Issues

If mine water pumping rates are increased at Horden, the quality deteriorates. This impacts not only the iron concentrations but also the salinity of the mine water. The limit for chlorides concentration impacting the reed is unknown but estimated to be 10,000 mg/L.

Both sites’ permits have been varied to iron loading based consents, so it is critical to have accurate flow measurements to calculate the iron loading.

Prior to the iron loading consent being issued Horden was under investigation by the EA for exceeding the 10 mg/L iron consented limit.

Despite the loading consent, the treated iron concentration at Dawdon must not exceed 30mg/L.

## Other Aspects

The control levels and system of setting control bands are under review. This may look at the possibility of using Easington as a control point for both Dawdon and Horden.