Canford Energy from Waste
Combined Heat and Power Facility

Environmental Statement Technical Appendix 11.2

Canford EfW CHP Facility - Potable water and sewerage requirements

March 2023

We inspire with energy.

Glossary

Term	Description
MDPE	Medium-density polyethylene
WCs	Toilets

Executive summary

Purpose of this report

This report has been produced for the purpose of listing the required potable water capacities and sewerage capacities during construction and operation of the Proposed Development during operation.

Contents

Listed Requirements

Potable water

Construction

- Required June 2024
- Typically, 32mm MDPE with a 2m^3/h capacity.

Operation

- Required October 2026
- Normal expected consumption of 10m3/h with a peak demand of 20m3/h.
- EfW CHP Facility will have its own separate fire water storage tank.
- A potable water demand of 20m3/h is necessary to supply the demineralised water treatment plant at maximum production capacity.
- The demineralised water treatment plant will contain a raw water tank (40m^3 estimated) for storage of potable water and a demineralised water storage tank of 100m^3.
- Designed contingency for emergency scenarios such as a burst main. During an emergency, safeguarding boiler tubes is a priority and sufficient supply of demineralised water to maintain flow through the boiler water / steam systems is essential. Therefore, sufficient onsite water is stored for cooling the boiler to below the critical temperature.
- There is no contractual requirement for backup water supplies from Wessex Water.

Sewerage

Construction

- Standard sanitary wastewater from WCs, urinals, wash hand basins, showers, dishwashers etc.
- Approximately 350 site users during peaks.

Operation

- Standard sanitary wastewater from WCs, urinals, wash hand basins, showers, dishwashers, washing machines etc.
- Occupancy during normal operation - approximately 32 staff plus 15 contractors' personnel.
- Occupancy during annual outages (of approx. 3-4 weeks duration) – there could be an additional 100 contractors' personnel onsite during peaks.

Process waste water (recycled within the process during normal operation) consisting of the following:

- Boiler water tank – 160m^3
  - Boilers drained very infrequently and normally contained onsite within the boiler water tank and process water tank. Discharge flow rate 20m^3/h
  - Might be discharged once per year at most but likely much less frequent.
  - Typical analysis:
    - pH 8.8/8.9
    - conductivity <5 µS/cm
    - dissolved oxygen <20 ppb
    - total iron <20 ppb
    - silica <12ppm

- Process water tank – 80m^3
  - Condensate from open process drains.
  - Boiler blow down condensate.
  - Boiler water.
  - Might be discharged once per year at most but likely much less frequent.
  - Analysis very similar to boiler water but with much higher dissolved oxygen.

- WTP effluent
  - Discharged to process water tank and reused in normal operation.
  - Possibility for some discharge to sewer during plant outage period, approx. 10 days per year at 10m^3/h maximum and <0.5m^3/h average.
  - Potable water or higher quality at point of discharge.
  - pH adjusted prior to discharge to comply with trade effluent discharge consent.

In normal operation trade effluent discharged at 1m^3/h consisting of:

- Resin backwash water – potable water with raised or lowered pH due to NaOH or HCl contamination.
- ACF backwash water – potable water.
- Wash down water – potable water with raised or lowered pH due to NaOH or HCl contamination from minor chemical spills.
- Online water quality analysis runoff – ultrapure demineralised to potable water quality.