

### Application Form C6 – Additional Responses

Question 3b: What is the maximum volume of effluent you will discharge in a day?

1,900m<sup>3</sup>/day

Question 3c: What is the maximum rate of discharge in litres per second?

22 litres/second

Question 3d: What is the maximum volume of non-rainfall dependent effluent you will discharge in a day?

1,900m<sup>3</sup>/day

Question 3f: For each answer in question 3, show how you worked out the figure on a separate sheet

Q3b – The main elements of the effluent generated are the filtrate and centrate.

- Maximum daily filtrate return based on a GBT surplus rate of 50m<sup>3</sup>/hr is approximately 1,200m<sup>3</sup>/day.
- Maximum daily centrate return based on a production rate of 25m<sup>3</sup>/hr sludge feed is 700m<sup>3</sup>/day.
- Condensate is estimated to be very small quantities and therefore no more than 2ltrs/day or 0.002m<sup>3</sup>/day (based on site knowledge).

Total therefore: 1,200 + 700 + 0.002 = 1,900m<sup>3</sup>/day

Q3c - (1,900m<sup>3</sup>)/86400) x 1000 = 22 litres/second

Q3d – The main elements of the effluent generated are the filtrate and centrate.

- Maximum daily filtrate return based on a GBT surplus rate of 50m<sup>3</sup>/hr is approximately 1,200m<sup>3</sup>/day.
- Maximum daily centrate return based on a production rate of 25m<sup>3</sup>/hr sludge feed is 700m<sup>3</sup>/day.
- Condensate is estimated to be very small quantities and therefore no more than 2ltrs/day or 0.002m<sup>3</sup>/day (based on site knowledge).

Total therefore: 1,200 + 700 + 0.002 = 1,900m<sup>3</sup>/day

Question 5a: How far away is the nearest foul sewer from the boundary of the premises?

Not applicable – the installation is located within the curtilage of Southport wastewater treatment works (WwTW) and the installation wastewater emissions discharge into the works UWWT inlet via the site's sealed drainage system.

Question 5b2: Discharges from all other premises including trade effluent

Not applicable – the installation is located within the curtilage of Southport WwTWs and the installation wastewater emissions discharge into the works UWWT inlet via the site's sealed drainage system.

Question 6a: Do you treat your effluent

Wastewaters generated by the sludge treatment process are not subject to pre-treatment. All wastewater emissions are returned to the head of Southport WwTW to undergo full biological treatment comprising

primary treatment, secondary and tertiary treatment, in order to achieve the consented discharge limits. Please see response to Question 6b for details of the treatment carried out on the effluent.

Question 6c: No question

Table 1 identifies that Question 6c should be answered – it is noted that this question does not exist on the form.

Question 7b: Are any of the specific substances listed in ‘Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater’ added to or present in the effluent as a result of the activities on the site?

See response to question 7e.

Question 7c: Have any of the specific substances listed in ‘Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater’ been detected in samples of the effluent or in the sewerage catchment upstream of the discharge?

See response to question 7e.

Question 7d: Are there any other harmful or specific substances in your effluent not mentioned in ‘Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater’?

See response to question 7e.

Question 7e: If you have answered ‘No’ to any of questions 7a to 7d provide details on a separate sheet of how you have established that the effluent is not likely to contain specific substances

There are no direct emissions to surface water or groundwater from this installation therefore monitoring for all substances listed within the referenced risk assessment at the site has not been undertaken. There are emissions to sewer, which are all routed into the wastewater treatment works’ flow to full biological treatment via the site drainage system. This is a circular process and is considered to represent BAT. These wastewater emissions are limited to the following:

- W1 – Filtrate from the GBTs;
- W2 – Centrate from the centrifuges;
- W3 – Condensate from the CHP engine and biogas lines; and
- W4 – Surface water drainage.

The proposed monitoring for wastewater returns to the WwTW inlet has been reviewed against BAT 6 and BAT 7 requirements.

BAT 6 specifies that ‘for relevant emissions to water, as identified by the inventory of wastewater streams (see BAT 3), BAT is to monitor key process parameters (e.g. wastewater flow, pH, temperature, conductivity, BOD) at key locations (e.g. at the inlet and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation)’.

BAT 7 states: BAT is to monitor emissions to water with at least the defined frequency, and in accordance with EN standards. The proposed BAT monitoring requirements for all wastewater streams have been

compared with those for biological treatment of waste. It is considered that this is most suitable classification as the wastewater streams are derived from sludges that have been produced following a biological treatment process and are returning to further biological treatment.

From the BAT 7 requirements, the following parameters are relevant for biological treatment: total nitrogen; COD; TOC (TOC or COD to be undertaken); total phosphorous; suspended solids; PFOS; and PFOA. However, footnote 6 applies to all parameters (except PFOS/PFOA), whereby monitoring applies only in the case of a direct discharge to a receiving water body. Testing for PFOS/PFOA has not been proposed as these parameters have not been identified in the inventory of wastewater streams (see Southport ASD Table 12 for waste inventory as per BAT 3 requirement).

We have also reviewed the raw materials MSDS sheets for the chemicals used within the installation activities. These do not identify any other harmful or specific substances within the effluent.

Therefore, based on the BAT table of requirements for biological treatment of waste and the inventory of wastewater streams returned to the head of the WwTW for treatment, the proposed monitoring at W1 to W4 will be for: total nitrogen; COD; BOD, total phosphorous; suspended solids and ammoniacal nitrogen (see Southport ASD, Section 5.12 for full monitoring proposed).

Monitoring of T1 location (the combined effluent at the point where the emission leaves the installation) has not been undertaken to date. The monitoring proposed at T1, once the permit is in place, will be for the following parameters on a monthly basis: pH; temperature; conductivity; BOD; total nitrogen; COD; total phosphorous; suspended solids and ammoniacal nitrogen. This sampling and analysis of T1 location, is in line with BAT 3 requirements.

Flow meters are installed to record the flow of centrate and filtrate to the head of the works. An MCERTS flow meter is installed at the final effluent outlet from the wider WwTW works at SD 37003 20789.

#### Question 8d: Discharges to groundwater

Not applicable – the installation does not discharge to groundwater.

#### Question 8e: Discharges to freshwater (non-tidal) rivers from an installation, including discharges via sewer

Not applicable – the installation discharges to a tidal river.

#### Question 8f: Environmental Impact Assessment

Not applicable – an environmental impact assessment has not been undertaken as this is an existing facility/installation.

#### Question 9a: What is the national grid reference of the inlet sampling point? (for example, SJ 12345 67890)

Not applicable to this installation.

#### Question 9b: What is the national grid reference of the effluent sample point?

T1 – SD368442066. This location is where the combined effluent (i.e. centrate, filtrate, condensate and surface drainage) emission leaves the installation and joins the wider works for flow to full biological

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treatment. The new effluent sampling point will be available from permit issue. Only centrate and filtrate monitoring locations are currently available.

**Question 9d: What is the national grid reference of the flow monitoring point?**

No flow meter installed at the effluent sampling point. The centrate return has its own dedicated flow meter and there are two flow meters for the combined centrate and filtrate returns. An MCERTS flow meter is installed at the final effluent outlet from the wider WwTW works at SD 37003 20789.

**Question 9e: Does the flow monitor have an MCERTS certificate?**

No flow meter installed at the effluent sampling point.

**Question 9f: Do you have a UV disinfection efficacy monitoring point?**

No this is not installed as part of this installation. The wider WwTW undertakes UV treatment of effluent.

**Question 9h: You should clearly mark on the plan the locations of any of the above that apply to this effluent**

Refer to Southport Application Support Document - Appendix D2

**Question 9i: Do you intend to do your own effluent monitoring?**

Yes.

**Appendix 4 – Discharges to tidal river, tidal stream, estuary or coastal waters**

There are no direct emissions to water from the sludge treatment activities. The wastewater streams are returned to the head of the works for full biological treatment, before being discharged (indirectly) via the WwTW final effluent discharge into Crossens Pool. This is a tidally influenced channel that runs through an extensive inter-tidal marshland area before out falling into the Ribble Estuary. The information included in this appendix therefore relates to the Environmental Permit/Consent (017030100) for the wider Southport works.