Form Part C6 Q3F
Calculations below show how the maximum of 240 cubic meters a day of effluent and 3.0 litres per second have been calculated.

Table 1 Shows increase in water usage from the new furnace process

Furnace	Current	with Fx
F1	28.8	28.8
F2	28.8	28.8
F3	43.9	43.9
F4	47.5	47.5
FX		42.5
Gas treatment (1)		28.8
Gas treatment (2)		4.8
Char washing*	14.4	14.4
Total (daily)	**149**	**239**
Total (hourly)	**6.2**	**10.0**

- F1 & F2 are existing carbonisation furnaces.
- F3 & F4 are existing activation furnaces.
- FX is the new furnace.

Furnaces F1, F2 and FX will form part of the new gas abatement system and will include an upgraded quench system (28.8 & 4.8m3/ day) for gas cooling and removal of TOC, HCl and other particulates. FX will include a facility for inline product washing (42.5m3/ day). This inline washing process removes water soluble metal chlorides and surface fibres. The char washing is a process which is performed on product coming from F1 & F2 and serves to remove water soluble metal chlorides and surface fibres. The increase in volume is coming from the increase in quenching and product washing from the new furnace.

Form C6 Q5a
The nearest treatment works where the sites effluent discharges to is just over two kilometres from the site (2078.6 meters via Google Earth). The address is Northumbrian Water Ltd, Sedgeletch Wastewater Treatment Works, Sedgeletch, Houghton Le Spring, Tyne and Wear, DH4 5PL.

Form C6 Q5b2
Site have a trade effluent discharge consent with Northumbrian Water which they are in the process of varying. Refer to documents ‘NW TEDC W0892D1’ and ‘01 G02 - Trade Effluent Discharge Consent - 3022462123S12’. Also refer to Figure 1. Northumbrian Water have agreed with the variation and provided draft consent limits in the supporting correspondence ‘FW ExternalG02 to amend trade effluent consent BP 22213061521’.

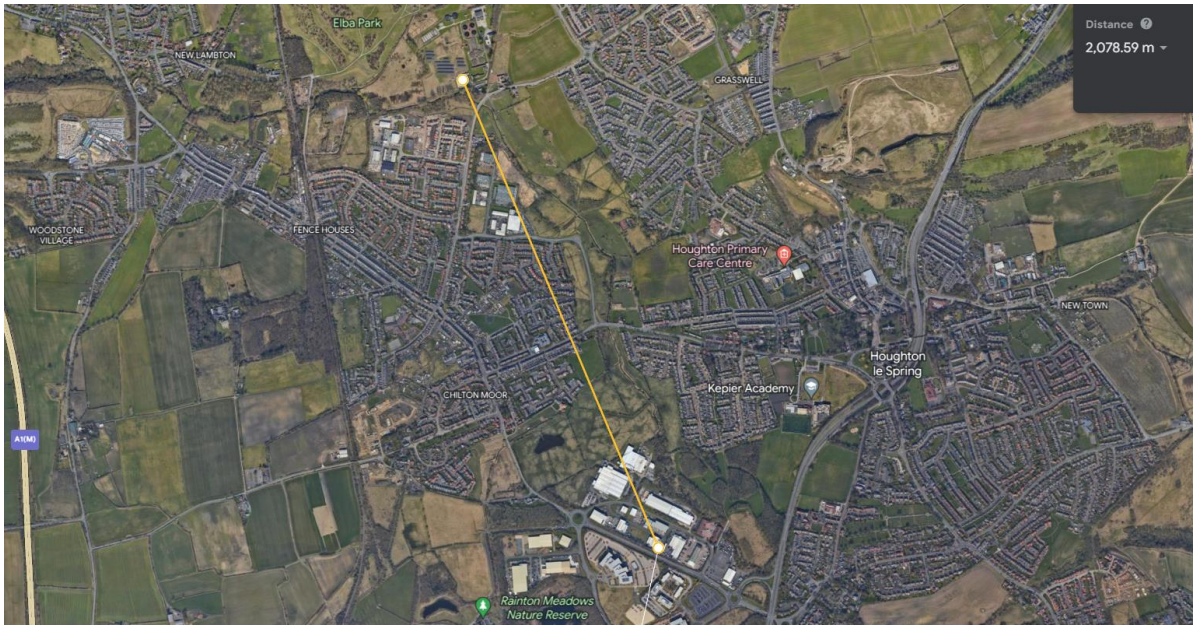

Figure 1 Map of nearest wastewater treatment works from site

Form C6 Q6b

Process(es) From Which the Trade Effluent Arises

The main process operated at the site deals with the manufacture of an activated carbon textile achieved by impregnation with metal chlorides followed by thermal treatment using various furnace technologies.

The exhaust gases and cooling water from these furnaces are cooled and, as they are generally acidic in nature (hydrochloric acid), neutralized with aqueous substances (sodium hydroxide), before further treatment in an on site effluent treatment facility. In addition to the effluent arising from the treatment of the exhaust gasses, an additional source of effluent from the process is washing water used to remove metal chlorides from the material.

It is important to note that there are no internal drains at the facility and that all raw effluent is collected in a series of sumps with level switches and pumps to transfer to the receiving tank.

Trade Effluent Treatment The on site effluent treatment system comprises of a receiving tank, recirculation/ dosing tank, settlement tank, sludge storage and activated carbon polishing filters. The basic principle of effluent treatment is based around pH correction (9.5 – 10.5), producing a zinc hydroxide precipitate, settlement and separation of the precipitate, filtration of the supernatant through a granular activated carbon before discharge to drain. Sludge deposits are stored in a containment vessel before periodic collection and off-site disposal.

An online zinc test analyser periodically takes measurements of the discharge to sewer. This zinc analyser is connected to an internal alarm which alerts the operator as the zinc level increases at which point the operators change the activated carbon filters on the effluent plant.

An autosampler on the discharge line collects a portion of the treated effluent being released to sewer and produces a composite sample which is tested weekly by the on site laboratory using an Atomic Absorption Spectrophotometer.

Also refer to document reference: 'VAR-BT2831IA-2021-b Variation to Permit BT2831IA'

Form Part C6 Q7a-7E

Pages 9 to 10 of document reference 01 G02 - Trade Effluent Discharge Consent - 3022462123S12 lists the substances to be discharged through the process and stored on site. These substances are not found on the EA lists identified within these questions. The zinc, sulphates, chlorides and cyanide compounds arise as a by-product of the carbonisation of the cellulose and removed via the quenching process.

Form Part C6 Q9e

The Siemens MAG5100 is MCERTs approved. Please refer to document reference: '13Cert_SITRANS_FM_MAG3100_mCERTs_SIRA_MC080135'.