

NON-TECHNICAL SUMMARY – SUBSTANTIAL VARIATION APPLICATION – NEW BOILER PLANT - BJ7611IY/V012

The proposed development consists of the installation of replacement boilers, exhaust stacks and associated pipework/infrastructure at the Kimberly-Clark Limited (KC) existing manufacturing site in Barrow-in-Furness, Cumbria.

The initial scope of the boiler replacement project was to replace the boilers due to their age and condition, with energy saving being a by-product of the installation.

Currently steam for the site is provided by the existing boiler plant which is located in the High Pressure Boiler House (HPBH) that is located at the southern end of the site approximately 100 m from the main production building which contains the Tissue Machines TM3 and TM5.

TM3 and TM5 are the main users of steam on-site. The manufacture of tissue requires a large steam filled cast iron cylinder (Yankee Dryer) to be rotated at high speed to dry the tissue.

The tissue-making process primarily drives the demand for steam. Additionally, there is an increased demand for ancillary items, such as HVAC, during the winter months.

The three current boilers were installed in the High Pressure Boiler House in 1984. These were originally coal-fired. The boilers were converted to natural gas/gas oil in 1994 but the use of gas oil ceased in the 2000s.

The HPBH consists of 3 x 16.7 MWth (currently restricted to 13.3 MWth) input natural-gas boilers all of which discharge through a common stack with windshield at a height of 45m above ground level. They are each capable of producing 18t/h of steam for supply to the site. The existing boilers are identified as emission points to air AB1/AB2 and AB3 in the current permit.

The three existing boilers in the HPBH are controlled to satisfy the site steam demand which varies according to site operational demands. Over-production/supply of steam is avoided since the production of excess steam has to be vented which is costly and wasteful.

The existing boiler system still has many features associated with the original design (designed for coal and coal handling equipment still exists) but as they were not originally designed for natural gas their efficiency is assumed to be low (80-85%) by comparison to modern standards.

For reasons of equipment age and efficiency outlined in the preceding sections, KC has decided to replace the existing boiler plant at Barrow with a new boiler plant system.

At Barrow the new boiler plant will be located in the refurbished existing Low Pressure Boiler House and will contain three new boilers capable of each producing 16 t/h of steam (each boiler will be rated at 10.2MWth input). Each new boiler will have an individual stack and the system will be operated as duty/duty/standby.

Each new boiler will have dual-fuel capability (natural gas and hydrogen) and also have the capability to operate on a mix of hydrogen and natural gas if required.

The new boiler plant will be more efficient, more reliable and will align with KC's future sustainability plans and will contribute towards KC's target of using 100% renewable energy by 2030. The new boiler plant will assist in reducing KC's Carbon Dioxide (CO₂) emissions by burning green hydrogen.

The proposed changes require a permit variation for the installation of the new boiler plant and the provision of new point source emissions to air - to be designated AB7, AB8 & AB9. The existing emission point AB6 is to be removed from the permit as the standby boiler is no longer in use and is to be removed from site.

Hydrogen is to be provided by a new hydrogen production facility (HPF) to be constructed on an area of land located south of the Barrow Mill. The distance from the centre of the HPF site to the LPBH on the KC site is approximately 500m. The new facility is to be operated by a 3rd party who will supply hydrogen solely for use by KC via a dedicated pipeline.

The HPF scope includes the provision of a dedicated hydrogen supply pipeline from their site area to the new boiler plant.

The HPF made an environmental permit application (EPR/VP3128LT) in February 2026 for the operation of the HPF.

For the purposes of this variation the BAT-C requirements have been reviewed in order to ensure that following the modifications compliance will be achieved and that any specific requirements for new plant have been addressed during the design process/specification of the new equipment/facilities.

The assessment concludes that due to the proposed modification (Installation of a new boiler plant) KC's operations at Barrow will continue to meet the relevant BAT-Conclusions requirements.

Overall the provision of new boiler plant to satisfy the existing site steam requirements is considered to represent BAT for the installation.