**C 3.3c Raw Materials**

Permit EPR/CP3507PJ authorises EPR Schedule 1 listed activities6.8A(1)(b) and 5.4A(1)(a)(ii) allowing Cranswick Country Foods plc to receive and slaughter pigs at a rate of more than 50 tonnes per day and to treat process derived non-hazardous waste liquids by physico-chemical treatment at a rate of more than 50 tonnes per day, along with three directly associated activities (storage of raw materials, steam/ hot water generation using natural gas / gas oil fired boilers and the discharge of uncontaminated surface and roof water to the surface water course Watton Brook).

Table S 2.1 of Schedule 2 to permit EPR/CP3507PJ does not limit the types, specifications and and quantities of raw materials to be used in connection with the authorised processes with the exception of fuel oil which, when used, must not contain more than 0.1% sulphur.

The capacity of the current permitted process is up to 4800 pigs per day, equivalent to around 125,000 tonnes of finished product per year. The existing facility is currently operating a little under capacity, on average at around 4000 pigs per day.

Typical current operating hours are: (below tbc as correct)

- Slaughter operations 06.00 to 18.00 Monday to Saturday
- Cleaning operations 18.00 to 06.00 Monday to Sunday
- Packaging operations – 24 hours Monday to Friday
- Retail operations – on demand but typically 24 hours 7 days per week

The site operates a routine planned maintenance system in addition to breakdown maintenance response. However, there are no planned shutdown periods where all meat production operations cease.

Introduction of the proposed effluent treatment plant will not change the site's animal processing capacity or operating arrangements for livestock receipt and processing.

The proposed effluent treatment plant is designed to operate continuously with a waste water treatment capacity of 825$m^3$ per day equivalent to around 290,000 $m^3$ per year.

Replacement of the 3.3MWh standby steam raising boiler with a 6.2MWh unit (dual fuel but normally natural gas fired) and incorporation of the new unit as the primary steam raising plant on site does not impact significantly on the site's typical raw materials usage rates, primarily because the sites related energy demand is process throughput related . Further, since the replacement unit was installed in June 2019, the figures contained in the raw materials use table below are taken from a period during which the replacement boiler was operating.

The table below shows raw materials currently used in the process along with typical quantities handled / consumed based on 2019 data.

| Raw material | Typical quantity used in current permitted process (tonnes /year unless otherwise stated) |
|---|---|
| Live pigs | 110,000 te input (based on 3800 pigs/day) |
| Animal Bedding | 40 |
| Water – potable | 1985 |
| Water – non-potable (groundwater abstraction borehole) | 222,000 |
| Fuel oil – gas oil<br>(boilers and mobile plant) | 122<br>(58 te for boilers and 64 te for mobile plant) |
| Fuel oil – diesel<br>(used in road going LGV's) | 583 |
| Refrigerant – R404a<br>(top up during maintenance) | 0.22 (quantity held in system)<br>0.05 top up |
| Refrigerant – Ammonia<br>(quantity held within in system hence not consumed) | 2.98 (quantity held in system)<br>0.95 top up |
| Refrigerant – Glycol<br>(held in refrigeration plant system hence not consumed) | 6.60 (quantity held in system)<br>0.9 top up |
| Carbon dioxide (used for livestock stunning and modified atmosphere packaging) | 537 |
| Oxygen (used for modified atmosphere packaging) | 232 |
| Salt (NaCl used in water softening plant for boiler feed water) | 191 |

| | |
|---|---|
| Boiler water treatment chemicals | Data sheets provided in this supporting document folder B3.3c highlighted yellow. |
| Sanosil Super 25 - hydrogen peroxide solution | 0.07 |
| BFW – 32 corrosion inhibitor | 0.52 |
| BSC- 35 sodium hydroxide solution | 1.30 |
| OS-110 corrosion inhibitor | 1.56 |
| CS-310 – corrosion inhibitor | 1.30 |
| ML-30 – biocide | 0.29 |
| ML 60 – biocide | 0.29 |
| ML 27 - biocide | 0.29 |
| Packaging materials (eg. film wrap, cardboard boxes, wooden pallets etc for finished product packaging, storage and shipment) | 1300 |
| Miscellaneous materials used for plant and vehicle maintenance, cleaning and protection (eg. Lubricants, antifreeze, sealants etc) | 38 |
| Hygiene etc chemicals used in process: | Data sheets provided in this supporting document folder B3.3c highlighted yellow. |
| Alcosan - Detergent | 0.18 |
| Active – Disinfectant. | 10.00 |
| Caustak LF30 - Alkaline detergent | 0.84 |
| Foam Free – Defoaming agent | 2.85 |
| Maxifoam Acid – acidic detergent | 1.38 |
| Maxifoam Plus – alkaline detergent | 14.00 |
| Maxichlor – chlorinated detergent | 8.00 |
| Nipac – Acidic detergent | 0.57 |

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|---|---|
| Perbac Agri' | 0.08 |
| Perbac Farm - Disinfectant | 0.94 |
| Revive – Detergent | 0.38 |
| TWS – Alkaline detergent | 0.96 |
| V-Clean – Alkaline detergent | 5.63 |

As stated above the site is currently operating slightly under capacity hence the typical annual usage rates quoted in the table above could increase by up to around 20% for raw materials usage which is primarily throughput dependant (eg. water, gases used for stunning) if the plant operated continuously at full capacity. Raw materials usage which is primarily time dependant (eg. hygiene chemicals) would not be significantly affected. Further details of raw materials used following completion of the ETP installation are provided in Section C3.6d (Use of Raw and Other Materials and Water) of the permit variation application.

As the introduction of the proposed effluent treatment plant will not change the operating / production capacity of the site as a whole, the quantities of raw materials generally used in connection with the operation will not change as a result of the ETP installation. However, installation of the ETP will introduce the requirement for additional raw materials in the form of chemical treatment reagents and will add around 22$m^3$ per day to the site's potable water demand.

The table below shows the main raw materials to be used specifically in connection with the effluent treatment plant following completion of the development along with projected typical annual quantities which will be consumed or otherwise handled, maximum quantities stored on the ETP at any one time, and typical material uses.

Quantities of raw materials used are projected based on the ETP running at maximum process design capacity (825 $m^3$/day) and rely on manufacturers data for plant and equipment to be installed at the facility where relevant.

| Raw material | Projected Quantity Consumed / Handled (tonnes/year unless otherwise stated) | Maximum Quantity Stored (tonnes unless otherwise stated) | Typical Use<br>Data sheets provided in this supporting document folder B3.3c highlighted yellow. |
|---|---|---|---|
| Ferric Sulphate (c. 50% wt solution) | 95 | 20 (in solid form contained in bags stored on pallets) | Effluent treatment plant phosphate removal |
| Polyelectrolyte (Nalco 71687 or similar) | 9 | 2 (in solid form contained in bags stored on pallets) | Flocculant to aid sludge dewatering. |
| Potable water | 7700 | Not stored | Rotary screen cleaning. Treatment reagent solution make-up |

Where relevant and as indicated in the tables, raw material data sheets are provided in this supporting document folder B3.3c, Raw Materials

Energy (electricity and gas) use data are provided in Section B3.6a / B3.6b (Energy Efficiency and Energy Use) of the permit application.

Further information relating to raw materials and their use is provided in supporting document C3.6d, Use of raw and other materials and water.

Raw materials usage is reviewed periodically and reported on annually as required by permit conditions.