

BX7282IS - Annual PC 4.1.5 - 2020 EMS submission

Introduction

The installation consists of two physical sites; the main brewery site and the effluent treatment plant (ETP), located approximately 3 km south-east, and connected by an underground pipeline approximately 5 km long.

The brewery operates 24 hours a day, 365 days a year and produces branded beers, with operations at the Facility including brewing, packaging, storage and distribution. Beers brewed on-site, as well as some beers brewed elsewhere are canned, bottled or kegged at the Facility and stored in the on-site warehouses from where they are collected by HGVs for distribution.

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Raw materials used during the brewing process include natural spring water (supplied by Welsh Water), malt, hops and other additives such as rice and maize. The process involves five stages; brewing, fermentation, maturation, filtration and packaging. Water is used for cleaning and heating in addition to being a main ingredient of the beer.

Effluent: Effluent arising from the process is combined with surface water runoff from the Facility before flowing to the permitted ETP where it is treated and passed through anaerobic digestion plant prior to final discharge to the Severn Estuary. Discharge to the estuary is one of three permitted discharges to surface water. Uncontaminated surface water from the main brewery site can be discharged to the Waundeilad Reen, whilst uncontaminated surface water from the ETP is discharged to the Mill Reen. In addition, surface water runoff from the lorry park area is discharged to highways drainage.

Combustion: The main brewery site utilizes 4 natural gas fired boilers with a combined thermal input of approximately 47MW. These boilers are regulated and permitted under the Greenhouse Gas Emissions Trading Scheme (permit number UK-W-IN-11421). The boilers produce the steam and hot water required for cleaning and sterilizing brewery equipment. The installation of a Flue-Ace system allows for the recovery and reuse of heat, pre-heating water for the boilers. It is estimated that the Flue-Ace will improve energy efficiency at the Facility, reducing natural gas consumption by approximately 5%.

In addition, approximately 50% of the biogas produced during the effluent treatment process is directed to a combined heat and power (CHP) plant which produces enough electricity to power the ETP, returning any additional electricity to the grid. The remaining 50% of biogas is flared off.

Company Management Standard

ABI UK Ltd follows the company in-house management standard Voyager Plant Optimisation (VPO). It has the overall objective of meeting the organisations mission and vision of achieving results, whilst simultaneously bringing greater efficiency and standardisation to operations worldwide, hence generating cost savings.

It aims to create a culture of continuous improvement (CI) and empowerment within the organisation whilst providing quality, safety and environmental benefits.

It achieves this by the utilization of a structured form of management based on a Kaizen process of Plan Do Check Act (PDCA) methodology, and by the CI of existing and new processes, procedures and tools that define the framework to create the necessary results throughout the business.



Results:- **Results Against Target (RAT)**

Performance, Financial, Quality, Environment, Safety, Logistics and People tracked monthly via pre-determined Key Performance Indicator baskets

Means:- **Self Assessment Tool (SAT)**

Method – Management Pillar

Leadership – People Pillar

Knowledge – Maintenance, Quality, Environment, Safety, Logistics and People.

Scored via a monthly self-assessment audit.

The roof of the house represents the results, and the vertical pillars reflect the means by which the results are achieved. Vertical Pillars are also described as the Technical or Knowledge Pillars

The two horizontal pillars comprise of:-

The People Pillar - which defines the policies, procedures and processes to manage and develop the teams, thus promoting a culture of leadership, and;

The Management Pillar - which crosses all of the Technical Pillars and ties them with the results, whilst providing the methods to sustain and continuously improve. It aims to optimize and standardize plant operations across the globe on its journey towards its dream of becoming “The Best Beer Company Bringing People Together for a Better World”.

Finally, by the successful implementation of the method supported by the Knowledge Pillars (namely Maintenance, Quality, Environment, Safety and Logistics), the necessary behaviours will be established to continuously drive and sustain performance improvement and share best practice.

Environment Pillar Structure

Environment Pillar

Manage to Improve



Policy	Promotion	Management Review
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Manage to Sustain



Incident/Accident Emergency and Alerts	Monitoring Audits and Compliance	Use of Natural Resources Water and Energy	Management of Change	Contractor Management
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Basic Fundamentals

By-Products Management	Effluent Management	Regulatory Compliance	Aspects and Impact Management	Hazardous and Chemical Management	Air Quality Management	Soil and Ground water and Water Resources	Training
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Environment Pillar

Manage to Improve



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Environmental Permit

Application has been made in March 2020 for a variation to the site permit. This will be conducted in line with NREW and link to the Business name change and relocation of the head office from Luton to London. This will also include an number of planned and proposed changes to the brewery operation.

PI and emission data will be submitted through the European Release and Transfer Register (E-PRTR) and those required for the National Atmospheric Emissions Inventory (NAEI).

The method of submission will be via the reporting tool hosted by Ricardo Energy and Environment, the company contracted to DEFRA to collect the UK PRTR submission.

Notifications

None

Updates

The site accident management plan has been updated.

Borehole water sampling has been undertaken in December 2020

Variation for the site environmental permit BJ7282IS has been submitted and is in the process of review.

The new Radiation Permit EPR/VB3393NK has been made.

The BREF report has been submitted for the 31st October 2020.

Nuisance

No nuisance complaints have been received for 2020

Key Environmental Initiatives for 2021/22

Restoration of the integrity of storm water and waste water drains remains the key priority for 2021.

Additional work will be progressed into 2021 conditions permitting and based on COVID-19 restrictions.

BTS control and optimisation. This project is still in the development stage with implementation at the back end of 2021 beginning of 2022.

Start of the project for the automated warehouse 2. This will allow the facility to reduce carbon emission from forklift usage and reduce the carbon footprint.

Wind turbine has now been connected to the Brewery supplying 20% of the Breweries energy needs, saving 2500 tonnes annual carbon emissions. A second turbine is likely.

New centrifuge is now in place to reclaim spent grain and spent yeast and reclaim waste water and beer.

Discussion is being held to remove the HGV hauler fleet to a premises nearby. This will allow us to remove or reduce the size of the red diesel tanks currently in use on the Brewery. The Brewery will then only have shunt vehicles on the premises.

Discussion underway for hydrogen fuel driven hauler fleet vehicles instead of diesel. This will improve the carbon footprint and reduce emission to air.

2nd Automated warehouse is planned to further reduce the reliance on fossil fuel driven vehicles, and reliance on 3rd party storage and the associated transport footprint.

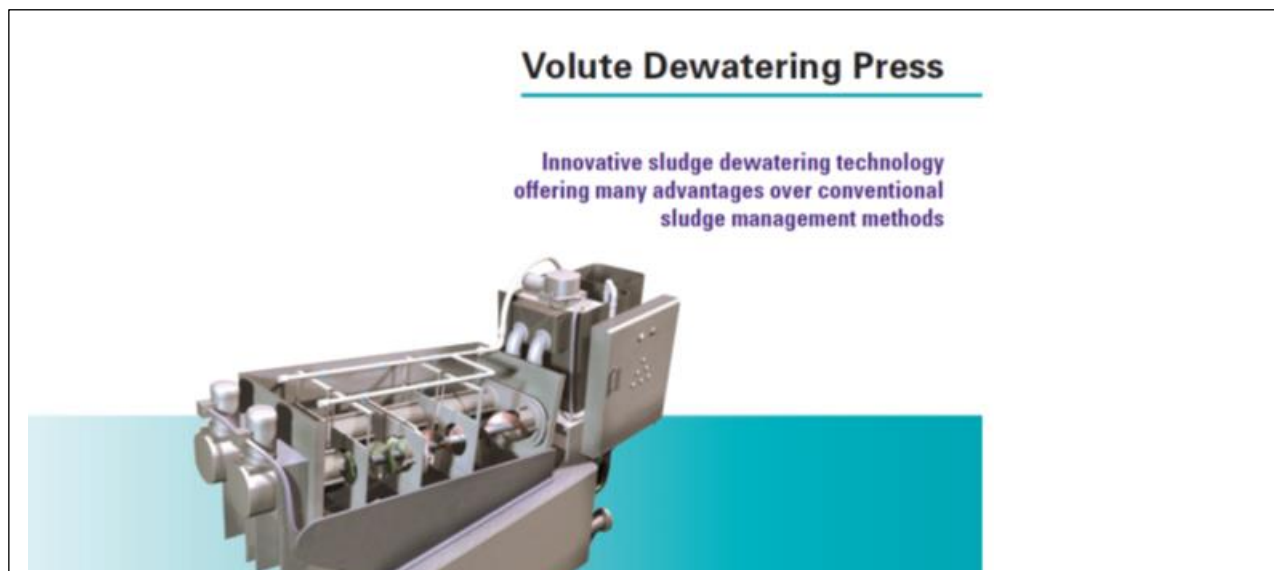
Environmental KPI's and Year End Results – Results against Target (RATs)

KPI P12-19 Published KPI's									
Year	Mon	KPI Cod	KPI Name	UOM	Locatio	MTH AC	MTH BU	YTD AC	YTD BU
2019	12	PG-K0510	Water usage Ratio - Brewery	hl/hlN	Magor	3.3367	3.7191	3.4979	3.3899
2019	12	PG-K0511	Raw Water usage Ratio - Brewery	hl/hlN	Magor	3.3367	0	3.4979	0
2019	12	PG-K0520	Electrical usage Ratio	kWh/hlN	Magor	8.6942	8.9733	8.2757	8.0799
2019	12	PG-K0521	Purchased electricity per hlN	kWh/hlN	Magor	8.6942	8.9733	8.2757	8.0799
2019	12	PG-K0530	Heat usage Ratio	MJ/hlN	Magor	71.9153	79.6846	69.2694	70.6599
2019	12	PG-K0531	Purchased fuel per hlN	MJ/hlN	Magor	71.9153	79.6846	69.2694	70.6599
2019	12	PG-K0540	Total Energy usage Ratio - Brewery	MJ/hlN	Magor	103.2143	111.9887	99.0623	99.7479
2019	12	PG-K0541	Total Purchased Energy per hlN	MJ/hlN	Magor	103.2143	111.9887	99.0623	99.7479
2019	12	PG-K0545	CO2 Surplus	kg/hlN	Magor	-0.3228	-0.8592	-0.7099	-0.3999
2019	12	PG-K0550	CO2 recovery	kg/hl	Magor	2.4812	1.8738	1.9753	2.2898
2019	12	PG-K0551	Adjusted CO2 recovery	kg/hl	Magor	0	0	0	0
2019	12	PG-K0585	Nitrogen Consumption	kg/hl	Magor	0.914	1.1997	1.0011	1.6499
2019	12	PG-K1701	Percentage of recycling	%	Magor	99.9911	99.9892	99.982	99.9892
2019	12	PG-K1730	% of efficiency BTS	%	Magor	98.4115	97.2781	97.3847	97.2781
2019	12	PG-R2100	Electricity purchased	kWh	Magor	3274683	0	40358174	0
2019	12	PG-R2150	Groundwater usage - Brewery (WA21a)	m3	Magor	125677	0	1706482	0
2019	12	PG-R2170	Kg of CO2 recovered	kg	Magor	944060	819176	8929530	13041112
2019	12	PG-R2171	Kg of CO2 sold	kg	Magor	0	0	0	0
2019	12	PG-R2172	Kg of CO2 purchased	kg	Magor	121600	0	3461910	0
2019	12	PG-R2185	Kg of nitrogen consumed	kg	Magor	369120	0	5083895	0

Projects and Initiatives completed 2019

Off Site Sludge (Digestate)

The volute system is operating and work is progressing on improving the consistency of the sludge produced. There is a possibility of a second volute dewatering press so that the transportation costs are lowered and the carbon footprint reduced.



Projects

There are a number of projects that are underway in the Magor Brewery.

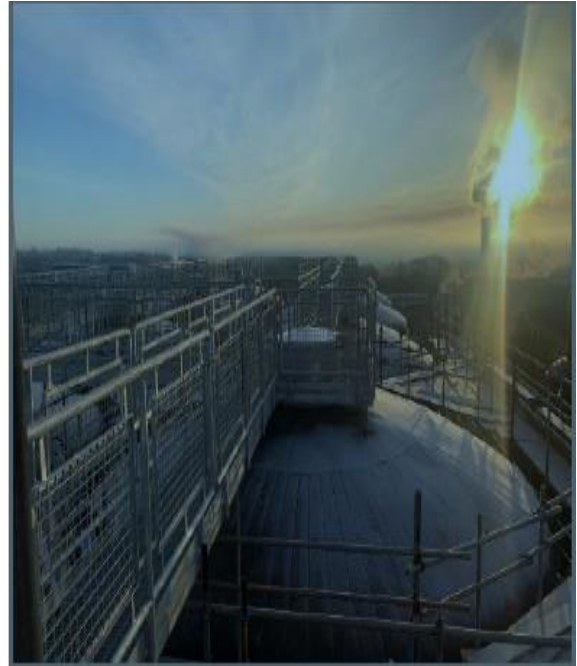
These include a new centrifuge so that by-product can be reclaimed and water and beer utilised more effectively. This is now running.



Magor Wind Turbine



8 New Filtration vessels



New Hot water tanks

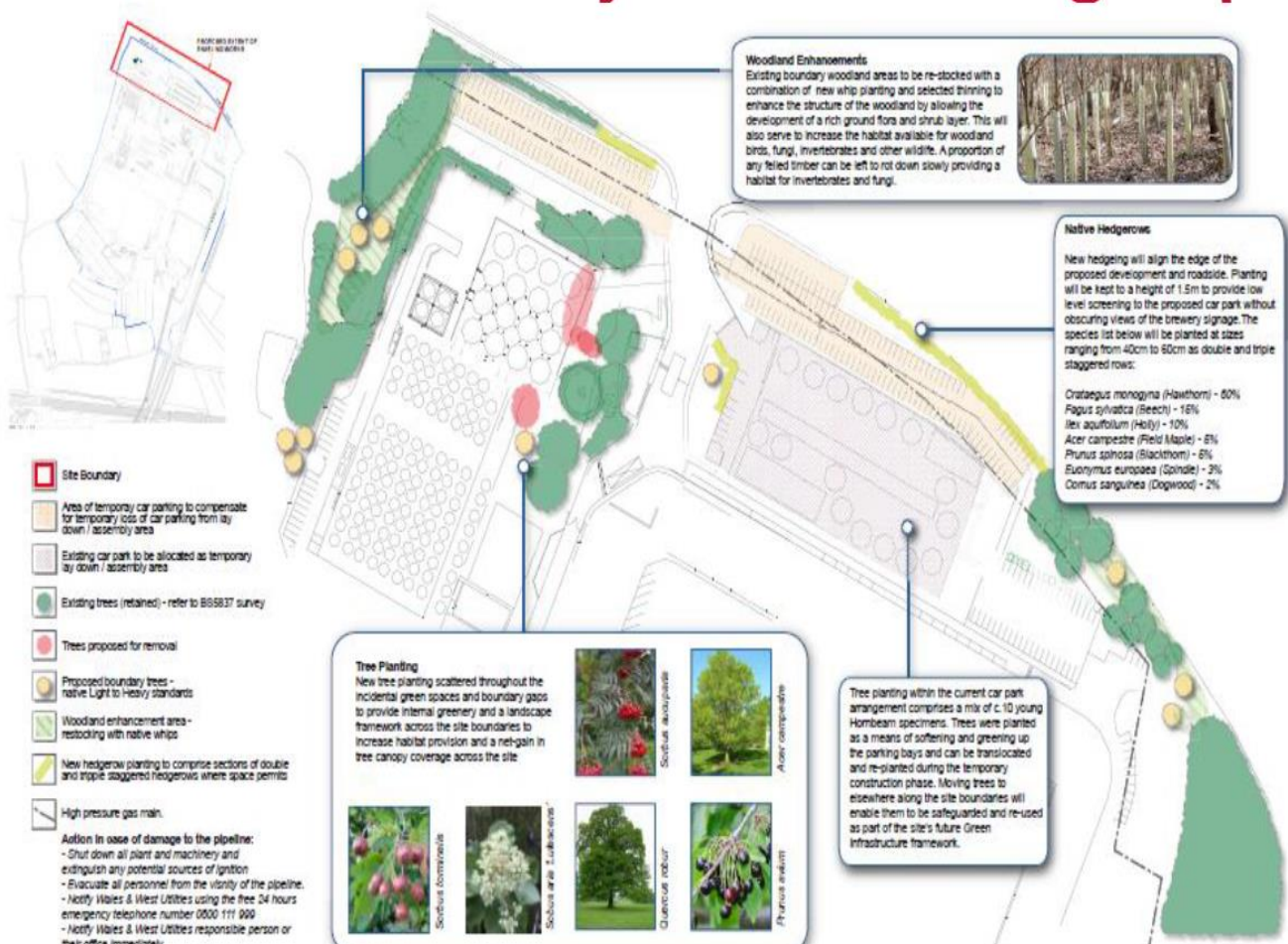


New Bottling line MAB4

New NRB Line – MAB04



Post Project Tree Planting Proposal



Theresa - Master Layout

