

This form will report compliance with your permit as determined by an NRW officer

Site	Magor Brewery EPR/BX7282IS	Permit Ref	BX7282IS	
Operator/Permit holder	AB InBev UK Ltd			
Regime	Installations			
Date of assessment	04/10/2016	Time in	09:30	Out 13:30
Assessment type	Audit			
Parts of the permit assessed	Containment, AMP			
Lead officer's name	Willey, David			
Accompanied by	Lansdown, Ashley			
Recipient's name/position	Kathryn Fowler/ ES Manager	Date issued	12/12/2016	

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
C2 - General Management - Management system and operating procedures	C4	2.1.1
	C3	2.8.1
	C3	2.3.3
E3 - Emissions - Surface water	C3	2.2.2.3

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.

A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,

O = Ongoing non-compliance, not scored.

Number of breaches recorded	4	Total compliance score (see section 5 for scoring scheme)	12.1
------------------------------------	----------	---	------

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

CAR Form following site visit on 4th October 2016

The structure of the CAR Form is as follows.

1. Site update / previous actions
 - a. CAR Form 16/03/16
 - b. SABMiller AB Inbev
2. AMP update
3. Hazardous waste
4. New ETP and waste provider
5. New initiatives
6. BREF BATc update - 2016
7. Monitoring returns
8. Drain project update
9. Transfrontier Shipment of Waste (TFS)
10. Site tour / inspection
 - a. New storage area
 - b. CHP changes
11. Returns
12. Environmental incident 11th/12th November 2016

1. Site update / previous actions

Actions carried forward

ACTION: AB InBev to install safety barriers alongside the road to prevent potential accidents from moving traffic near to the HCL tank. If the Operator does not propose to install safety barriers please supply suitable justification.

ACTION: Update the AMP in line with the appropriate tank specifications for the different chemicals stored on site.

ACTION: Update the AMP to include notification to NRW of any incidents. *Ongoing.*

ACTION: Provide a copy of the maintenance programme in place at AB InBev as required by condition 2.3.6.1. This can form part of the AMP or a standalone Preventative Maintenance Plan. *Ongoing.*

ACTION: NRW to amend the OPRA score for AB InBev ahead of charging in 2017.

2. AMP update

The update to the accident management plan is underway. This is a large bit of work that includes CLP (The Classification, Labelling and Packaging of Chemicals) and the MSDS (Material Safety Data Sheet) that are in the process of being updated following the latest revision of the COMAH Regulations.

The revised AMP also includes the containment and bunding upgrade being undertaken in line with the AMEC survey September 2015. The AMEC report looked at reinforced concrete and masonry bunds at the site supersedes the previous February 2010 report. AMEC will be undertaking annual inspections at the site.

The AMEC report list recommendations in Chapter 4 with three levels of prioritisation. These are listed in Table 4.1 with associated actions that AB InBev will adhere to.

Other potential sources of contamination from stored substances include caustic and HCL. CAPEX had been identified for a caustic tank but this has since been removed. In 2017 the caustic tank to the rear of fermentation will be removed. This leaves one caustic tank on the corner of brew house stored internally. There is a plan to have a caustic storage at the sites ETP in the future.

ACTION: Phone numbers to be updated in the Accident Management Plan.

There is an area to the rear of maturation where chemicals arrive to site and where empty containers are stored. A roof is proposed to be installed in this area and there is existing bunding in place.

There are drain inspections and camera surveys undertaken at the site by Flexible Solutions who carry out jetting / unblocking where necessary. Flexible Solutions also undertake tank inspections at the site.

ACTION: AB InBev to incorporate the inspections undertaken by Flexible Solutions into the sites EMS / PMP with associated proformas.

3. Hazardous waste

NRW had previously queried the washing of chemicals containers on site pending collection. The query came about following a contaminated drum being placed in a non-hazardous recycling skip. Once chemical containers have been emptied they are washed out prior to being sent back to the producer for re-use. Any runoff from the washing process is collected and sent to the sites effluent treatment plant for treatment before being sent to the offsite ETP prior to final discharge.

4. New ETP and waste provider

Suez environment is the new contractor for the effluent treatment plant having taking over from Veolia on the 31st August 2016.

NRW met with Ian Harrison from SUEZ environment, Ian is the Contracts Manager for Industrial Water and provided a very useful overview of the plans proposed for the effluent treatment plant.

SUEZ has proposed and have adopted a Process Improvement Plan (PIP) that should give a saving of approximately £280,268 per annum.

SUEZ have identified the management of the influent to the ETP as a cause of previous permit breaches. These include the use of the calamity tank for flow and load balancing, absence of automatic control and the apparent absence of communication and calamity protocols. These lead to influent spikes that impact the performance of the downstream units and it requires the use of the biological filtration and clarifier system to mitigate against breaches. In addition the filter media for the hydrogen sulphide scrubber is currently changed every 3 months.

The proposed PIP looks to improve the operation at the site as well as the associated EMS. The proposals set out in the submission report to AB InBev sets out the projects and how these projects will be implemented. The PIP identifies the management of COD load and suspended solids as a key priority and the need to establish improved balancing of COD loads that will give rise to a more constant gas flow. Investigation of the hydrogen sulphide media and the need for frequent changes will be carried out by SUEZ.

A dewatering system has been installed (2016) at the ETP for the sludge prior to being taken off site. The resulting filter cake will be utilised for solid conditioning or remediation and will result in an overall reduction in lorry movements on the site.

SUEZ will also develop a HAZOP / risk register for the ETP and will adhere to their Business Performance System (BPS) Procedure. In addition a management and process control system, ONMAC, will be utilised by SUEZ to enable the site to be proactive in the plants operation.

NRW propose to undertake an OMA at the site in Quarter 4 2017. An OMA was previously undertaken in 2015 but due to SUEZ being the new operator of the ETP an assessment will need to redone

ACTION: AB InBev to demonstrate how the sites EMS has been amended to incorporate SUEZ and their ways of working.

BOD monitoring standard

The permit EPR/BX7282IS Variation 6 requires monitoring of BOD5 for a weekly composite sample and should conform to SCA Blue Book 130 ISBN 0117522120.

The latest version of M18, Version 5 October 2016, also refers to SCA Blue Book 130 ISBN 0117522120 and follow the procedure for 5 day incubation period, with addition of ATU (allylthiourea).

M18 states:

Non specific (empirical) methods - such methods should be carefully defined and applied, as the methods themselves define the determinand. An example is biochemical oxygen demand (BOD)

where it is imperative to define length of test (5 days is normal) and whether or not allylthiourea (ATU) is to be added to suppress nitrification. Electrical conductivity is another example, the determination should be either made at a specified temperature or the measuring electrode must be temperature compensated to a standard value, usually 25°C.

Composite samples. Two types of composite sample are commonly used, flow-proportional and time-proportional. For a flow-proportional sample, a fixed amount of sample is taken for each pre-defined volume of effluent (for example every 10 m³). For time-proportional samples, a fixed amount of sample is taken from the effluent for each time unit (for example every hour). The analysis of a composite sample gives an average value of the determinand during the period over which the sample has been collected. It is normal to collect composite samples over 24 hours to give a daily mean value. Shorter times can be used with prior agreement from the Environment Agency / Natural Resources Wales.

Flow proportional sampling should be employed when the volume of effluent discharged varies significantly throughout the sampling period. When the volume of discharge is relatively constant then time proportional composites are appropriate.

Bulked composites. When a bulk sample is prepared by manually compositing a series of samples in a laboratory, it is important to consider the stability of the determinand being measured. For example, BOD will start to deteriorate significantly after 24 hours.

It may not be appropriate to collect composite samples for periods greater than 24 hours, due to the stability of some determinands, even when autosamplers are refrigerated. The following table is an example of best practice for BOD taken from M18.

Determinand	Preservation	Notes
BOD	Keep in the dark at 5±3°C, deliver to lab within 24hrs.	For best results start analysis within 24 hrs of sampling. If using a cooled composite sample, ensure analysis starts within 48 hrs of first aliquot.

The OMA undertaken in November 2011 by The Environment Agency / Natural Resources Wales had the following statement:

B: *Veolia monitoring document: WI018 lists all the methods used in Appendix 2 with STL analysts comments. The site have dropped to score 3 instead of 5 due to the storage of samples between 3 – 8 deg C. According to SCA Blue Book 130 (BOD5) sample preservation temperature is stipulated between 2 – 4 deg C and EA M18 guidance indicates 1 – 5 deg C. It is well known that at 5 deg C or below, microbial activity is inhibited, but above this temperature, biodegradation will certainly take place. A score of 3 instead of 2 has been given, because Veolia take an 8 day sample to compare with the 7 day composite – this acts as a check when comparing the two results. Typically at higher temperature with little or no gross contamination the BOD5 7 day composite result would be lower than the control sample if stored above 5 deg C. Veolia have supplied a table comparing a variety of 7 day composite and 8th day samples; the 8 day does indeed give a higher (probably truer result) than the 7 day composite, but only by a small amount. The 2011 BOD5 results submitted from the operator range from 16mg/l up to 166mg/l, against a permit limit of 200mg/l – if the results were always, in the 16 – 50mg/l range, less significance may be attributed to potential BOD discrepancies. Site has supplied records of sample storage fridge temperature and autosampler temperature. Site advise that Veolia are changing their*

operational instructions to ensure the BOD samples are stored under 5 deg C. The score of 3 still applies as this was the procedure at the time of the audit and results of BOD analysis will be reflective of those former procedures. This will be checked during future OMAs.

Two of the three fundamental elements scored 5, with the measurement techniques scoring three due to BOD fridge and composite sampler temperature as described in operational instruction. The temperature for BOD sample preservation must be below 5 deg C.

The SCA Blue Book 130 book states that 'When delay is unavoidable, the sample should be cooled immediately and paced in a refrigerator at 2-4 deg C (but not frozen) and held at this temperature until measured.' M18 states a range between 2 and 8 deg C when analysis will commence within 24 hours.

ACTION: AB InBev to confirm the procedure undertaken for the monitoring of BOD5 weekly composite in line with SCA Blue Book 130 ISBN 0117522120 and, where there are deviations from this method, provide justification. This will include the time between the sample being taken and the analysis beginning.

5. New initiatives

Following the ESOS assessment carried out there have been a number of energy saving initiatives proposed. AB InBev discussed the potential to utilise the waste heat from the boilers for use on site. NRW advised that an air quality assessment will need to be undertaken to demonstrate that air dispersion from the stacks does not have a negative impact.

6. BREF BATc update - 2016

The BREF review for the Food, Drink and Milk sector is due to have a draft version in early 2017.

The NRW sector group for the food and drink sector will be targeting containment and associated bunding as part of the objectives for 2016/1. NRW are aware that a lot of work has been undertaken by AB InBev and will be using the submitted report as part of the review.

8. Drain project update

An update on the drain project was provided with the final works planned for 2016/17. The site is still experiencing pH swings in its monitoring results. Auto-samplers have been purchased for the drains.

9. Transfrontier Shipment of Waste

Ab InBev supplied a copy of Biffas material mapping where wastes generated at the site are transferred to around the world.

MAGOR BREWERY	Destination	Reprocessor	Terms
General Waste	Biffa Avonmouth	Holland	Fixed until April 2017
Aluminium	Biffa Cardiff	Novelis	LetsRecycle Index
Card	Biffa Cardiff	China	LetsRecycle Index
Glass Rebate	Biffa Cardiff Docks	Maltha Recycling Portugal	6 month fix
Glass Transport			
Malt Dust	Animal Feed	Animal Feed	Lefte Index
Mixed Metal Rebate	EMR Gloucester	EMR	Subject to LME
Mixed Metal Transport			
PET Strapping	Biffa Cardiff	China	LetsRecycle Index
Baled LDPE 98:2	Biffa Cardiff	China	LetsRecycle Index
Stainless Steel	EMR Gloucester	EMR	Subject to LME
Wood	CS Waste Recycling	CS Waste Recycling	Fixed until April 2017
Hazardous Waste Disposal	Biffa Cardiff	Various	Fixed until April 2017

This information has been passed to the Waste National Audit Team for further assessment.

10. Site tour / inspection

Potential third Galileo

The second Galileo has been built and is being utilised. AB InBev discussed the potential for a third Galileo building to the south of the site. The reason for this is to reduce the need for offsite storage. NRW advise AB InBev to consolidate these changes into one permit variation.

The latest Galileo project has now been completed and is being used for additional storage. The surface water from this area, and the original Galileo storage area, is captured and discharged to surface water. There is an interceptor in place if there is an incident in these areas to prevent any releases to surface water as well as there being monitoring is in place for TOC and pH.

CO2 recovery plant

The site has installed a larger CO2 Recovery Plant that recovers CO2 to produce liquid CO2 for use on site.

Area to rear of fermentation

The site tour included an inspection of the rear of the fermentation area with the following comments:

Photo 1: Temporary storage of chemicals



Photo 2: Temporary storage of chemicals



Chemicals are stored temporarily before being taken inside the building for use. There is a surface water drain close to this area with no spill kits in the immediate area. NRW are aware that these drains currently feed into the onsite effluent treatment plant.

ACTION: AB InBev to provide spill kits and look into alternate arrangements to delivering the chemicals to the building. If this is not practicable procedures should be in place to minimise the time the chemicals are stored in this area with associated measures to avoid release to surface water drains.

There are surface drains in this area (coloured blue) where there is the potential for chemicals to enter. The surface drains at the moment flow to the onsite effluent treatment plant prior to discharge so any spillage would be contained. If the site proposes to discharge to surface water in the future then further improvements need to be made to reduce the potential of accidental releases

Photo 3: Overflow of foam



Overfilling of the fermentation tanks led to increased foam generated with the sites anti foaming kit unable to cope with the flow. This led to foam spilling from the over flow on the kit and collecting within the bunded area. **Considered a category 4 breach of permit condition 2.1.1. for in process controls where there was no risk to the environment.**

Photo 4: Storage inside building



Suitable storage of chemicals within the process area.

11. Returns

The following returns have been received by NRW.

Form A1 for January to 30th June 2016, emission points A5 and A6 were not operational. These are the CHP engines that have not been used for some time.

Form Gas1 for January to 30th June 2016 gave a reading of 154ppm at both the outlet of the hydrogen scrubber and at the entry to the gas engine. Limit at entry to the gas engine is 200ppm.

Form W1 for emission point W2 for Q2 and Q3 2016.

12. Environmental incident 11th/12th November 2016

Between 15:00 on the 11th November 2016 and 07:00 on the 12th November 2016 there was an unauthorised discharge of process effluent to Mill Reen via the surface water emission point reference W3. The details of the incident can be found in the Major Accident / Incident Form submitted by AB InBev referenced 'Enviro Report v2' and within the powerpoint presentation submitted by SUEZ referenced 'ABI – Untreated Discharge – Nov 16.'

The AB InBev document identified the following:

Why? 1

Why was there excess suspended solids loading at the onsite waste water treatment plant?

Cause: Due to abnormal events i.e. Waste Yeast tank clean and abnormal cleans.

Why? 2

Why did the abnormal cleans result in excess suspended solids loadings?

Cause: Due to departments not communicating with the TS Team

Why? 3

Why did the departments fail to communicate with TS?

Cause: Escalation procedure not followed as per SLA

Why? 4

Why was the escalation procedure not followed as per SLA?

Cause: Lack of understanding / training

The following reflect the breaches of the permit and the associated condition.

The unauthorised discharge of effluent via W3 is considered to be a category 3 breach of permit condition 2.2.2.3 where only emissions identified in Table 2.2.4 are permitted. The impact on water quality had a minimal effect with the impact localised around the point of discharge.

ACTION: AB InBev to provide the results of the monitoring undertaken upstream of discharge point W3 from the day of the incident.

Table 2.2.4 permits the discharge of uncontaminated surface water to Mill Reen from W3 only.

The screens were blinded leading to the effluent backing up from the sites internal drains as the pump did not have the capacity to recirculate the amount of effluent accumulating. This led to the internal drains backing up and spilling in to the nearby surface water drain located at a slightly higher gradient but in relative close proximity to the treatment area.

Photo 5: Surface water drain location



Photo 6: Waste skip and screens



Alarms for low / high flow at the ETP and at the sump would have triggered an investigation and avoided the pollution from occurring. **This is considered to be a Category 3 breach of permit condition 2.8.1 where telemetry at the site would prevent a risk of pollution.**

Other contributing factors to the incident include there being only one skip present at the time of the incident, this was due to a change in contracts and the site awaiting new skips from the new contractor as well as the location of the surface water drain. AB InBev / SUEZ have identified these within their report and have associated actions.

The SUEZ document identified the following:

	Action	Status
1	Pollution Response – clear screens of blockage, stop discharge, assess immediate impact, instigate clean-up of site, assess immediate environmental impact, notify ABI & SUEZ managers	Complete
2	Notify Regulator (NRW)	Complete
3	Assess short-term environmental impact – walk watercourse – assess visual/amenity/agricultural impact, analyse river samples for COD, assess DO up and downstream of discharge	Complete
4	Send sample of solid matter from screens to lab for assessment of constituent parts	On-going
5	Investigate source of 'out of specification' solids in brewery discharge and take action to prevent a repeat (note: pending installation of auto-samplers will assist with this)	On-going
6	Install level sensor to inlet drainage sump. Configure high-level alarm to trigger out of hours response & test	Complete
7	Consider modification of surface water drainage system – e.g. diversion of existing surface water drain around inlet to pumping sump i.e. return drainage from inlet area through the process. This will require upgrading the existing pump and sump	tbc
8	Purchase pressure washer to facilitate improved manual screen cleaning (note: in the event of a similar discharge, this action alone may not prevent a reoccurrence)	On-going
9	Monitor watercourse on daily basis and take photographic evidence. Assess dissipation of minor visual pollution over time	On-going
10	Consider configuring 'intelligent' telemetry alarm – incoming flow vs BT outflow vs BT level change over time	tbc

In addition 'out of specification' effluent was discharged to the ETP with no warning to the ETP staff. AB InBev identified this in their report stating that the departments did not communicate with the TS Team with the cause being a lack of understanding / training. **Considered a category 3 breach of permit condition 2.3.3** where it states that 'All staff shall be fully conversant with those

aspects of the Permit conditions which are relevant to their duties and shall be provided with adequate professional development and training and written operating instructions to enable them to carry out their duties.'

End



This form will report compliance with your permit as determined by an NRW officer

Site	Magor Brewery EPR/BX7282IS	Permit Ref	BX7282IS
Operator/Permit holder	AB InBev UK Ltd	Date	04/10/2016

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition. Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	CCS Category	Action required/advised	Due Date
See Section 1 above			
C2	C4	No action	31/12/2016
E3	C3	AB InBev to provide the results of the monitoring undertaken upstream of discharge point W3 from the day of the incident	28/02/2017
C2	C3	See actions in CAR Form put forward by SUEZ	28/02/2017
C2	C3	Improve communication between ETP ad TS Team	28/02/2017

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- Offering/providing you with its literature/services relating to environmental matters
- Consulting with the public, public bodies and other organisations (eg. Health and Safety Executive, local authorities) on environmental issues
- Carrying out statistical analysis, research and development on environmental issues
- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this reports should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within twenty working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with officer's line managers using the informal appeals procedure. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00 – 18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.

Welsh Language

If you would like this form in Welsh please contact your Regulatory Officer.

