Compliance Assessment Report CAR_NRW0037940

Permit being assessed: PP3238LX.
For: Barry Thermosets Plant EA/EPR/PP3238LX/V002, held by Hexion UK Limited
At: Barry Thermosets Plant Sully Moors Road , Penarth, Vale of Glamorgan, CF64 5YU.

Type of assessment carried out: Report/Data Review, Reason: Routine.
On 06/05/2021.
Parts of permit assessed: Annual report and monitoring submissions

NRW Lead Officer: Andi Kemp.
Report sent to: Ian Beatty, EHS Manager on 06/05/2021.

1. Summary of our findings (full details in section 4)

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
A1 - Specified by permit	Assessed (A)	
C2 - General Management - Management system and operating procedures	Assessed (A)	
E1 - Emissions - Air	Assessed (A)	
E3 - Emissions - Surface water	Assessed (A)	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	Assessed (A)	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	Assessed (A)	

Result types are explained in more detail in the 'Important Information' section below.

Total number of non-compliances recorded	Total non-compliance score
0	0

How we use the non-compliance score to calculate your annual fee is explained in the 'Important Information' section below.

2. What action is required?

No action required.

3. What will happen next?

Any non-compliance we have identified and recorded on this form is an offence. It can result in criminal prosecution and/or suspension or revocation of your permit.

At this time, we do not intend to take any further action.

This statement does not stop us from taking additional enforcement action if further relevant information comes to light or offences continue.

4. Details of our assessment

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Purpose Of Compliance Assessment

This compliance assessment report (CAR1) covers the following regulatory aspects:

- Quarterly monitoring data: July 2020 – March 2021
- Annual monitoring data
- Annual performance data and EMS improvement progress
- Dye testing progress
- Back up generators and MCPD
- Change of company name
- New catalyst

A variety of permit conditions require the operator to monitor emissions for particular substances, at prescribed intervals, using the most up to date standards and MCerts where applicable. Limits are set for certain parameters. Annual reporting of performance is also required as is improvement objectives and progress of these under the site EMS.

There are also requirements for environmental management systems and the operating techniques used at the site and any changes to these.

Quarterly Data Submissions

This data set covers July 2020 – March 2021 and covers W1 releases of treated effluent through the sea line to the Severn Estuary and E1, treated effluent to clean lagoon. The data is always tracked to ensure it is submitted on time and spot checked for any obvious breaches as it comes in. An OMA is due some time in 2021 / 2022, which will again revisit sampling, sample handling and preservation, analysis and data interpretation etc. The site performs its own on site analysis, is not accredited to ISO 17025, but does participate in an Aqua Check proficiency scheme – previous results have been seen and the analytical accuracy is very good.

The results are all compliant with permitted emission limit values (ELVs). There was one phenol result that was uncharacteristically high: 7.6 mg/l against an ELV of 10 mg/l (Jan. – Mar. 2021 quarter), with typical concentrations around less than 1 mg/l to 3 mg/l peak values. There was also an approach to maximum flow volume of: 6720 m^3 (Oct. – Dec. 2020 quarter) against a dry weather flow ELV of 6800 m^3; although there is another maximum (non dry weather flow) limit of 15900 m^3. The flow rate was not any higher than the other rounds and this is probably due to pump size and pipe bore restrictions and increased discharging periods.

The E1 data does not (as previously stated) provide very useful data, as it is the data from the lamella separator (post effluent treatment) to the clean lagoon. This will either be removed when the permit is reviewed or a more useful measure of influent quality data to measure against results post treatment, i.e.

W1 data.

Action 1 Hexion 6th May 2021: *Operator to provide the calculations used to derive the variable analytical method uncertainty for the COD analysis. The uncertainty various considerably, although the concentrations measured do not. Is this something to do with the measurement technique range?* **Due: 31st July 2021.**

Annual Monitoring Data

There are two monitored emission points for releases to air: A1 the boiler (which is reported via two separate stacks, B1 and B2 – this will need to be addressed in any permit review); and A2, which serves releases from several reactors via the scrubber. Several tank vents, solids handling exhaust and blender blower via bag filter, are listed but do not require monitoring. These points have been brought up in previous compliance assessment work related to ongoing identification and assessment of potential fugitive emissions.

The monitoring has been conducted at the required frequencies (A1 annual; A2 quarterly) and the results are well within compliance limits. The monitoring standards declared in the submissions aligns to the latest standards published in the .GOV.UK M2 document.

As stated earlier an OMA is due this compliance year 2021 / 22.

Annual Performance Parameters and EMS Objectives

The permit requires certain parameters to be reported annually: water and energy consumption; water and energy per tonne of product produced; total annual production; and where a formal EMS exists: a summary of the previous year's progress against identified improvements / targets.

All the required parameters have been reported and on time.

Without retrieving previous data, it is difficult to make any meaningful statement about these consumption and production figures. The regulator is aware of previous initiatives and site improvements to improve energy and water efficiency.

The annual performance report (condition 4.2.1 (a) – (e)) provides detail on the energy and water consumption, plus production figures – that report is assessed next.

The annual performance report is a useful submission and covers monitoring results, production, internal audits and water and energy use trends. Highlights are a reduction in COD and phenol releases, although the operator asserts that this [in part] may be down to market conditions, in what has been a difficult year. The operator should be commended for continuing to operate, with no incidents or breaches during the COVID pandemic. One of the BAFF chambers has been refurbished and this surely has a positive affect on treatment efficiency.

Water use per tonne of product has decreased and this reflects the installation of a reverse osmosis water pre-treatment system for the boilers. Energy use per tonne of product has also decreases, reflecting, amongst other general good management, an LED lighting initiative. 24 internal audits are planned for 2021, with an additional 8 missed from 2020. The regulator saw some of the topics in a response to a previous action in 2020. There are (at the time of the submission) 11 outstanding internal / external actions.

Action 2 Hexion 6th May 2021: *Operator to provide an update on the current outstanding actions and whether they are somehow ranked or otherwise prioritised, i.e. were any of the outstanding actions relating*

to anything considered time critical? **Due: 31st July 2021.**

A decrease in biosludge waste from the ETP, indicates improved treatment efficacy. The packaging guidance has been applied (see hazardous waste audit CAR1) and this is leading to more IBCs being re-used or recycled.

The operator has retained their registration to ISO 14001 and had two audits in that regard.

Overall, a positive picture in terms of performance and EPR compliance.

Minor Ancillary Items

Dye testing – this is used to demonstrate the continued diffuser operation and leaks in the effluent line. This is done every 5 years, but has been delayed due to works on the Cadoxton tidal flap.

Action 3 Hexion 6th May 2021: *Operator to provide an update on when this testing will be undertaken.* **Due: 31st July 2021.**

Back-up Generators – below is recorded the email conversations about these and the permit / MCPD implications.

IB: *The final design of the Emergency Back-Up Generators is underway with a view to installing in Q3. The generators have a rated thermal input of 1.2MWth each, giving a total of 2.4MWth. They will be running on gasoil / diesel with double skinned tanks for each generator. They will be test running for less than 50 hours annually. Can they be included in the current site permit or will they need a separate MCP permit?*

AK: *….my assessment of this leads to me to say, you will need to apply for a standard permit variation to include the MCP requirements on monitoring and emissions (although I note that below a certain operating hours threshold, these may not apply – I think it is <500 hr/pa as an average of 5 rolling years) and to include the new emission point(s). As these would be classed as new MCPs, they must be permitted before operation.*

IB: *Our Q3 is July to September. The aim will be to install during the annual shutdown at the end of July. I am particularly interested in any requirements the designers have to take on board at this stage. With regards to monitoring – will this be required a) quarterly, b) on start-up or c) not required due to low running hours. Will the limits be the same as the boilers?*

AK*: I attach the MCPD itself and EPR Consolidated 2016 – these collectively will direct you to what type of MCP – well we know you will be a new plant; based on 2 x 1.2 MWth; fuel type etc., that will show you what the limits are. However, for MCP on existing installations, e.g. a Chapter 4 EPR chemical site, BAT may be tighter.*

See the Tables in MCPD: Annex II, Part 2, Table 1. See Annex III for monitoring. See Schedule 24 of the EPR 2016 for energy efficiency requirements that must be built into new MCPs. See EPR Amendment 2018 MCP, Schedule 25B – as you will be a specified generator – in that case para. 6 of Schedule 25B provides an exemption from an EPR permit for back-up generators, especially if you can demonstrate to us operation of <50 hrs / pa.

So, the ELVs below may not be relevant for a back-up generator:

EPR permit has these limits for your existing boilers: NOx on gas oil – 220mg/m3 and for CO – 140mg/m3.

Under EPR implementing MCP a new gas oil fired generator will be: gas oil: NOx – 200mg/m3; diesel (other liquid fuels): NOx – 300mg/m3; SOx – 350mg/m3; dust – 20mg/m3. Monitoring (but no ELV) for CO at all plants.

Although this does not seem relevant to you now, as long as the electricity generated is only used as emergency back-up and there is no contract or link to the grid and transmission. So, what will need to happen is a permit variation to add in the two back-up generators; there won't be any ELVs or routine monitoring stipulated in the permit; but BAT will always apply as these are part of an IED installation. From time to time (3 – 5yrs) we may ask for evidence of emissions testing during maintenance and post start-up – see M5 guidance. As I've said, energy efficiency and general BAT standards need to go into the design (lean burn and trade off with NOx etc.), plus noise – although unlikely to be an issue. When the permit is reviewed, we will be applying all these MCPD requirements to the existing boilers, including ELVs and monitoring.

IB: *Further to our call today, I have more information regarding connecting to the grid. There is a connection for testing purposes and this is explained here:*

'We will have a connection to the grid while testing, gensets will be switched in monthly for testing one 500kVA genset at a time, we have applied for G99 connection with Western power for this testing instance. When the single genset is tested it will generator 415V onto one of our LV busbar switchgear section, this section will also still have its incoming supply from the grid via our HV substation, hence any excess power will go out onto the grid through our network.

So we are NOT applying to exporting power onto the grid, we are applying to TEST onto the grid with excess power, the Western Power G99 application will clearly state this once agreed.'

Does this change any of the requirements we discussed?

AK: *No, I don't think so. The intention and purpose is clear to me*.

Note, an erroneous reference to H5 guidance in AK comments above, has been amended to M5 – MCP.

Action 4 Hexion 6th May 2021: *Operator to provide an update on variation application. The determination times are currently extended and there are likely to be delays. However if an application has been duly made to NRW, this shouldn't prevent the commissioning and operation of these safety critical back-up generators.*
Due: 31st July 2021.

Amended Annual Return For Year 2020

Comments below from IB rectifying a reporting error:

On reviewing the electrical data for 2019 I have found an error. The amount used is 4910 MWh. I transposed the middle numbers and wrote 4190 MWh. The three attached returns reflect the changes as a result of this (energy per tonne produced increases from 0.38 MWh/tonne to 0.39 MWh/tonne and the decrease in electricity used is 5% not 19%).

NRW accepts this without further comment.

Change in Raw Material Catalyst

IB: *When you are available, could we please have a discussion about a proposed new raw material – barium hydroxide. It would be used as a catalyst with approx. 300kgs in a 10 te batch. We have looked at the residual amount after a batch has been made, using calcium hydroxide in a similar recipe, and estimate that*

0.0333ppm of residual barium would be present. This would then be further diluted in the effluent system. The forecast is approx. 10 batches per year.

AK: *I'm fine with this. BaOH2 won't be a risk at these levels with no Environmental Assessment level (EAL) for Ba or BaOH2 and the residual levels you predict, plus the lack of environmental hazard, especially at these low concentrations and limited batches. The receiving environment will likely have more Ba in it than your release and not enough in your effluent to influence pH. I don't think these levels will adversely affect the biological activity of your ETP either. Just update recipe and operating documents, add to your inventory, establish if any specific accident prevention measures need to be taken in the event of a raw material spill etc.*

END

If you have any queries about this report, or to discuss completion of any actions, please contact the NRW Officer named above.

Important information

Legal status of this report

Your permit is issued to you under the Environmental Permitting Regulations. You have a responsibility to comply with the conditions of your permit and prevent pollution/harm of the environment. You must also ensure that you comply with any other relevant legislation that may apply to your site's operations.

This report explains the findings of our assessment and any action you are required to take. We categorise non-compliance using our guidance for assessing non-compliance at regulated sites.

When we find potential non-compliance/s we will normally give you advice on how to maintain compliance.

To correct non-compliance, we may:

- require you to take specific actions
- issue a notice
- review the conditions of your permit.

Any advice and guidance we give will be without prejudice to any other enforcement response that we consider may be required.

Assessment results and non-compliance categories (used in section 1):

Assessment result	Description
Assessed (A)	Assessed or assessed in part, no evidence of non-compliance found
Action only (X)	Action only relating to the activity assessment
Ongoing (O)	Ongoing non-compliance, not scored

Non-compliance category	Description	Score
C1 Major	Potential to have a major, serious, persistent and/or extensive impact or effect on the environment, people and/or property	60
C2 Significant	Potential to have a significant impact or effect on the environment, people and/or property	31
C3 Minor	Potential to have a minor or minimal impact or effect on the environment, people and/or property	4
C4 No environmental impact	Non-compliance at a regulated site that cannot foreseeably have any impact on the environment, people and/or property	0.1

How we use assessment scores

The number and severity of non-compliances recorded in a year will affect your annual subsistence fee the following year. A non-compliance factor is added to your site's Operator

Performance Risk Appraisal (OPRA) score when we calculate your fee to reflect the additional resource we use to assess permit compliance.

What are suspended scores?
In line with our guidance, we may suspend scores for up to six months to allow time for remedial action to be taken. Suspended scores will be re-instated if the action is not completed.

Full list of Industry and Waste action criteria (used in section 1 and 2):

A: Permitted activities
- A1 Specified by permit

B: Infrastructure
- B1 Infrastructure – Engineering for prevention and control of emissions
- B2 Infrastructure – Closure and decommissioning
- B3 Infrastructure – Site drainage engineering (clean and foul)
- B4 Infrastructure – Containment of stored materials
- B5 Infrastructure – Plant and equipment

C: General management
- C1 General management – Staff competency/training
- C2 General management – Management system and operating procedures
- C3 General management – Materials acceptance
- C4 General management – Storage, handling, labelling and segregation

D: Incident management
- D1 Incident management – Site security
- D2 Incident management – Accidents, emergency and incident planning

E: Emissions
- E1 Emissions – Air
- E2 Emissions – Land and groundwater
- E3 Emissions – Surface water
- E4 Emissions – Sewer
- E5 Emissions – Waste

F: Amenity
- F1 Amenity – Odour
- F2 Amenity – Noise
- F3 Amenity – Dust/fibres/particulates and litter
- F4 Amenity – Pests/birds and scavengers
- F5 Amenity – Deposits on road

G: Monitoring and records, maintenance and reporting
- G1 Monitoring and records, maintenance and reporting – Monitoring of emissions and environment
- G2 Monitoring and records, maintenance and reporting – Records of activity, site diary/journal/events
- G3 Monitoring and records, maintenance and reporting – Maintenance records
- G4 Monitoring and records, maintenance and reporting – Reporting and notification to Natural Resources Wales

H: Resources efficiency
- H1 Resource efficiency – Efficient use of raw materials
- H2 Resource efficiency – Energy efficiency

Enforcement response
Any permit condition non-compliance is an offence and we may take legal action against you. Action we take can include prosecution, serving a notice on you and/or suspension or revocation of your permit. See our Enforcement and Sanctions Guidance for further information.

Data protection notice
You should make sure that anyone named in this report knows that the information it contains will be processed by Natural Resources Wales to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s).

We may also use and/or disclose the report in connection with:

- offering or providing you with our literature or services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. 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 our service
- Freedom of Information Act or Environmental Information Regulations requests.

We may also pass it on to our agents or representatives to do these things on our behalf.

Disclosure of information – this report will be available to view on-line
If you think this report contains commercially confidential information that should not be placed on our public register, you must contact your local Natural Resources Wales office within **fifteen working days** of receiving this report, using the contact details in the accompanying email or letter. You must give a full explanation of why it should not be added to our public register, including specifying which information is commercially confidential. We will assess your request and respond to you within 20 working days to let you know if we agree to your request.

What do I do if I disagree with the report or have a complaint?
If you disagree with this compliance assessment report, you should contact the lead officer without delay to discuss your concerns.

If you are unable to resolve the issue with the lead officer or their line manager you should contact our Customer Contact team on 0300 065 3000 (Monday to Friday 08:00 – 18:00), or email enquiries@naturalresourceswales.gov.uk for details of how to raise your dispute further through our Complaints and Commendations procedure.

If you are dissatisfied with our response, you can contact the Public Services Ombudsman for Wales by phone on 0300 7900203 or by email at ask@ombudsman.wales

Welsh Language Standards
We are committed to establishing Natural Resources Wales as a naturally bilingual organisation. We will provide compliance reports in your preferred language.