Compliance Assessment Report CAR_NRW0044968

Permit being assessed: DP3030ZC.

For: PB Gelatins EPR/DP3030ZC, **held by:** PB Gelatins UK Limited

At: Unit A6 Severn Road , Treforest Industrial Estate, Pontypridd, Rhondda Cynon Taf, CF37 5SQ.

Type of assessment: Site Inspection,

Reason: Incident Response (Incident number 2405677).

On: 24/04/2024 between 11:30 and 12:30.

Parts of permit assessed: Assessment of incident impact and subsequent root-cause investigation. .

NRW Lead Officer: Dale Padfield.

Report sent to: -, Health Safety and Environment Manager, on 19/08/2024.

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

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR1A - Installations - Management - General Management	C2 Significant	1.1.1
IR3B - Installations - Emissions and monitoring - Emissions of substances not controlled by emission limits	C2 Significant	3.2.1
IR4C - Installations - Information - Notification	C3 Minor	4.3.1(a)(i)

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

Total non-compliances recorded	Total non-compliance score
3	66

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?

Criteria	Action needed	Complete by
IR1A	Ensure appropriate risk assessments are conducted as part of any management of change process. Ensure the management system is updated to reflect this requirement.	31/10/2024

Criteria	Action needed	Complete by
IR3B	As above.	31/10/2024
IR4C	Update notification procedures to reflect the requirements of permit condition 4.3.1, and ensure immediate notification to NRW when any incident has the potential for significant environmental impact.	31/10/2024

Compliance criteria codes are listed in the 'Important information' section below.

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.

You are non-compliant with your permit.

We are currently considering taking enforcement action against you for the non-compliance recorded above. We will contact you in due course.

4. Details of our assessment

PB Gelatins

EPR/DP3030ZC

This compliance assessment report (CAR) details Natural Resources Wales assessment of the incident that occurred on the 23rd of April 2024. The report includes details of the subsequent investigation and non-compliance scores associated with the permit breaches in relation to this incident.

A further non-permitted discharge occurred from the installation on the 04/08/2024. This will be assessed in a separate CAR form.

Summary of the incident

On the 23rd of April at 18:40, Natural Resources Wales (NRW) Incident Communications Centre (ICC) received a report of pollution entering the River Taff from a surface water culvert that has an outfall beneath the foot bridge and the end of Bridge Road on Treforest Industrial Estate. The report stated the outfall was discharging a liquid which was grey popular colour, had a floating thick white scum and was leaving a white precipitate along the outfall / riverbank and riverbed. Furthermore, there were dozens of small dead fish at the confluence and the outfall was steaming – suggesting the discharging liquid had a highly elevated temperature.

Attendance to the incident was made by an NRW incident site controller at 20:00. The incident was substantiated, with evidence of the recent discharge visible along the rocky riverbank and pooled water. The officer observed the dead fish, which were small but with an estimated quantity to be in excess of 40. The outfall was reported to be running clear at this time; however, a source sample was taken, and the officer noted the sample felt warm, possibly around 30°C. Further samples were taken from the confluence, upstream, and downstream of the river Taff and a sample from the pooled water situated on the riverbank.

An email notification was received from PB Gelatins (PBG) at 09:15 on the 24/04/2024 detailing the failure of a newly installed section of effluent drainage pipe. The failure was identified at approximately 17:00 on the 23/04/2024. The effluent pipe ran through a surface water manhole (designated as S3). Sandbags were

present in the manhole as a precautionary measure installed during 2023, along with an inflatable bung positioned in manhole S5, also installed during 2023, which reportedly limited the escape of effluent to some degree. PBG were unable to provide an estimate of the quantity of effluent lost or the duration of the leak, however, the process typically generates $20m^3$ to $30m^3$ of effluent an hour.

Surface water drainage manholes S3 and S5, outside the A21 production building, are known to be connected to the larger surface water drainage network on the industrial estate as ascertained from previous incidents relating to effluent releases from PBG installation. For this incident the effluent pipework failure was the source of the pollution, the surface water drainage system provided the pathway, and the receptor impacted on this occasion was the river Taff.

Analytical results from the samples collected on the 23/04/2024 showed the outfall and pooled water samples to contain elevated levels of COD (1890 ~ 3620 mg/l), Ammonia (9.7 ~ 11.8 mg/l) and chloride (62.3 ~ 90.2 mg/l). As with previous releases of the PBG effluent (described in CAR_NRW040197) the effluent is seen as polluting to the aquatic environment, having a detrimental impact on the water quality and aquatic lifeforms. The samples from the confluence (where the pooled discharge on the riverbank forms a short stream to the main river) showed that the elevated levels identified above where reduced, likely due to the elevated river flow. However, the detrimental impact of the effluent is evident from the fish mortalities observed. The discharge from PB had ceased before NRW conducted the evidence sampling collection, with the outfall noted to be running clear when the samples were taken. As such, the results are unlikely to be fully representative of the true concentrations of pollutants during the time the effluent had been actively discharging. As such, any impact assessment based on these samples alone will be limited to some degree.

An inspection of the area was conducted at 11:00 on the 24/04/2024. White deposit was still visible on the riverbed within the main river (river Taff) stretching around the bridge footing and downstream, adhering to the left-hand side of the river. The river appeared to be in a relatively high state of flow. The rocky riverbank had two large pools, where water collects from the outfall before discharging into the main river. The outfall was running clear and a steady flow rate, however, thick white / beige deposits were visible within the pools, along the outfall discharge location and along the riverbank rocks. It was evident a relatively substantial release had occurred given the quantity of effluent deposits on the riverbank and the within the main river, which had yet to be displaced in the relatively high flow.

The release of process effluent to the environment is a breach of the environmental permit. The high river flow (0.583 m river level) may have reduced or limited the impact within the main river given the likely high dilution ratio. As per NRW's incident categorisation guidelines, a significant but localised deterioration in ecological status or potential of a water body meets the category 2 significant classification. The high BOD / COD, ammonia, suspended solids, and chlorides had a detrimental impact on the ecology of the river, as is evident from the fish kills identified as a result of the effluent release. Permit non-compliance scores are based of the reasonably foreseeable impact, as such consideration needs to be given to potential impact had the river been in low flow, or the implications of the failed pipe going undetected over a longer period. The effects of repeated pollution events on a river system that is already considered strained also need to be considered. Had these effects been realised, there would have been potential for significant impacts on water quality. As such, the following non-compliance will be issued for the un-authorised release of process effluent on the 23rd of April 2024.

Non-compliance: A Category 2 significant non-compliance is issued for the un-authorised release of process effluent. Permit Condition 3.2.1. It is an offence under Regulation 38(2) of the Environmental Permitting Regulations (consolidated 2016) to breach a permit condition or emission limit.

Root cause investigation

PBG had been conducting works on the drainage infrastructure as part of the new effluent treatment plant project. The final sections of new pipe work had been installed to reroute the raw process effluent from the Eastern side of the factory to the new ETP system. All the new pipe work had been laid and connected; however, the works had not been finalised as the back filling of the pipe trenches had yet to be completed. With the pipework connected but still exposed, PBG made the decision to discharged effluent through the newly installed pipework as means to assess for any leaks or issues. Without the backfill in place the exposed pipework would allow visual inspections and provide easier access should any issues have been identified.

A section of the pipe passed through a surface water manhole. As such, this section of pipe was suspended between two adjoining sections, which resulted in a section of pipe being unsupported along its length. The back fill material would have provided support for the section within the trench, but the section running through the manhole would have remained suspended and unsupported upon completion of the work.

PBG identified that, sometime after commencement of operations, the elevated temperature of the effluent travelling through the pipe resulted in the pipe softening. In its unsupported state, the softened pipe deformed, which then resulted in a failure at the pipes connection point. The failure allowed process effluent to discharge freely into the surface water manhole and drainage system, which subsequently discharged into the environment.

Mitigation measures were installed within surface water manhole 'S3' in the form of sandbags to prevent water draining through the surface water pipework. Further downstream within manhole 'S5' an inflatable bung was present for the same purpose. These were installed during 2023 as a precautionary measure following concerns of polluted water discharging from the 'North outfall'. PBG stated that these measures were regularly inspected, and the contractors had on several occasions throughout the hire period inspected and checked the pressure on the bung. However, the mitigation measures were not subject to any formal planned preventive maintenance regimes.

An environmental risk assessment for the new ETP process had been conducted, however, this risk assessment (PBGE.01.09/ERA) focuses on risks arising from the operation and does not include the installation and commissioning phase. The risk assessment does not identify the failure of pipework, during normal operation or during any commissioning or testing phase. As such, PBG indicated that this particular failure mode of the pipe had not been considered.

Evidence of PBG's compatibility and suitability checks of the pipe material ~ unplasticized polyvinylchloride (uPVC) for handling the effluent were supplied. A chemical resistance table, detailing the performance of uPVC to a range of chemicals indicated suitability for handling PBG effluent, uPVC is known to exhibit excellent chemical resistance. PBG provided copies of emails from the pipe supplier which stated that the pipe (Osma Ultra-Rib) could accept effluent up to a temperature of 60^{o}C. An agreement was made between PBG and the contractors conducting the work that the pipe would be suitable for the desired application.

It is evident that some consideration had been given to the type of pipe used for this section of drainage. Furthermore, using the uPVC drainage prior to backfilling the trench had good intentions, however, the risks of doing so had not been evaluated. uPVC piping is cited as having a maximum continuous safe operating temperature of 60^{o}C. The effluent arising from the A21 process has a typical temperature range of 50^{o}C to 60^{o}C. As such, the process effluent temperature is at the upper acceptable operating limit quoted for the pipe.

As the temperature increases, the tensile and flexural strength of uPVC pipes decrease. uPVC softens with heat, reducing its ability to withstand mechanical stress and increasing the likelihood of deformation,

particularly under load. The pipe installation was incomplete as the backfill had not yet been placed into the trench. Backfilling provides essential structural support to the pipework, helping it maintain its position and alignment. The ability of the pipe to maintain rigidity and form at these elevated temperatures and under load would have been compromised. The section of pipe traversing the surface water manhole would have remained suspended after the back filling was complete, this section would have remained susceptible to failure after the back filling was complete along the trench section.

PBG had considered material specification during the design phase, however, the risk of failure had not been identified for the section of piping that was not backfilled, along with pipe section suspended through the surface water manhole. The increased temperature and lack of structural support provided the conditions which resulted in the pipe failure. Proper consideration of these factors during design, installation and operation is crucial to ensure reliability of the effluent drainage system and for the early identification of potential risks and failure modes.

The product installation document for the pipework also provides details of a 'water test' to assess for leaks. Consideration should have been given to utilising clean water to leak test the system. This would have removed the environmental risk in the event of a pipe leak or failure. Leak testing using the process effluent is unlikely to be considered best available technique (BAT).

When a non-compliance is identified, NRW must identify the root cause, which will then be evaluated and scored separately to the initial non-compliance. The root cause of the unauthorised effluent release is seen as a deficiency within the environmental management system, whereby the risks of the maintenance works / pipework installation had not been sufficiently evaluated, resulting in the potential risk of pipe failure going un-noticed. The following non-compliance will be issued.

Non-compliance: A Category 2 significant non-compliance is issued for failing to identify and minimise the risk of pollution, including those arising from operations, maintenance, incident and accidents. Permit Condition 1.1.1. It is an offence under Regulation 38(2) of the Environmental Permitting Regulations (consolidated 2016) to breach a permit condition or emission limit.

Operating at the maximum permissible temperature limit of the pipework is inherently risky and PBG should consider if this risk is acceptable. If during normal operations the effluent is the range of 50^{O}C to 60^{O}C, PBG should consider any possible scenarios that could result in the effluent exceeding 60^{O}C such as during 'other than normal operating conditions' (OTNOC) and how this may impact on effluent temperature and subsequent impacts to the effluent drainage pipework.

Following the incident, a subsequent risk assessment identified that the location of the pipe (tracing through a surface water manhole) increased the environmental risk beyond acceptable should any further failures occur. Considering this, PBG replaced this section of piping with stainless steel piping as means to reduce the risk.

Although this reduces the likelihood of the temperature related failure mode, PBG should evaluate the suitability of the grade of stainless steel chosen for the pipework. Although stainless steel can exhibit excellent corrosion resistance, this resistance can be limited in the presence of some chemicals. Stainless steel is prone to degradation from HCl, sodium hypochlorite, and high concentrations of phosphoric acid, which are all used within the process. It's appreciated that concentrations within the effluent are likely to be highly diluted. However, chloride ions are noted as particularly problematic for stainless steel. Where there is a combination of high chlorides and temperatures in excess of 50^{O}C, there's an increased risk of chloride induced stress corrosion cracking and pitting, which can eventually result in pipe failure. The nature of the effluent is likely to require a grade of SS with an appropriate corrosion resistance classification.

PBG should take this into consideration when developing any planned preventative maintenance and inspection regimes.

Notification Requirements

PBG provided notification to NRW, however, not within the timeframe required by the permit. Permit condition 4.3.1(a)(i) requires the operator to notify NRW without delay, providing immediate notification in the event of the operation giving rise to an incident or accident which may significantly affect the environment. PBG became aware of the incident at approximately 17:00 on the 23/04/2024 and did not provide notification to NRW until 09:15 on the 24/04/2024. NRW were only made aware of the incident on the 23/04/2024 due a report made to NRWs ICC by a member of the public. PBG should have notified NRWs incident hotline as soon as reasonably practicable following discovery of the issue. Early notification of such incidents allows NRW to respond accordingly without undue delay, delaying the notification can impede any assessment and subsequent investigation.

PBG stated that regular checks were conducted on the outfall and the water entering the Taff was running clear, photos of the outfall running clear were provided by PBG. It may have been that PBG believed there was no impact on the Taff which is why there was a delay in notifying NRW. However, as a quantity of effluent residue was visible at the discharge location, indicating effluent had had been discharged, PBG should have identified the requirement to provide immediate notification to NRW's ICC.

PBG provided notification within 24 hours of the incident, demonstrating awareness of the requirement to notify NRW. However, PBG should revise their notification procedures to ensure the requirement for immediate notification during circumstances that have the potential to significantly affect the environment are captured. The following non-compliances will be issued for the delay in notification.

Non-compliance: A Category 3 minor non-compliance is issued for failing to immediately notify Natural Resources Wales of the incident that occurred on the 23/04/2024. Permit Condition 4.3.1(a)(i). It is an offence under Regulation 38(2) of the Environmental Permitting Regulations (consolidated 2016) to breach a permit condition or emission limit.

A subsequent breach of a similar nature occurred on the 04/08/2024, further enforcement action is being considered. You will be notified of any further developments. Non-compliance scoring and root-cause investigations for the incident that occurred on the 04/08/2024 will be detailed in a separate CAR form.

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.

If your assessment result in Section 1 is suspended, what does this mean?
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 compliance criteria (used in section 1 and 2):

1. Management
- IR1A – General management
- IR1B – Finance (only applicable to Landfill)
- IR1C – Energy efficiency
- IR1D - Efficient use of raw materials
- IR1E - Avoidance, recovery and disposal of wastes produced by the activities
- IR1F - Multiple operator installations

2. Operations
- IR2A – Permitted activities
- IR2B – The site
- IR2C – Operating techniques
- IR2D – Technical requirements
- IR2E – Improvement programme
- IR2F – Pre-operational conditions
- IR2G – Landfill engineering (only applicable to Landfill)
- IR2H – Waste acceptance (only applicable to Landfill)
- IR2I – Leachate levels (only applicable to Landfill)
- IR2J – Closure and aftercare (only applicable to Landfill)
- IR2K – Landfill gas management (only applicable to Landfill)

3. Emission and Monitoring
- IR3A – Emissions to water, air or land
- IR3B – Emissions of substances not controlled by emission limits
- IR3C – Odour
- IR3D – Noise and vibration
- IR3E – Monitoring
- IR3F – Pests
- IR3G – Air quality management plans
- IR3H – Monitoring for the purposes of the Industrial Emissions Directive (this heading includes Large Combustion Plants)
- IR3I – Fire

4. Information
- IR4A – Records
- IR4B – Reporting
- IR4C – Notification

Enforcement response
Any non-compliance with a permit condition 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 twenty 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 to 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.