

Compliance Assessment Report CAR_NRW0042337

Permit being assessed: DP3333TA.

For: Pembroke Power Station , **held by:** RWE Generation UK plc

At: Pembroke Power Station , Pembroke, PEMBROKE, Dyfed, SA71 5SS.

Type of assessment: Site Inspection,

Reason: Routine.

On: 17/08/2023 between 10:30 and 16:00.

Parts of permit assessed: Site Management, Operations, Emissions and Monitoring, Information..

NRW Lead Officer: Alex Bowder, accompanied by Lee Mills, Rhyddian Cox.

Report sent to: Daniel McDermott, Mark Jones, Roland Long, Regulations Support Engineer, Site Manager, Asset Manager, on 05/09/2023.

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

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR1A - Management - General management	Assessed (A)	
IR2A - Operations - Permitted activities	Assessed (A)	
IR2B - Operations - The site	Assessed (A)	
IR3A - Emissions and monitoring - Emissions to water, air or land	Assessed (A)	
IR3D - Emissions and monitoring - Noise and vibration	Assessed (A)	
IR3E - Emissions and monitoring - Monitoring	Assessed (A)	
IR3F - Emissions and monitoring - Pests	Assessed (A)	
IR4B - Information - Reporting	Assessed (A)	

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

Total 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

***This CAR was reissued on 5 September 2023 to amend minor details with regard to site processes within the commentary.**

This Compliance Assessment Report (CAR) details the comments of Natural Resources Wales (NRW) Officers for the site inspection conducted on 17 August 2023 at Pembroke Power Station, West Pennar, Pembroke, SA71 5SS for activities held by RWE Generation UK plc (the operator) under the environmental permit EPR-DP3333TA.

General compliance comments

The visit purpose was to conduct an introductory inspection of the operator's environmental permit to handover regulatory duties from Officer Lee MILLS to Alex BOWDER and Rhydian COX.

No non-compliance scores were recorded against the operator's permit conditions on this inspection.

Attendees

- Alex Bowder - Senior Regulatory Officer, NRW
- Lee Mills - Senior Regulatory Officer, NRW
- Rhydian Cox - Senior Regulatory Officer, NRW
- Roland Long - Asset Manager, RWE
- Dan McDermott - Regulations Support Engineer, RWE
- Mark Jones - Operations Manager, RWE
- Chloe Davies - Placement Student, RWE
- Rosie Howells - Placement Student, RWE
- Eleri Morgan - Engineer, RWE

Inspection commentary

At 10:15am, NRW officers arrived at the site's security station within the vehicle parking area and signed in. Once identities had been verified lanyards were issued to officers. A site safety alarm test was performed at 10:25am. Instructions to complete online inductions were sent to officers prior to the inspection, which involved viewing Health & Safety videos (gas safety control) and completing a questionnaire (COVID-19) and returning to the site security team ahead of 17 August. This was actioned.

Introductions and overview

Officers were met by Dan MCDERMOTT and then taken to the site office for briefing in a meeting room. They were then met by Roland LONG and Mark JONES. A meeting agenda was set by the operator; note - requests for any items to be included in discussions were sent to NRW prior. Introductions were had between attendees, which led onto general discussions and presentations before commencing the site tour around 11:30.

An overview of the RWE Group operations across the UK was given. The operator touched on the history of the site; detailing the change from an oil-fired gas station to the new gas-powered plant requiring the associated environmental permits being applied for and eventually issued in 2012. The Installation centres around five combined cycle gas turbinised (CCGT) units with a combined total thermal input of approximately 4.2GW and capable of a total maximum production output of approximately 2.1GW of electricity. The site is classed as a Large Combustion Plant (LCP) and are subjected to the requirements of the EU Directive on Industrial Emissions (IED) due to its MW generation threshold (> 50 MW). It is markedly one of the most efficient systems in the UK for energy return giving around 60%.

Other directly associated activities that take place are the storage of oils and chemicals (principally lubricating oil) required for the operation and maintenance.

Environmental risks

The site has sensitive receptors in its vicinity consisting of the Milford Haven estuary, a Site of Special Scientific Interest (SSSI) and a marine Special Area of Conservation (SAC). There is also a small residential development (Pennar Park).

The main environmental risks from permitted activities are:

- Emissions to air - via combustion stacks
- Discharge to water - spent cooling water
- Water abstraction - Licence 22/61/6/0156

Site safety

PPE was put on and officers were taken to site safety hut. Mark JONES delivered a brief on wellbeing and site policies with regard to alerting and identifying unsafe practices being carried out by anyone working on the site (contractors or otherwise). Pointed out the wider company's safety objective 'Mission Zero' with the premise that all accidents in the workplace are preventable.

Site cleanliness was at a good standard at the time of inspection - there were no pests witnessed. The operator has been diligently submitting its quarterly monitoring returns within the grace periods.

Water Treatment Plant (WTP)

The Main Cooling Water (MCW) system combines demineralised water sourced from the WTP from the Heat Recovery Steam Generator's (HRSG) blowdown and Sewage Treatment Plant effluent to the W1 discharge point, as indicated in the permit. The HRSG water is sourced from a mains raw water supply and is further purified prior to its use in a reverse osmosis and mixed bed polishing plant in the WTP.

Monitoring points W1(a), (b) and (c) monitor the discharge into the cooling water prior to discharge via W1.

Control room

There are five control panels within the room for each respective CCGT. Staff detailed the

five operational teams that manage the area and their shift patterns. This is operated on a 24-hour basis, and staff are contactable outside of daytime hours to answer any queries.

The control room is built around managing its compliance parameters for the various limits set out in the permit. Leigh DUFFY (shift Team Leader) described how the team react to audible alerts to balance levels as to stay within permitted (and non-permitted) usage constraints to ensure maximum efficiency for energy output. An increase in temperature can occur as part of the latent heat transfer to the cooling water when condensing steam to return to HRSG.

There are different stages of alarm depending on how severe the discrepancy. There was also an alarm in place for changes to the instantaneous flow.

Officers then left the control room and proceeded outside towards the seal pit structure north of the site. Weather conditions were noted to be mild and windy. The operator has begun researching a project that aims to calm the cascading effect of the seal pit water, which looks to reduce the amount of foam produced.

Water intake - Abstraction Licence 22/61/6/0156

A constant water supply is a vital requirement of the station's energy production process. The operator holds a water abstraction licence for non-evaporative cooling, which was issued in 2014 and expires on 31 March 2025. The operator sources its water from the inland Pennar Gut and is permitted to abstract no more than 1,200,000,000 cubic metres per year at an instantaneous rate not exceeding 40 cubic metres per second. A MCERTS scheme is required to measure the quantities of water abstracted.

The abstraction is accompanied with four drum screens, a fish return system, acoustic fish deterrent and strobe light. The operator spoke of corrosion that occurs to the rotating drums and its components. The operation needs a minimum of two wheels functioning at any one time to support the activities. It was said that the equipment has a life expectancy of around 20 years, although the water salinity gives rise to increased corrosive properties, which results in a time reduction to around 10 years for optimum performance.

This area is continually run and inspected by trained staff who evaluate all aspects of the mechanics for part replacement and to ensure environmental protection. There is an ongoing project to remove and replace the drums' stainless-steel mesh plates as they become damaged from the elements.

Dan MCDERMOTT described the monitoring programme in place and the return system, which feeds contents back into the confluence at high tide. Officers were also shown the trash pile; this is unwanted matter that makes its way into the system consisting primarily of eel grass. Staff referred to the issues that the sea vegetation can cause by clogging up the pipework, which can result in false readings and potentially block paths requiring operations to cease. Teams are deployed periodically to manage the eel grass to minimise the amount entering the system. This waste matter is collected in a skip and disposed of accordingly.

There is also an acoustic barrier erected perpendicular to the wheel drums acting as a wall from main plant to the haven.

Chemical Dosing Plant

A tanker was transferring Sodium hypochlorite (NaOCl) to storage unit at the time of

passing. The operator uses the inorganic chemical compound to prevent the growth of organisms (such as mussels) that possess the potential to impact site mechanics by choking pipelines, for instance.

The operator wasn't previously carrying out the chemical application as the overall benefit was unclear against the financial cost. It was stated that results will be analysed after a period of use to determine whether it will be continued long term.

Sampling stations

Measurement instruments are located on each of the five cooling water pipelines between the cooling water pumps and the main power plant area. The operator discussed the reliability of the flow readings and the problems that can arise.

Across the permitted boundary fence line sits a National Grid substation.

Waste storage area

There is a designated area for the segregation, separation, and storage of general waste streams. This is relatively small volume and consists of pallet wood, waste packaging/wrapping, and discarded metals. This waste is collected and recycled/disposed of by an external contractor, although managed by the operator on a daily basis.

Combined Cycle Gas Turbine - Unit 51

Officers went inside CCGT Unit 51, which was operational at the time of visit. Dan MCDERMOTT described the workings of turbine house explaining the gas/steam turbines process and the water return system. The operator was asked how the numbering of the turbine units were allocated (11, 21, 31, 41, 51).

The infrastructure surrounding the CCGTs were in good condition. The stacks measure at a height of 75m, and any weakened areas of flooring are noted by staff and scheduled for repair at the earliest convenience. No non-compliances were noted at the time of inspection.

The operator has installed lift elevation to a section of one turbine stacks to mitigate H&S risks associated with climbing stairs. There is a climbing restriction imposed limiting activity to only be carried out below 50mph wind speeds.

Meeting conclusion

Officers concluded the site tour and inspection in the meeting room. The operator presented its EPR performance update and environmental objectives for 2023 and discussed the future business plans with regard to hydrogen projects and decarbonisation. Eleri MORGAN (Engineer) detailed their Sync Comp project and green hydrogen plans.

Abstraction Renewal - Licence 22/61/6/0156

The operator's held abstraction licence is due for renewal on 31 March 2025. Discussions were had surrounding the requirements for renewing licence and what additional information should be submitted as part of the application.

NRW stated that internal consultations are ongoing between departments and NRW will inform the operator as to the next steps in due course.

Officers left site at 15:50.

If you have any issues with this compliance report, please contact Senior Regulation Officer Alex Bowder at Alex.Bowder@cyfoethnaturiolcymru.gov.uk.

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.