

Compliance Assessment Report

Report ID:
CAR_NRW0031972

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

Site	Pembroke Power Station	Permit Ref	DP3333TA			
Operator/Permit holder	RWE Generation UK plc					
Regime	Installations					
Date of assessment	27/06/2017	Time in	09:45	Out	16:00	
Assessment type	Audit					
Parts of the permit assessed	See Below					
Lead officer's name	Dunn, Karen					
Accompanied by						
Recipient's name/position	Ben Williams / Lead Environmental Engineer	Date issued	03/08/2017			

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. 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
A1 - Specified by permit	A	
B3 - Infrastructure - Site drainage engineering (clean and foul)	A	
B5 - Infrastructure - Plant and equipment	A	
C2 - General Management - Management system and operating procedures	A	
C4 - General Management - Storage, handling labelling and Segregation	A	
E1 - Emissions - Air	A	
E3 - Emissions - Surface water	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G3 - Monitoring and Records, Maintenance and Reporting - Maintenance records	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

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	0	Total compliance score (see section 5 for scoring scheme)	0
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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

PLEASE SEE FINAL ON DMS DUE TO FORMATTING ISSUES

This was a pre- arranged visit and the company representatives present were:

Ben Williams – Lead Environmental Engineer

Dafydd Williams – Environmental Engineer

The following agenda items were provided in advance:

- Update on B inspections
- Update in Environmental monitoring and actions
- Updates following oil sheen W2
- Foam update
- Progress against environmental objectives and EMS accreditation
- Site tour to include areas visited by the audit
- AOB

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Introduction

This was a routine audit and the main purpose was to catch up with the operator on a variety of matters from an update on maintenance outages or 'B inspections', environmental monitoring actions to the 2017 environmental objectives for the power station. The audit therefore took a broad approach, the main objective was to review the changes implemented by the operator following an historic oil sheen discovered at the discharge point W2. This visit was undertaken after a busy period of annual monitoring and reporting required by the environmental permit and the European Pollution Release and Transfer Register (EPRTR).

Site Overview

The visit began with a discussion on current matters concerning the business. In brief business is good and the operator has recently taken on 4 placement / year in industry students. One of the students will be assigned full time to the environment department. In recent months Tom Warrel a Shift Operations Technician had been helping with an environmental objective concerning waste management. Most recently one of the placement students from last year has been taken on full time at the Pembroke Power Station.

Update on 'B' inspections

Following an overview of current business matters the operator provided an update on the routine maintenance programme or 'B' inspections that are currently taking place at the power station. The timeline for this programme of work is still on track. Unit 31 was completed approximately a month ago at the time of the visit and unit 11 is next and this outage coincides with National Grid who are working on the substation at the same time. Some additional work has resulted from these planned maintenance checks but this has not impacted on the time line for completion of the entire programme.

There are three different types of inspection of the Gas Turbines (A B & C) which are based on Equivalent Operating Hours (EOH), Weighted Cyclic Events (WCE) or Weighted Operation Hours (WOH) calculations. The B inspections includes the entire scope of 'A' the additional maintenance checks on auxiliaries, the controls and the protection and monitoring systems. The 'B' inspections involve a visual 'borescope' of the gas turbines unlike the 'C' where it is disassembled. If anything is identified and the casing of the gas turbine needs to be opened on a 'B' inspection then this would turn into unplanned maintenance.

Update on Environmental Monitoring and any Actions

The inspecting officer (KD) advised that James Moon (JM) – NRW Senior Marine Conservation Officer is now a central point of contact internally for the NRW Marine Team from Lucie Haines (LH). The 2016 Environmental Monitoring Reports will be submitted by the operator very shortly so it was considered a timely exercise to review the notes from the annual environmental monitoring meeting held in 2016 to make sure both operator and regulator are on track with any actions. The review undertaken during this visit was found to be a useful exercise in preparation of the 2016 report submissions.

Updates Following Oil Sheen at W2

This objective was to follow up with the operator completed actions and any improvements implemented on site after an historic sheen of oil identified in December 2016 at discharge point W2 to prevent a reoccurrence. For more information on the event please refer to compliance assessment report (CAR) form reference: CAR_NRW0031130.

During this visit the operator outlined the investigation findings and actions taken to prevent oil arising at discharge point W2. As notified in line with the Environmental Permit and following a full internal investigation it was considered that the source of the oil had originated from the transformer bunds. An oil skimmer had been trialled on one of the 5 bunds and found to be a success, this has subsequently resulted in their proposed installation on all transformer bunds.



The photographs below were taken during the on-site tour. The picture left shows the belt skimmer on the transformer bund trialled on Unit 51. The skimmer was in operation at the time of the visit and was seen to be successfully removing surface water oily residue from the bund. The central photograph shows the water in the bund into which the skimmer descends and coats the belt for

recovery into an intermediate bulk container (IBC) which can be seen below right.

All surface water at the power station is pumped around the site for discharge via the permitted emission point W2. During the on-site visit the pathway from the transformer bund to the gate to W2 was walked with the operator.

On the CAR form associated with the incident the actions proposed by the operator to prevent a reoccurrence had been included and has been replicated below for ease of reference:

E3	C3	Filters within final by-pass interceptor changed and full investigation undertaken. Operator also reviewing and updating preventative maintenance on all separators and the way in which oil is recovered from the transformer bunds is under investigation	31/03/2017
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It was confirmed during this visit that the action is now complete and the filters have also been changed within the final by-pass interceptor. The old filters were evident during the site tour and were photographed in the new waste reception area (photograph opposite). Prior to going on site the operator explained that the valves on the final interceptor had also been trimmed back as a temporary modification until a permanent change can be made to



the interceptor by raising the weir in the first chamber allowing for the required retention time and preventing it by-passing the system. The investigation has discovered that the volume of water when pumped to the interceptor was resulting in the by passing of the system. When the valves were fully open the surface water was flowing over the top of the weir so by trimming back the valves and restricting the flow on the outlet pump the retention time for separation was achieved. The operator explained that the work to raise the weir would require the entry of a confined space and the need to work in a dry interceptor. The pumps used in the system are sized to prevent the flooding of the power station and large enough to cope in the event of such a situation. Preventative maintenance of the interceptors were discussed and the operator explained that they have a new on-going contract with an oil 'clean up' specialist.



During the audit the operator was able to demonstrate maintenance frequencies on the surface water system through the stations maintenance management system (PRISM). An example of an annual monitoring frequency from PRISM was traced through the maintenance system involving a pump on the retention separator and the required electrical checks undertaken by the maintenance department. The operator explained that critical environmental equipment is flagged in the maintenance system if it forms part of the aspects register in the Environment Management System.

The photographs above were taken on site and shows the final surface water chamber and the valves on the surface water system that have been trimmed back (the central pointer in the above right photograph indicates the trimming back of the valve). The surface water then leaves the site via discharge point W2.

Foam Update

Following three reports of foam in the Milford Haven Waterway concerning the Pembroke Power Station in June an update on the foam reduction project was added to the audit agenda. This update also followed an internal meeting at the station to discuss the project. At the time of the visit the operator had removed the previously installed penstocks at the rear of the seal pit. The operator had experienced issues concerning the operation of these penstocks and the torquing out of the actuators. The narrow opening also had the potential to cause cavitation and structural problems to the seal pit. Cavitation of the seal pit is a long term chronic problem not an acute one so the operator will raise the water over the weir to reduce entrainment with the operation of the front penstocks only. So far the front penstocks do not appear to be experiencing the vibration

issues that were occurring on the rear gates. The operator will continue modelling the project with the use of the front penstocks in the seal pit only for a number of weeks and continue to monitor the situation. If this is successful it will be a move away from the original plan and some amendments are needed to the modelling software for the operation of the gates. The failsafe is an open position of the gates to prevent the greater risk to the installation and the flooding of the power station. It was considered that the operation of 2 penstocks rather than 4 to achieve the required water levels in the seal pit that are in sync with all tidal conditions would reduce the risk of cavitation and operational issues. A period of time is now required to ensure that the plant modification passes the testing phase and the required level of water behind the penstock is achieved and the control software is made to reflect the change. People across the business have been involved in this project to ensure the safe implementation. At the time of the visit the covers on the seal pit had been removed due to suction causing them to vibrate. The covers will be replaced in due course. During the onsite tour the rear penstocks were seen on the ground next to the seal pit and the covers had been removed.

Progress against environmental objectives and EMS accreditation

In the last audit the operator explained that the business was opting for a corporate environment management system (EMS) that would be compiled to the ISO 14001:2015 standard. The operator advised that the corporate 'high level' plan was now complete for health and safety and the stage 1 assessment of the EMS is proposed for the end of August 2017. Prior to the stage 1 assessment an internal gap analysis is required. It is currently a busy period concerning the EMS as all the co-operate procedures need to be reviewed and decisions made on any site specific ones and update them where necessary to the new 2015 standard. An external consultant review is currently planned for end of October with the view for successful certification by the end of 2017. The operator explained that there is a working group in headquarters that aims to identify best practice in the EMS currently in use for roll out across the business. The requirement to manage and operate the permitted activities in accordance with a written EMS is outlined under environmental permit condition 1.1 'General Management'.

2017 Objectives

As this was the first audit in 2017 the environmental objectives and targets for the year were discussed with the operator along with the completion of those identified in 2016.

Pembroke Power Station Environmental Objectives and Targets 2017

Aspect	Objective	Target	Programme	Indicators	Responsible Person(s)	Environmental Contact
Waste	Establish and maintain an ordered and effective waste compound. Legal compliance with all aspects of waste management.	A well maintained and managed waste storage areas on site that are easy to use. Improved knowledge of disposal sites and their authorisations. Improved education of site staff.	Complete labelling of the waste compound. Remove all waste not currently stored correctly. Complete audits of offsite waste locations. Deliver training/ toolbox talks to all relevant employees on site.	Fully labelled and ordered waste compound and other waste areas. Audits of offsite waste sites completed. Training/ toolbox talks delivered.	Mark Jones/ Jason Morse/ Ben Williams/ Tom Warrall	Ben Williams/ Dafydd Williams
Release of CW to the Haven	Reduce foam production to an acceptable level	Implement a foam reduction system. Compile a plan for the final solution.	Inspect the installed equipment to establish its current condition. Trial controlling foam using the front gates only. Work with ACE to compile a plan to complete repair and installation of the full system.	Inspection of the installed equipment completed. Run a trial controlling foam using the front gates only and evaluate its effectiveness. Resolution meeting held and action plan produced.	Gareth Cohen/ James Bain	Ben Williams
CW Abstraction: Marine Life Impact/ CW discharge: TRO and Temp	Deliver an enhanced suite of monitoring reports from the Haven monitoring programme.	Produce reports that consider the recommendations of NRW and an independent external reviewer.	Undertake a 'storyboarding' process with Jacobs to outline the structure of the reports. Review, comment and edit the monitoring reports to enhance their robustness. Meet with NRW to discuss the reports following review by NRW and agree their conclusions, where possible.	Storyboarding sessions completed and structures agreed. Review reports and produce final versions along with Jacobs. Meet with NRW.	Ben Williams / Neil Edwards / Jacobs	Ben Williams
All	A central EMS that achieves ISO 14001 Certification	Assist central Environment and Chemistry in the development of a central EMS for all sites and distributed assets that achieves ISO14001.	Attend central EMS group meetings. Review and write documents as required by the group and test systems established for the EMS. Complete local documentation to ensure the central EMS is implemented effectively at Pembroke to support the certification.	Central EMS group meetings attended. Documents reviewed and comments returned in a timely manner. Complete compliance assessment of remaining legislation. Local documentation updated to enable implementation of the central EMS.	Dafydd Williams/ Ben Williams	Dafydd Williams
All	Ensure all staff (RWVE and term contractors) are aware of the sites and their environmental responsibilities	Undertake refresher/ initial training with all staff	Review the existing training package and revise appropriately. Set up a training session with all teams and contractors. Deliver training as required.	New training package written. Training plan developed to deliver training to all teams. Begin rolling out training.	Dafydd Williams/ Ben Williams	Dafydd Williams



The photographs below were taken which clearly show the labelled designated areas.



The 2017 objectives are similar to those in 2016 however it is clear on review that progress has been made due to the change in targets for the year. The programme includes internal audits on waste, implementation of the central EMS and improvements to the Fish Return and Recovery System. Evidence against the 2017 objectives was evident during the site tour which included the new waste storage area with associated labelled segregated areas and the trials concerning the foam with the front penstocks only. Although waste did not form part of this audit the new compound was visited during the site tour and the



The operator is currently undertaking one of the

drum screens to the Fish Return and Recovery (FRR) system involving the spray bar and nozzles as an improvement measure. The operator has identified areas for proposed improvements of the system since it was first commissioned particularly during certain

times of year when the shedding of the eelgrass etc. occurs which can clog the nozzles. As the FRR system

matures the on-going maintenance and surveillance of the system is monitored by the operator. The operator has therefore begun a trial to try and seek a resolution to some of the maintenance issues. During the time of the visit one of the spray bars on the FRR had been raised to achieve a more efficient wash of the buckets on one of the drum screen by improving the effectiveness of the spray nozzles.

The photograph opposite shows the raised spray bar on one of the drum screens on the FRR.

During the drafting of this report NRW further visited the FRR system on 27 July 2017 for an introductory visit for James Moon (JM) (NRW Marine Team Senior Marine Conservation Officer). At that time the trial was on-going and the operator was re-considering the change to an alternative measure which may include a 'fish tail' spray bar and further maintenance of the pipe work to the bar where fouling may have occurred to improve the efficiencies of the system. This work is on-going but demonstrates the operator's commitment to continual improvement and maintenance to achieve optimum efficiency of the system.

AOB

Total Residual Oxygen (TRO) analysers – Environmental Permit Conditions - 3 'Emissions and Monitoring'.

On the day of inspection Chris Harding the station chemist was in the process of replacing the Total Residual Oxygen (TRO) analysers. Commissioning was also taking place and the calibration of the instrumentation. A discussion was had over the discontinuity in the real time data was and the demonstration of permit compliance through lab testing and the trending of results to make up the average required by the environmental permit in respect of TRO. It is understood that the analysers required changing on the Heat Recovery and Steam generator (HRSG) boiler blow down.

Hydrodynamic Modelling – Environmental Permit Requirement 2.3.10

It was advised that the operator was making progress in respect of the requirements of this condition and the information will be included in the annual RWE temperature report. The deadline for this condition is on December 2017.

Annual Environmental Monitoring Reports

During this visit the operator provided an update on the timeline for the submission of the annual environmental monitoring reports. At the time of writing NRW acknowledges the receipt of the reports on 27 July 2017 with the exclusion of the RWE temperature report which aims this year to also discharge permit requirement 2.3.10 as outlined above under hydrodynamic modelling.

Quarterly Reporting (Q2) - Environmental Permitting Regulations (EPR) Quarterly Returns

On 13 July 2017 the operator submitted quarter 2 (Q2 April, May and June 2017) monitoring returns

required by the permit under conditions 3.5.1 and 4.2. Permit condition 3.5.1 requires the operator to undertake monitoring as specified in the tables in Schedule 3. Reporting conditions in 4.2 requires the operator to submit the reports of the monitoring and assessment to the regulator for the reporting periods outlined in Schedule 4 table 4.3.

On review the operator has undertaken the monitoring as specified by the environmental permit and reported it in line with the terms and conditions. The results of the emissions monitoring were found to be well within compliance and a reflection of the efficiency of the power station.

Conclusions

The scope of this audit was broad and sought to catch up with the operator on a number of on-going matters in discussion with NRW, from the foam reduction project to progress towards a certificated EMS.

No breaches of the environmental permit were identified in the areas visited by this audit. A more in depth audit approach was taken regarding the implementation of actions and subsequent on-going maintenance on the surface water system. NRW welcomes the new preventative measures taken to safeguard discharge point W2. Progress towards gaining certification of the EMS in the new ISO14001:2015 standard for Pembroke Power Station was encouraging. It is proposed that Pembroke is the pilot station and will be the first to go through the process using the new corporate approach.

Continual improvement was noticeable on site in a number of areas across the site from waste, surface water and cooling water management.

[End]

EPR Compliance Assessment Report

**Report ID:
CAR_NRW0031972**

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

Site	Pembroke Power Station	Permit Ref	DP3333TA
Operator/Permit holder	RWE Generation UK plc	Date	27/06/2017

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			

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 report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within fifteen 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.