Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	Report ID: RP3133LD/0256248

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

Site	Aberthaw Power Station EPR/RP3133LD			Permit Ref	RP3133LD		
Operator/ Permit holder	RWE Generation UK plc						
Date	25/01/2016			Time in		Out	
What parts of the permit were assessed	Emissions, noise, improvement programme						
Assessment	Report/data review	EPR Activity:	Installation X	Waste Op		Water Discharge	
Recipient's name/position	Environmental Compliance Engineer						
Officer's name	Tony Leakey			Date issued	25/01/2016		

Section 1 - Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations. A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). 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				**Condition(s) breached**
a) Permitted activities	**1**. Specified by permit	N		
b) Infrastructure	**1.** Engineering for prevention & control of pollution	N		
	2. Closure & decommissioning	N		
	3. Site drainage engineering (clean & foul)	N		
	4. Containment of stored materials	N		
	5. Plant and equipment	N		
c) General management	**1**. Staff competency/ training	N		
	2. Management system & operating procedures	C3		1.1.1(a);
	3. Materials acceptance	N		
	4. Storage handling, labelling, segregation	N		
d) Incident management	**1**. Site security	N		
	2. Accident, emergency & incident planning	N		
e) Emissions	**1.** Air	A		
	2. Land & Groundwater	A		
	3. Surface water	A		
	4. Sewer	N		
	5. Waste	N		
f) Amenity	**1**. Odour	N		
	2. Noise	C3		3.5.1;
	3. Dust/fibres/particulates	A		
	4. Pests, birds & scavengers	N		
	5. Deposits on road	N		
g) Monitoring and records, maintenance and reporting	**1**. Monitoring of emissions & environment	A		
	2. Records of activity, site diary, journal & events	N		
	3. Maintenance records	N		
	4. Reporting & notification	N		
h) Resource efficiency	**1**. Efficient use of raw materials	N		
	2. Energy	N		

KEY: **C1, C2, C3, C4** = CCS breach category **(* suspended scores are marked with an asterisk),**
A = Assessed (no evidence of non-compliance), **N** = Not assessed, **NA** = Not Applicable, **O** = Ongoing non-compliance – not scored

Number of breaches recorded	2	**Total compliance score** (see section 5 for scoring scheme)	8

If the Total No Breaches is greater than zero, then please see Section 3 for details of 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 (e.g. 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 suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

This report should be clear, comprehensive, unambiguous and normally completed within 14 days of an assessment.

Aberthaw Power Station site visit and report review 2015

Clean recycled wood

Discussions were held regarding the possible use of clean recycled wood as a biomass substitute fuel. The key issue is the level of acceptable contamination with man-made materials. Of particular interest is the presence of particle board resin because a proportion of the waste wood stream is likely to include single use pallets which use particle board block spacers.

A sample of potential recycled waste wood was examined and appeared to have more than 2% particle-based material in it as well as some other painted or impregnated wood fragments.

Limitations on "waste products other than clean waste wood" in the feedstock applied to other combustion plants burning only clean waste wood are set at 2%. This is considered to be a starting point for a contamination control level for clean recycled wood use at Aberthaw power station.

It is understood that this fuel option is currently not being pursued.

Oat Husk Trial

Details of the oat husk biomass trial are acknowledged. It is understood that this material will now be used routinely on Unit 7. Dust and fire risk controls associated with this drier dusty biomass will be reviewed at the next site visit.

Shea Nut Meal Trial

A shea meal trial is now proposed and preliminary details have been received. A trial report will be submitted in due course before commercial operation is commenced.

Deposition and soil monitoring at Natura 2000 sites (IC7)

Receipt of the following reports is acknowledged:

a) Fifth report to the Power Station and Refinery Operators August 2015 - Monitoring of vegetation and bulk soil measurements at seven potentially vulnerable Natura 2000 sites in England and Wales and model - based analysis of the data.
b) Sixth report to the Power Station and Refinery Operators November 2015 - Monitoring of acidifying and eutrophying deposition and ecological parameters at seven potentially vulnerable Natura 2000 sites in England and Wales.

The reports have been assessed by the NRW Air Quality Modelling and Risk Assessment Team and Environment Agency (Environment & Business – Air Quality Advisor) in consultation with Natural Resources Wales conservation staff and Natural England.

The aim of the monitoring programme was to provide data to increase confidence in the Environment Agency's 2006 permitting conclusion and address Statutory Nature Conservation Body concerns. The monitoring data provides information on pollutant levels and current conditions at each Natura 2000 (N2K) site and indicates that the sites may be compromised by poor air quality as total acid and nitrogen deposition is higher than the critical load at all the monitored sites. The monitoring data does not provide a means of source attribution. Confounding factors make it difficult to tease out signals from the monitoring data and the most useful information is likely to come from modelling.

Additional modelling and monitoring carried out by NRW and the Environment Agency indicates that while opted-in sites contribute to atmospheric pollutant concentrations and deposition, there are large impacts, particularly from nitrogen deposition, from other non-ESI sources.

Little real change was evident between the two vegetation surveys and conditions at the monitored sites were found to be similar to those of other sites across the country. There is no evidence of recent deterioration in site condition. This is not unexpected as vegetation response time to air pollution impacts is slow, and can take several years; the timescale reported here is not long enough to pick out any real changes. There is some evidence that pH is recovering but it is difficult to say whether or not this represents historical or more current reductions in sulphur emissions. Plant species at the sites will be influenced by changes in both acidity and nutrient and it is hard to tease the causes apart.

We recognise that the concentration, deposition and vegetation monitoring has been (and would continue to be) a very useful scientific exercise for reporting on site condition. In terms of reporting on potential impacts of ESI emissions on the N2K sites involved in the monitoring programme, continued monitoring is unlikely to provide any further insight. The monitoring to date has provided the necessary confidence in, and validation of, the modelling approaches used. On that basis further monitoring is difficult to justify. NRW Conservation staff and Natural England are comfortable with this conclusion (though the monitoring data does not address all of the issues raised by Countryside Council for Wales and Natural England in 2006; these issues have been addressed separately in the Appropriate Assessments for the coal-fired stations carried out as part of the IED Chapter III reviews).

In conclusion, the monitoring programme is to cease at the end of 2015. We note that monitoring of acidifying and eutrophying deposition and ecological parameters was undertaken throughout 2015 at the designated sites. That report, the seventh, shall be submitted to NRW by 31 October 2016, unless otherwise agreed in writing by the Agency. On conclusion of the review of that report we will formally acknowledge that IC7 has been completed.

<u>2014 Survey report (IC21)</u>

Receipt of the latest report in acknowledged. A response will be provided when comments from NRW marine specialists have been obtained.

Note that it is expected that continuing annual survey reports are expected to be required in light of proposals to reduce discharge pH that may increase metals mobility and the potential need to expand the scope to consider the impact on the Sabellaria alveolata reef features in the area.

<u>CCP Trial report (IC26, 27 & 28)</u>

The CCP performance report suggests that limited process heat and mass balance data are available. However, it is understood that all information relating to the project has been retrieved and provided to NRW.

ACTION: RWE to provide further relevant information in the event that it becomes available in the future.

Eel Regulation CBA (IC35)

An initial assessment of the report and associated cost-benefit analysis has concluded that neither screening nor alternative deterrent measures are viable. Review of this conclusion with Environment Agency fisheries colleagues to ensure consistency will take place before a final decision is made later in 2016.

It is noted that the costs of a sponsored study into eel populations and the efficacy of deterrent measures are proposed to contribute towards the compensatory measures for eel protection in the wider catchment. NRW is of the view that the study will not provide significant benefit to eel within the immediate catchment potentially impacted by the station.

NRW understands that the proposed approach discussed with Energy-UK and ESI Operators is for the Regulators to facilitate allocation of appropriate funds to assist local River Trusts with the implementation of eel passage and other improvement projects. NRW will provide further advice on this aspect when the assessment and compensatory measures process has been finalised.

Emissions review

Elevated FGD seawater discharges associated with the composite sampling regime are considered to be approaches to limit due to uncertainty in the measurements.

Discharge of acidic water treatment plant effluent without diluting cooling water flow has been investigated and corrective action to implement an interlock to prevent a recurrence is required.

A review of the tidal conditions at the time of the incident confirm that the WTP effluent is likely to have been contained in the seal pit as the water levels rose by 4-5 metres over the duration of the discharge. The displaced volume in the seal pit is estimated to be approximately 500 m3, suggesting that the quantity of effluent discharged was less than the worst case (545 m3) if the measured pH recovery requires 4:1 dilution as suggested by the laboratory tests.

Therefore, no breach of permit condition 3.1.2 (W2 discharge pH less than 5.8) is considered to have occurred as the pH had recovered before the CW pumps were restarted.

Consideration of a worst-case scenario for this system failure suggests that an outgoing tide would not result in sufficient displacement for the low pH effluent to reach the outfall structures. However, restart of one pump after a plug of effluent has descended into the outfall tunnel with an outgoing tide could result in a brief pulse of low pH seawater reaching the outfall structures. The high dilution available at the point of discharge would quickly recover the pH and so the associated breach of permit condition 1.1.1(a) for failing to manage the discharge of WTP effluent in a manner to minimise risks of pollution is considered to be of minor impact potential at category 3.

ACTION: RWE to provide confirmation that WTP/CW pump interlock has been implemented.

FGD bypass operation was reviewed during a site visit on 5 March 2015. Discussion with the duty shift manager revealed that continuous partial by-pass was being undertaken on U9 due to air heater fouling. Insufficient down time was available to carry out LP wash of the air heater.

A review of operations at the time of the discussion suggested that the current FGD Plant Operation procedure (LP/OPS/3095 – October 2014) allows pre-emptive use of FGD bypassing where any of the known conditions that can cause low seawater discharge pH are “likely to cause pH concerns”. There is no further guidance in the procedure on how much bypass should be applied and the operating set up on 5th March suggested that bypass is routinely applied as a precautionary measure. This is understandable given the headroom generally available in the

SO2 ELV compared to the seawater discharge pH constraint.

The overall impression is that FGD bypass use may not be optimised and this appears to be supported by relatively high monthly SO2 emission levels without accompanying high average coal sulphur content. Remote starting of the CW pumps is to be implemented which will provide an additional fast reaction option to deal with a falling discharge pH.

More recent discussions on 7th October indicated that coal sulphur levels are now rising in all local supplies and there may be less scope for optimising FGD bypass, SWTP energy consumption and sulphur dioxide emissions within the constraint of the seawater discharge pH limit.

Proposals to reduce the pH limit are under trial and any proposals for permanent adoption should be justified against any potential benefits in minimising SO2 emissions.

ACTION: RWE to include consideration of SO2 emissions reduction benefits in any proposal to permanently reduce the discharge pH ELV.

U9 low NOx boiler upgrade commissioning has been delayed due to construction delays resulting from safety concerns. A compressed commissioning programme will be followed.

A tour of the unit showed the extent of the work still required. Space constraints around the new cyclonic burner installation are tight.

ACTION: RWE to provide a copy of the commissioning plan ahead of unit restart.

All other emissions are within permit limits and there are no current trends that require review.

Off-site noise impacts

The turbine trip on 24th April 2015 resulting from unexplained closure of the U7 LHS IE valve and subsequent venting from the first set of reheat safety valves for 19 minutes has not been attributed to bio-fouling in the valve actuation hydraulic system. No changes to the biocide dosing regime have been made and the event remains unexplained.

A further turbine trip on 15th September 2015 was caused by a condition monitoring vibration transducer fault. The transducer failure is also unexplained. However, good system design should allow detection of sensor faults while allowing continued detection of machinery faults. The robustness of condition monitoring systems to sensor failure causing undesired trips or operator responses should be reviewed to establish whether or not cost-effective improvements can be made.

ACTION: RWE to review condition monitoring system design and provide details of any proposals to make improvements.

Both these events had potential to cause or actually caused off-site disturbance for short periods of time during the night time. However, as the duration was short, the incidents were isolated and the safety valve silencers minimised noise levels the events are not considered to be a breach of permit condition 3.5.1.

The ongoing noise increase at Limpert Bay associated with the replacement of the main boiler house wall panels and glazing at the South West end has been reviewed using the continuous noise monitoring data provided for May through to October 2015 and site assessments on 7th and 28th October 2015.

The overall measured noise levels are high, but this may reflect the elevation of the noise monitor and the proximity to the coast as well as to the station.

The average difference in measured noise levels between the period prior to the removal of the glazing and wall panels is relatively low (2-3 dB). However, the differences between peak noise levels is at least 5dB and occasionally as high as 10 dB. These high peak differences may be associated with specific wind directions or changes in station operation. A change of around 5 dB might be expected as a result of loss of attenuation provided by simple non-acoustic barriers such as glazing and wall panels. Overall, the incident category is considered to be level 3 due to the apparently intermittent nature of the highest levels of noise nuisance.

Civil asset surveys are undertaken every 5 years. The structural damage that resulted in the removal of the wall panels and glazing on safety grounds was discovered within the 5 year survey window. The lead-time for structural repairs and replacement of panels and glazing was significant due to the elevated location. The quickest repair option was the use of second hand panels and glazing from the closed Tilbury power station which required removal and transport to Aberthaw. It is understood that there were no delays in receiving capital approval for the significant costs involved.

There appear to have been limited options for mitigating off-site noise levels which will have been variable depending upon operating patterns and wind direction. However, measures to expedite the repair programme where the potential for significant environmental impact is apparent should have been possible.

Therefore, the failure to take appropriate measures to minimise the duration of the noise impact by taking earlier decisions on the most appropriate repair option is considered to be a breach of permit condition 3.5.1.

ACTION: RWE to review procedures for undertaking significant infrastructure repairs where delays may exacerbate environmental impacts and provide details of any proposals to make improvements by 31 March 2016.

Oil-filled cable leak

A minor leak from an oil-filled cable was reported on 26th October 2015. The oil loss was negligible as it was contained within the joint box. This will not be considered to be a permit breach on the assumption that routine checks detected the leak.

However, notification requirements may need to be clarified between National Grid and RWE to ensure that leaks within the installation are appropriately reporting

ACTION: RWE to review procedures for reporting NG cable leaks and confirm that normal operating pressure/level checks detected the leak.

IED Chapter III Permit Review

The review updated and consolidated the original permit and variations in accordance with the IED BAT ESI Review paper dated 28 October 2014 and the information provided in response to the Regulation 60 notice

In addition the water monitoring requirements were updated. This was limited to incorporation of monitoring for the draft LCP BREF substances not currently covered by the permit requirements. This was mainly the addition of sulphite and sulphide determinands. Agreement will need to be reached on monitoring frequency and analytical method.

Implementing the requirements of the Water Framework Directive fully will need to be done at the LCP BREF permit review, probably during 2017 and this includes re-assessment of the seawater discharge in accordance with the revised environmental risk assessment guidance H1:

(i) Undertake the H1 Annex D1 Phase 1 Part A screening tests for all hazardous pollutants known to be within the discharge, and

(ii) Phase 1 Part B screening tests for any Priority Hazardous Substance known to be within the discharge.

END

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	Report ID**:** RP3133LD/0256248

This form will report compliance with your permit as determined by an NRW officer			
Site	Aberthaw Power Station EPR/RP3133LD	Permit	RP3133LD
Operator/ Permit	RWE Generation UK plc	Date	25/01/2016

Section 3- Enforcement Response	**Only one of the boxes below should be ticked**
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.	
Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.	X
In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.	
We will now consider what enforcement action is appropriate and notify you, referencing this form.	

Section 4- Action(s)

Where non-compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.

Criteria Ref.	**CCS Category**	**Action Required/Advised**	**Due Date**
See Section 1 above			
C2	C3	RWE to provide confirmation that WTP/CW pump interlock has been implemented.	31/3/16
F2	C3	RWE to review procedures for undertaking significant infrastructure repairs where delays may exacerbate environmental impacts and provide details of any proposals to make improvements by 31 March 2016.	31/3/16

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 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 which 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 fulfill 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 (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 and taking any resulting action
- preventing breaches of environmental law
- assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Information 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 twenty working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

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

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with the officer's line managers. 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.