

# 2019 Annual Performance Report

Aberthaw Power Station

Permit Number: RP3133LD

March 2020

## Summary

This document gives details on the performance of Aberthaw Power Stations activities throughout 2019 as required by condition 4.2.2 of the Station's Environmental Permit (EP) RP3133LD.

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## 1. Operational Update

During 2019 Aberthaw Power Station operations remained significantly reduced compared to historic levels with a load factor of just 3.5% for 2019. This was primarily due to commercial and regulatory constraints driven by the UK wide policy of decarbonising the economy.

Aberthaw Power Stations Business Plan scheduled closure for September 2021. However, during August 2019 RWE Generation UK plc announced that Aberthaw would cease generation ahead of schedule on 31<sup>st</sup> March 2020. Final generation of the main Units (LCP 283) occurred on 13<sup>th</sup> December 2019 but the Gas Turbines (LCP 423) remain available for operation in the STOR market and for low frequency response until 31<sup>st</sup> March 2020.

Following the closure announcement a Decommissioning Plan was designed and drew on recent experiences at similar RWE locations. The decommissioning phase is anticipated to continue throughout 2020 before the location is handed over to RWE's Business Development team in a substantially de-risked state.

## 2. Review of Results for Emission Monitoring

### 2.1. Air Quality Review

Aberthaw Power Station continued to show reduced load factors during 2019 and as such mass emissions over the year have been substantially lower than in previous years. Table 1 below summarise point source emissions to air during 2019 and shows that in all cases emission concentrations were compliant with permitted limits.

**Table 1: Summary of compliance with ELVs for point source emissions to air for 2019 (Table S3.1 and S3.4 EP). For the monthly averages the table shows the range of monthly values**

Emission Point	Parameter	EP ELV	Validated Data	Units	Reference Period
Windshield A1	Sulphur Dioxide	<b>350</b>	46.8 – 159.3	mg/m <sup>3</sup>	Calendar monthly mean
		<b>440</b>	216.0		95%ile of validated daily means within a calendar year
	Oxides of Nitrogen	<b>500</b>	296.1 – 358.0	mg/m <sup>3</sup>	Calendar monthly mean
		<b>605</b>	403.4		95%ile of validated daily means within a calendar year
	Dust	<b>20</b>	6.9 – 18.3	mg/m <sup>3</sup>	Calendar monthly mean
		<b>35</b>	22.9		95%ile of validated daily means within a calendar year

Aberthaw Power Station is in the UK Transitional National Plan for SO<sub>2</sub>, NO<sub>x</sub> and dust and reports mass emissions of these species on a quarterly basis. The TNP scheme caps UK total emissions but is designed to allow emission allowances to be transferred between participating plants. Aberthaw was compliant with the requirements of the TNP scheme.

## 2.2. Water Quality Review

Aberthaw Power Stations low load factor has significantly reduced the overall environmental impact associated with water emissions to the Bristol Channel. However, it continued to be challenging to representatively sample the remaining emissions due their infrequency and short duration.

During 2019 new emissions monitoring analysers were installed in the stations surface water drains to continuously monitor for pH, turbidity, oil, temperature and conductivity. Following the cessation of generation it has been necessary to develop revised water emissions monitoring and reporting arrangements for approval by NRW which will be formalised following a period of data gathering.

Table 2 below summarises the results for point source emissions to water during 2019. During April 2019 the routine CW outlet sampling returned high ammoniacal nitrogen results of 0.108mg/l and 0.086mg/l above background. The higher of the two figures was reported to NRW against the permitted emission limit value is 0.1mg/l. Investigation concluded the high ammonia concentration originated from leakage of Unit 8's Boiler preservation water which contained a high Ammonia concentration for anti corrosion purposes.

**Table 2: Summary of compliance with ELVs for point source emissions to water for 2019 (Table S3.2, S3.3 and S3.4 EP)**

### a) Emission Point W2 (Cooling Water Outlet)

Emission Point	Parameter	EP ELV	Measured Data	Units	Result Type	Reference Period
W2	Differential total suspended solids	<b>50</b>	27.1	mg/l	Maximum	Monthly average of daily samples (above background)
	Ammoniacal nitrogen	<b>0.1</b>	0.108	mg/l		Monthly average of daily samples (above background)
	Differential temperature	<b>13.5</b>	8.3	°C		98%ile of continuous daily average values
	Total hydrocarbon oil	<b>3</b>	0.5	mg/l		Monthly average of daily samples
	pH	<b>5.6</b>	6.00	pH units	Minimum	Instantaneous
		<b>5.8</b>	6.03			95%ile of instantaneous measurements
		<b>8.5</b>	8.41		Maximum	95%ile of instantaneous measurements
	Mercury	<b>60</b>	2.8	kg	Annual	Annual Mass Release

b) Emission Point SWTP1, SWTP2, SWTP3 (FGD Absorber Outlets)

Emission Point	Parameter	EP ELV	Measured Data	Units	Result Type	Reference Period
SWTP1 (U7 FGD Absorber Outlet)	Mercury	<b>0.0005</b>	0.00012	<b>mg/l</b>	Maximum	Monthly average value (above background)
	Cadmium	<b>0.0002</b>	0.00001			
	Lead	<b>0.004</b>	0.0025			
	Zinc	<b>0.01</b>	0.00			
SWTP2 (U8 FGD Absorber Outlet)	Mercury	<b>0.0005</b>	0.00007	<b>mg/l</b>	Maximum	Monthly average value (above background)
	Cadmium	<b>0.0002</b>	0.00002			
	Lead	<b>0.004</b>	0.0007			
	Zinc	<b>0.01</b>	0.00			
SWTP3 (U9 FGD Absorber Outlet)	Mercury	<b>0.0005</b>	0.00025	<b>mg/l</b>	Maximum	Monthly average value (above background)
	Cadmium	<b>0.0002</b>	0.00002			
	Lead	<b>0.004</b>	0.002			
	Zinc	<b>0.01</b>	0.00			

As required by Improvement Condition 21 annual marine sediment and biota surveys have been undertaken to assess trace element discharge impacts, which have confirmed that although there has been some minor increase in mercury in the immediate vicinity of the outfall, this declines to background levels within a few hundred metres and has shown no discernible impact on the populations of the target species or on the overall communities in Limpert Bay. To this end, NRW agreed to extend the marine survey frequency to 3 yearly instead of annually due to the forecast low running expected for the future life of the station plus the consistent nature of previous marine survey results. Following the closure announcement RWE are in discussions with NRW regarding the scheduling of future biota surveys.

### 3. Annual Production/Treatment Data 2019 (Table S4.2 EP)

LCP 283: Units 7,8 and 9 coal-fired boilers	744	GWh
LCP 423: GT7, GT8 and GT9 gas oil-fired black start gas turbines	0.101	GWh

#### 4. Performance Parameters 2019 (Table S4.3, EP)

See IED AR1 and HR1 already submitted to NRW.

#### 5. LCP283 Cumulative Rolling Breakdown and Malfunction Hours

See IED BD1 already submitted to NRW.

#### 6. Contamination/Decontamination of Site

There have been no incidents or emissions which may have caused any site contamination during 2019, and, therefore, no requirement to decontaminate the site during 2019.