

20 MAY 2016

Mr A Leakey
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16th May 2016

Dear Mr Leakey,

RWE Generation UK plc, Aberthaw Power Station, Environmental Permit RP3133LD

RE: Emissions to air reporting – revision of Efficiency Line calculations for Units 7, 8 and 9 based on April 2015 to March 2016 data

The Efficiency Lines being used with the station's Multiple Emissions Reporting system (MERS) have been revised to reflect the latest thermal efficiency data for the April 2015 to March 2016 period. The Efficiency Lines were last revised in June 2014. Unit 9 has been fitted with Low NOx Boiler technology from January 2016.

The MERS efficiency polynomial calculation is in line with JEP guidance PT/07/LC419/R "A surrogate CEM for on-line calculation of stack gas flow rate from coal fired power stations" (May 2007), and is of the form:

MERS calculation: $n_i = K_0 + K_1 * G_i$

Where: n_i = Online unit generation efficiency
 K_0 = Polynomial calculation constant, $K_0 = n_f - m * O_f$
 K_1 = Polynomial calculation constant, $K_1 = m/MCR$
 G_i = Unit generation load

The efficiency-load linear relationship gradient (m) is set at 0.05. The unit maximum continuous rating (MCR) is defined as 533 MW (generated). The values of average generated normalised load (O_f) and average efficiency (n_f) have been calculated using thermal efficiency data for April 2015 to March 2016.

The Efficiency Line calculations are used to calculate the flue gas volume for a given generated load and hence to calculate mass emissions to air for SO₂, NO_x and particulates (using concentration data). The new Coal fuel factor has been implemented from 1st January 2016 from 0.364Nm³/MJ to 0.359Nm³/MJ. For Units 7 the change in the efficiency line factors will lead to a net decrease in calculated flue gas volume of around 1.36%. For Unit 8 the change in the factors leads to a net decrease in calculated flue gas volume for a given load of around 1.10%. For Unit 9 the change in the factors leads to a net decrease in calculated flue gas volume for a given load of around 1.58%. Generally the thermal efficiency of the units has been maintained due to plant investment, reliability and base-load regime, with a continued focus on efficiency optimization.

RWE Generation

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The Efficiency Line calculations within MERS were revised from 1st April 2016, and have been used to calculate mass emission to air since that date.

Please contact Amy Lavisher on the above telephone number if you have any questions or if clarification is required.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Richard Little'. The signature is written in a cursive style with a large 'R' and 'L'.

Richard Little
Station Manager