



27th May 2020

Ref: JP3632ZH – A1 CEM over 10 days invalid

Dear Tony Leakey

We have recently had some issues with the CEM on A1 vent point. This CEM has now logged over 10 invalid days for the year so far (currently at 12). We have investigated this issue.

Findings

Periods of invalidation started to be recorded on 6th March. These went on intermittently until 23rd March, where they stopped completely. Looking at the trends in Envirosoft there were some days where the sensor was showing periods of 30 minutes where it had one reading and then 30 minutes where it had a different reading. This is usually consistent with one of the sensors in this dual channel unit beginning to fail. Work notifications were put in on 17th March and 19th March by 2 different operators, but checking back with the analyser department, checks were done and no issues were found. Nothing was changed.

The issues coincided with work going on in the control room for the replacement of GT-B, there was a lot of cabling and electrical work being carried out, which generated some spurious alarms on the DCS, this may have distracted the operators away from an Envirosoft alarm on HRSG-A.

LAND visited the site on 15th & 16th April to carry out the 6 monthly service checks, on arrival they reported no issues with the sensors or analyser. There have been no further invalid days since 23rd March 2020.

In this case, we are not sure what caused these invalid days, and why the situation rectified itself.

LAND service report details

FGA950E s/n= 0292699 HRSG001A

System Ok on arrival. Pre service parameters taken and analysed. Analyser powered off and all services isolated. Service performed in accordance with OEM procedures and maintenance schedule. System leak check performed. Instrument Calibrated, the sensor gains have been adjusted and all drift values reset. Post service & Calibration parameters taken and analysed. Instruments left in a fully operational condition without faults present. Leak test performed, using Land manometer. Resulting in no leak found. A visual inspection of the system was done. Small advisories, on weathering to auto cal PCB. Clips and brackets broken causing stress and tension to pipes and cables. Outer enclosure signs of corrosion.

1. Cleanliness – Internal condition of Analyser was good. Externally slight weathering.
2. Visual condition of sampling system - Overall in good condition inside of the unit with signs of weathering to the exterior.
3. Leak test (manometer) - Gas path integrity was found to be sound.
4. The Land analyser functions as an extractive analyser drawing the sample from the stack and passing the sample over Individual Electro-chemical Sensors in order to measure CO, O2 and NO.
5. The response time of the Sensors to calibration gas is something which is measured during Linearity testing of the unit.

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Actions to prevent this happening again

- Communicate to the operators the importance of reporting issues LAND / Envirosoft alarms, especially repeated ones as it may be an early warning of an instrument failure.
- Add LAND/Envirosoft sensor alarms to Pi to enable weekly reporting via email.
- Set up a report to email weekly to the run plant engineer, analyser specialist and environmental specialist to highlight alarms on any of the the LAND/Envirosoft sensors. This will give a better early warning of potential issues.

Appendix 1 contains the invalidation log (with reasons for each line)

Appendix 2 contains CEM trends for NOx, CO and O2 for all the invalid days

If you require any further information, please contact me using the details below.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Judith Sartor', with a stylized flourish at the end.

Judith Sartor, Environmental Specialist

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Email judith.sartor@dow.com

Appendix 1

Invalidation Log

CONTINUOUS MEASUREMENT SYSTEMS INVALIDATION LOG

QUARTERLY RETURN

Q1

Year: 2020

Operator:

Dow Silicones UK Ltd

Form: IED CEM1

Monitor positioned on release point/LCP Number:

A1 / LCP 60

Version/Date: V 3.1 31 Dec 2016

Permit/Variation Number:

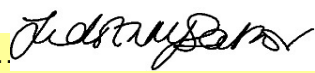
EPR/JP3632ZH/V002

Barry Cogeneration Plant

Date	Period of invalidation (hours)	Invalidated days in year	Comments
06/03/2020 - 08/03/2020	22 hrs	3.	
10/03/2020 - 10/03/2020	17 hrs	4.	
12/03/2020 - 13/03/2020	22 hrs	6.	
15/03/2020 - 15/03/2020	7 hrs	7.	
17/03/2020 - 17/03/2020	7 hrs	8.	
19/03/2020 - 20/03/2020	24 hrs	10.	
22/03/2020 - 23/03/2020	12 hrs	12.	

NOTES:

(a) Compliance in Chapter III of the IED is on the basis of validated hourly averages, measured by continuous monitors (except where discontinuous exemption applies). And confidence intervals are incorporated to convert the measured hourly value into a validated measurement for the purpose of compliance assessment. However, any day in which more than 3 hourly average values are invalid (due to malfunction or maintenance of the continuous measurement system) shall be invalidated for the purpose of compliance assessment. If more than 10 days are invalid over a year the operator shall, within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and implement the approved proposals.

Signed on behalf of the Operator by: 

Judith Sartor, Environmental Specialist

Date of return: 28th April 2020

Appendix 2
CEM trends for
Invalid Days





