

Annex F

## Investigation Report

**Investigation Report of CEMS Exceedances**

Date	1 - 31 August 2023
Time	Continuous monitoring throughout August 2023
Monitoring Location	Continuous Environmental Monitoring System (CEMS)
Parameter	Various emission parameters of the Centralised Air Pollution Control Unit (CAPCS), Cogeneration Units (CHPs) and Ammonia Stripping Plant (ASP)
Exceedance Description	<p>1. Continuous monitoring was carried out at the CAPCS, CHP and ASP throughout the reporting period using the CEMS. According to the EM&amp;A Manual, exceedance is considered if the emission concentration of the concerned pollutants is higher than the emission limits stated in Tables 2.2, 2.3 and 2.5 of the EM&amp;A Manual (Version F) for CAPCS, CHPs and ASP respectively. The concentrations of the concerned air pollutants were monitored on-line by the CEMS. Exceedances of various emission parameters were recorded on the CEMS including:</p> <ul style="list-style-type: none"> <li>• Total Odour (NH<sub>3</sub> and H<sub>2</sub>S) from the CAPCS;</li> <li>• NO<sub>x</sub> and SO<sub>2</sub> from the CHP1;</li> <li>• NO<sub>x</sub>, SO<sub>2</sub>, and HCl from the CHP2;</li> <li>• NO<sub>x</sub>, SO<sub>2</sub> from the CHP3; and</li> <li>• NO<sub>x</sub>, SO<sub>2</sub> and NH<sub>3</sub> from ASP.</li> </ul> <p>2. The Contractor has investigated the cause of the exceedance and identified that:</p> <ul style="list-style-type: none"> <li>• The exceedances of NO<sub>x</sub>, SO<sub>2</sub>, and HCl from the CHPs, as well as the exceedances of NO<sub>x</sub>, SO<sub>2</sub> and NH<sub>3</sub> from ASP occurred due to system instability.</li> <li>• The exceedances of Total Odour (NH<sub>3</sub> and H<sub>2</sub>S) from the CAPCS were caused by the filter being blocked and the sensor head being clogged with moisture.</li> </ul>
Action Taken / Action to be Taken	The Contractor investigated the reason for the exceedances and arranged Remedial Works and Follow-up Actions (see below).
Remedial Works and Follow-up Actions	<ul style="list-style-type: none"> <li>• The Contractor has arranged the CHP supplier to inspect, analyse and improve CHP performance in September 2023 based on final reports of the quality assurance level 2 test (QAL) for the CEMS calibration. Improvement recommendation will be provided once the report is received.</li> <li>• The Contractor has also arranged cleaning of the ASP in September 2023 to restore the treatment efficiency of the ASP.</li> <li>• Finally, the Contractor has arranged for the calibration of the NH<sub>3</sub> and H<sub>2</sub>S sensors of the CAPCS in September 2023.</li> </ul>

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