

TECHNICAL MEMORANDUM

To	Michael Hartley, michael.hartley@cleanaway.com.au
From	Natalie Shaw, natalie.shaw@katestone.com.au
Client name	Cleanaway Operations Pty Ltd
Deliverable No.	D24578-12
Subject	Bromelton Energy and Resource Centre: Response to OCG Information Request – Air Quality
Date	8 June 2026

Dear Michael,

Katestone Environmental Australia Pty Ltd (Katestone) has reviewed the comments received 1 May 2026 from The Office of the Coordinator-General (OCG) relating to the *Bromelton Energy from Waste Facility – Air Quality Assessment Rev C Issued for Approval* (Katestone Document Reference D24578-11, February 2026). Katestone attended a meeting with OCG, the Department of Environment, Tourism, Science and Innovation (DETSI), Cleanaway, ARUP and Ramboll, on 25 May 2026 to discuss all matters relating to air quality. On 2 June 2026, DETSI provided additional issues to be addressed.

The comments in relation to air quality received in the OCG request 1 May 2026 (Items 12 to 23) and DETSI's additional issues ((a) to (c)) are reproduced in Attachment A and Attachment B, respectively. Katestone's responses to both are also included.

If you have any questions, please do not hesitate to contact the undersigned.

Kind regards,

Natalie Shaw

Team Leader – Approvals Air Quality

ATTACHMENT A RESPONSE TO OCG INFORMATION REQUEST

Item 12 Emissions monitoring methods

Information Requested

The Air Quality Assessment (AQA) provided as part of the application material (reference D24578-11, revision C) contains reference to the Waste Incineration (WI) Best Available Techniques Reference Documents (BREF) that outlines approximately 37 Best Available Techniques (BAT) requirements, including BAT 4, which mandates that emissions to air must be monitored using European (EN) standards. If EN standards are unavailable, ISO, national, or other international standards of equivalent scientific quality must be used. In Queensland, Australian Standards (AS), which are largely based on US EPA standards, are used. The AQA report did not provide a clear comparison of the monitoring results obtained using EN or AS. Further to this, no information was provided if any of the Australian laboratories are NATA-accredited for EN standards. A discussion on EN monitoring standard equivalence to AS is crucial to understanding the application of WI BREF to the assessment of air emissions from the proposed development and subsequently to conditioning of the proposal.

The proponent is requested to submit a revised AQA report with a section discussing EN monitoring standards and Australian Standards, including an assessment of the scientific equivalence of the two methods and clarification if any Australian Standards or EN standards will be used. The applicable Australian Standards must be identified for each parameter.

Response

Monitoring standards

The Project acknowledges that the Waste Incineration BAT Conclusions (2019) require emissions to air to be monitored using EN standards, and where EN standards are unavailable, ISO, national or other international standards that provide equivalent scientific quality. For this reason, the proposed monitoring framework adopts Australian in-stack Standards where directly applicable (notably AS 4323.1 Stationary source emissions, Method 1: Selection of sampling positions and measurement of velocity in stacks and AS 4323.2 Stationary Source Emissions - Determination of Total Particulate Matter - Isokinetic Manual Sampling - Gravimetric Method) and otherwise applies the relevant ISO and USEPA reference methods for each pollutant – the final selection of which will be undertaken in consultation with DETSI and based on the availability of suitable qualified and certified stack and CEMS QA/QC testing specialists. Each CEMS will be subject to commissioning, initial calibration and ongoing QA/QC consistent with either USEPA performance specification / Appendix F QA regime or EN 14181 and EN 15267-3, supported by ISO/IEC 17025 (NATA) accredited testing.

Proposed test methods are summarised in Table A1 to Table A3, subject to agreement with DETSI and availability of suitably accredited stack and CEMS QA/QC testing specialists.

Table A1 Continuous pollutants (CEMS) and commissioning / initial calibration reference methods (SRM = Standard Reference Method)

Pollutant / parameter	EN / ISO reference for SRM / CEMS QA	Applicable Australian in-stack Standard	Equivalent USEPA method / PS / procedure	Proposed project approach
Dust (PM)	Manual SRM: EN 13284-1; QA: EN 14181; certification: EN 15267-3	AS 4323.2:2023	USEPA Method 5/17; CEMS PS-11; QA Procedure 2	USEPA or EN 14181-aligned QA with correlation to AS 4323.2 or equivalent SRM
TVOC	EN 12619 (FID SRM); QA via EN 14181	None identified (in-stack)	USEPA Method 25A; CEMS PS-8; or Method 320 / PS-15 (FTIR)	Commission using USEPA or EN method depending on analyser type

Pollutant / parameter	EN / ISO reference for SRM / CEMS QA	Applicable Australian in-stack Standard	Equivalent USEPA method / PS / procedure	Proposed project approach
HCl	EN 1911 SRM; QA via EN 14181	None identified	USEPA Method 26A; CEMS PS-18 + Procedure 6	USEPA equivalent acceptable under BAT 4 equivalence
HF	No specific EN SRM identified; ISO 15713 (HF as fluoride)	None identified	USEPA Method 26A; FTIR (Method 320 / PS-15) where relevant	ISO or USEPA method adopted with equivalence justification
SO ₂	EN 14791 SRM; QA via EN 14181	None identified	USEPA Method 6/6C; CEMS PS-2	EN or USEPA equivalent depending on accreditation
NO _x	EN 14792 SRM; QA via EN 14181	None identified	USEPA Method 7E; CEMS PS-2	EN or USEPA equivalent depending on accreditation
CO	EN 15058 SRM (NDIR); QA via EN 14181	None identified	USEPA Method 10/10A; CEMS PS-4 / PS-4A	EN or USEPA equivalent depending on accreditation
NH ₃	EN ISO 21877 / ISO 21877 manual SRM	None identified	USEPA CTM-027; Method 320 / PS-15 (FTIR)	ISO or USEPA method depending on analyser and validation
Hg (continuous)	EN 14884 (AMS), correlated to EN 13211 SRM; QA via EN 14181	None identified	USEPA PS-12A; QA Procedure 5	USEPA CEMS framework or EN-based approach

Table A2 Additional parameters (normalisation and reference conditions)

Parameter	EN / ISO reference	Applicable Australian in-stack Standard	Equivalent USEPA method / PS / procedure	Proposed project approach
Oxygen (O ₂)	EN 14789 – paramagnetic SRM for O ₂ ; used for normalisation of emissions to reference O ₂ concentration	No dedicated AS identified; covered via general stack testing practice alongside AS 4323	USEPA Method 3A; CEMS acceptance under PS-3 (O ₂ /CO ₂)	O ₂ CEMS will be installed and maintained consistent with EN 14181 or USEPA PS-3; used for regulatory normalisation to reference O ₂ levels
Moisture (H ₂ O)	EN 14790 – condensation/adsorption SRM for water vapour	No dedicated AS identified; typically determined using international reference methods	USEPA Method 4 (moisture determination)	Moisture determined via periodic testing (USEPA method or EN) and/or derived from CEMS/FTIR where installed
Temperature (stack gas)	Covered under EN 15259 / ISO 15259 measurement planning and reference quantity definition	Included within AS 4323.1 stack measurement activities	USEPA Method 2 includes temperature measurement as part of flow determination	Temperature monitored continuously using calibrated thermocouples, verified during stack testing
Pressure (static / differential)	Covered under EN 15259 / ISO 15259 (measurement planning and reporting)	Included within AS 4323.1 stack measurement activities	USEPA Method 2 includes pressure measurements required for flow calculations	Pressure monitored continuously for flow and normalisation; verified during commissioning tests

Table A3 Periodic (spot sampling) pollutants

Pollutant	EN / ISO reference	Applicable Australian in-stack Standard	Equivalent USEPA method / procedure	Proposed project approach
PCDD/F (dioxins and furans)	EN 1948 Parts 1–3 are the reference suite for sampling, extraction/clean-up and identification/quantification of PCDD/F; developed for waste incineration and validated around WI-relevant concentrations.	No directly applicable in-stack AS identified for PCDD/F in the standards reviewed.	USEPA Method 23 is the U.S. reference method for PCDD/F from stationary sources.	PCDD/F will be measured by USEPA Method 23 or by EN 1948 Parts 1–3 where feasible.
PAHs	No dedicated EN stack SRM for PAHs has been identified in the reviewed WI standards. EN 1948 guidance states that a PCDD/F test cannot also be used to measure PAHs under that framework.	No directly applicable in-stack AS identified for PAHs	Revised USEPA Method 23 now includes PAH in its extended target analyte scope; CARB Method 429 is also a recognised stationary source PAH method.	PAHs will be measured using a USEPA Method 23-based or CARB 429 method under accredited scope. If strict EN-alignment is required for PCDD/F, a separate PAH train/method will be used.
Cd, Ti, As, Co, Cr, Cu, Mn, Ni, Pb, Sb, V	EN 14385 is the manual reference method for these metals in stationary source emissions; it is validated for incineration exhaust gas.	No directly applicable in-stack AS identified for this metals suite	USEPA Method 29 is the equivalent U.S. multi-metals method.	These metals will be monitored using USEPA Method 29 or EN 14385, depending laboratory scope and conditioning requirements.
Hg (periodic)	EN 13211 is the manual mercury SRM. EN 14385 notes that where mercury is to be determined as well, it is sampled in a side stream arrangement using EN 13211.	No directly applicable in-stack AS identified for periodic mercury	USEPA Method 29 includes Hg; USEPA Method 101A may also be used for Hg-only applications.	Periodic mercury will be measured by USEPA Method 29 where a combined multi-metals/Hg run is preferred under accredited scope or EN 13211 where EN is used.

Assessment of scientific equivalence: EN versus Australian practice

The scientific equivalence issue is primarily one of measurement principle, sample handling, QA/QC and accreditation, rather than geography. For the principal pollutants, the EN SRMs and the methods commonly used in Australia are based on the same or very similar analytical principles, for example: gravimetric/isokinetic sampling for dust; chemiluminescence for NO_x; NDIR for CO; FID for TVOC/organic carbon; wet-chemical absorption followed by ion analysis for acid gases; and ICP/AAS/CVAA-type analytical methods for metals.

The principal difference between the European and Australian/US derived approaches is the compliance framework for CEMS:

- The EN approach uses EN 14181 for QAL2 (Quality Assurance Level2), QAL3 and AST (Annual Surveillance Test), together with equipment type-testing/certification under EN 15267-3
- The U.S./Australian practice typically uses a combination of USEPA performance specifications and Appendix F QA procedures for CEMS acceptance and ongoing QA/QC.

Accordingly, the two approaches can be considered scientifically equivalent where the following are demonstrated for each pollutant:

- Equivalent analyte definition and measurement principle
- Representative sampling and appropriate sample conditioning

- Reporting on a comparable basis (dry gas, standard conditions, oxygen correction where required)
- Suitable method uncertainty/detection capability relative to the applicable limits
- Method execution by a laboratory with NATA accreditation for the nominated method.

In general, EN 14181 is considered to be slightly more rigorous than the USEPA performance specifications for CEMS initial commissioning and QA/QC calibration.

Item 13 Cumulative impacts

Information Requested

Section 4.5 of the AQA report discusses future industries within a 20 km radius of the project, which represents the modelling domain of the local airshed. However, the report does not include consideration of the future Kalfresh Scenic Rim industrial project, located approximately 18 km from the proposed BERC facility. This project includes composting, an anaerobic digester, and a biogas power generator, which may contribute to cumulative air quality impacts in the region.

The proponent is requested to submit a revised AQA report to include a discussion of the potential air quality impacts of the Kalfresh Scenic Rim industrial project and its contribution to the local airshed. This should include an assessment of the cumulative impacts of emissions from the proposed BERC facility and the future Kalfresh project within the 20 km modelling domain.

Response

The Kalfresh Scenic Rim Industrial Project is located more than 33 km from the BERC project (Figure A1) and therefore lies more than 23 km outside of the modelling domain used for BERC.

The Kalfresh Scenic Rim Industrial Project - Air Quality Assessment (Appendix Q) authored by MWA was reviewed to understand the nature and scale of emissions associated with the proposed facility. The Kalfresh Air Quality Assessment considered receptors up to 1.5 km from the Kalfresh Scenic Rim Industrial Project.

The MWA assessment found ground-level concentrations of pollutants from the biogas plant that would also be emitted from BERC were less than 10% of the air quality objects at the worst-affected receptor, with majority of pollutants less than 1% of their relevant air quality objectives.

Given the substantial separation distance between the two projects, the localised nature of the predicted impacts identified in the Kalfresh assessment and the low predicted off-site pollutant concentrations associated with each development, cumulative air quality impacts between the Kalfresh Scenic Rim Industrial Project and the proposed BERC facility are considered unlikely.

On this basis, the conclusions of the BERC Air Quality Assessment regarding compliance with applicable air quality objectives and acceptable impacts to the local airshed remain unchanged.

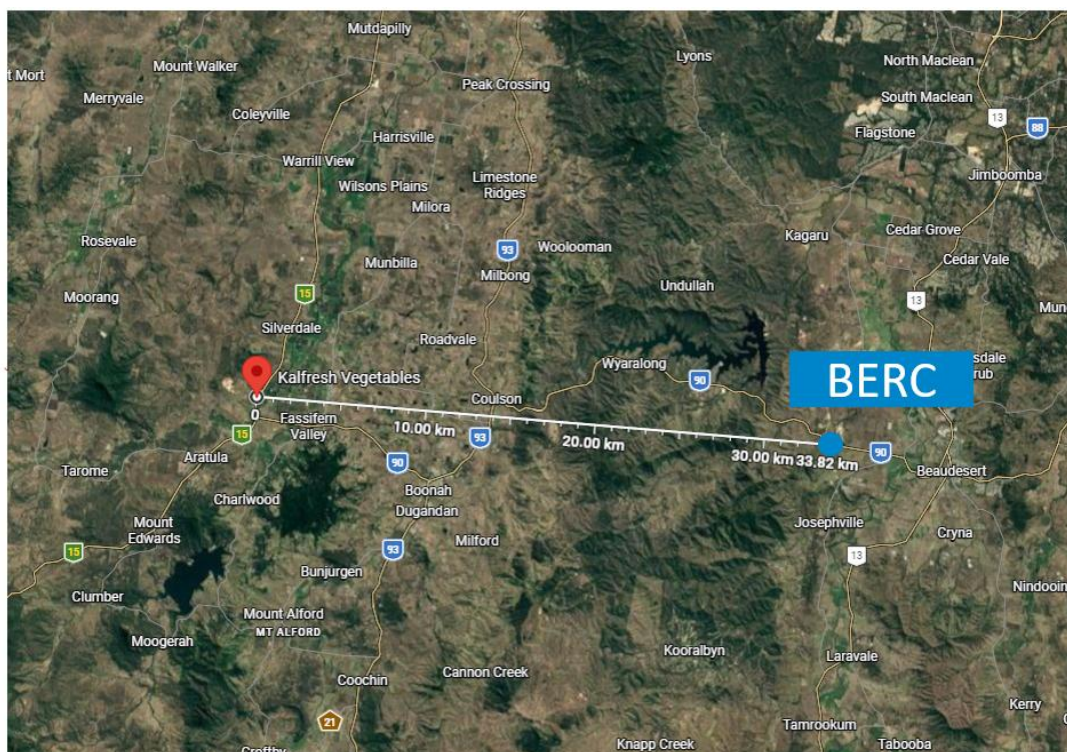


Figure A1 Kalfresh and BERC Locations

Item 14 Worst case scenario modelling

Information Requested

Section 5.2.4 of the AQA report discusses dispersion modelling scenarios but assumes a worst-case scenario where one line operates at short-term emission limits while the other operates at the daily average (upper) concentration limit. This does not represent the true worst-case scenario, as emissions would be significantly higher if both lines were operating at short-term emission limits. Under non-routine conditions, it is possible for both lines to operate at short-term limits, which has not been accounted for in the modelling.

The proponent is requested to submit a revised AQA report to include a scenario where both lines are operating at short-term emission limits to accurately assess the worst-case impact.

Response

The dispersion modelling scenarios presented in Section 5.2.4 of the Air Quality Assessment were developed to represent conservative operating conditions for the facility. The adopted worst-case assessment scenario assumes one combustion line operating at the applicable short-term emission limit, while the second combustion line operates at the upper daily average concentration limit concurrently with worst-case meteorological conditions for pollutant dispersion.

This approach is considered appropriate and conservative as it reflects a credible upper-bound operating scenario for the facility. Short-term emission limits are intended to account for transient operating conditions and brief fluctuations in emissions, whereas daily average limits represent the upper range of normal continuous operation. Modelling one line at the short-term limit while the second line operates at the upper daily average concentration limit therefore represents a conservative combination of elevated and sustained emissions occurring simultaneously.

In addition, the modelling assumes that emissions occur continuously at the applicable limit values for all assessed pollutants. A review of actual measured emissions data from existing Energy from Waste

facilities demonstrates that operational emissions are typically well below the applicable emission limit values. Given that the proposed BERC would utilise comparable combustion and air pollution control technology, actual operational emissions are expected to similarly remain below the prescribed limits during normal operation. Accordingly, the adopted modelling assumptions are considered conservative and representative of a worst-case assessment.

A scenario where both combustion lines simultaneously operate at short-term emission limits has not been specifically assessed as this would represent an extremely unlikely combination of independent events. The two combustion lines are designed and operated independently, with separate moving grate combustion systems, separate flue gas treatment systems and independent process controls (Refer Figure A2). Waste is supplied to each line by separate cranes operating from a mixed waste bunker, meaning the waste composition to each line is unlikely to be identical at any given time.

As a result, it is unlikely that both lines would simultaneously process the exact same waste stream characteristics or experience the same transient combustion or flue gas treatment conditions concurrently. Similarly, any operational upset, combustion instability, or temporary reduction in treatment efficiency affecting one line would not reasonably be expected to occur simultaneously on the second line.

Furthermore, the maximum predicted ground-level concentrations are associated with infrequent worst-case meteorological conditions. Accordingly, simultaneous operation of both lines at short-term emission limits at the exact same time as worst-case meteorological conditions would represent an exceptionally conservative and unlikely scenario.

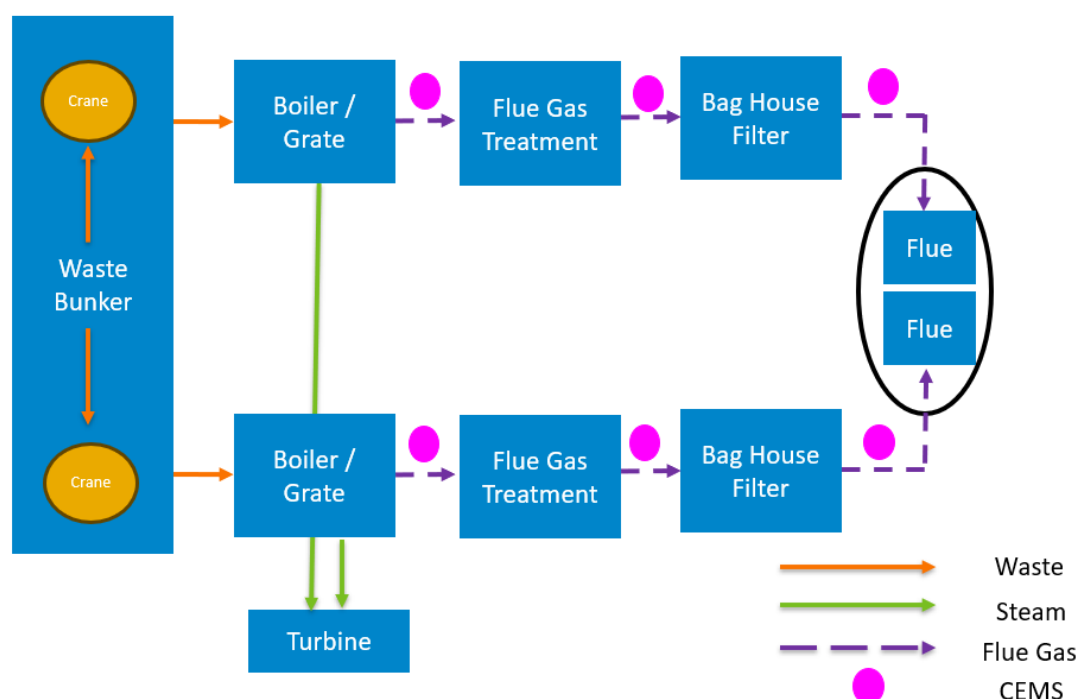


Figure A2 Schematic of Two Line EfW System

Item 15 Potential final design changes

Information Requested

The modelled mass emission rates for the Flue Gas Treatment (FGT) stack were estimated using EU BREF concentration limits for waste incineration and boiler design specifications, based on the flue gas volume flow rate. However, the project design is not yet finalised, and there is a possibility that stack parameters may change after the selection of the moving grate technology provider and finalisation of the project components. These changes could affect the emission rates and the modelled ground-level concentrations (GLC).

The proponent is requested to submit a revised AQA report to include a discussion on how potential changes to the final design, including stack parameters and technology specifications, may impact the estimated emission rates and the modelled GLC. This should also address how such changes will be managed to ensure compliance with air quality objectives and environmental standards.

Response

The existing modelling approach includes sufficient design margin and modelling margin to accommodate final selection of the moving grate and FGT technology provider(s) and detailed design of the facility. The key design parameters are discussed in detail below:

- A key parameter in air dispersion calculation is the source strength of the pollutants. The source strength is calculated based on an assumption that the facility continuously emits pollutants corresponding to the limits. This is very conservative.
- The source strength is calculated as the emission limit value for the pollutant times the flue gas flow rate expressed in reference condition (dry gas with 11 % O₂).
- The flue gas flow rate (in reference condition) depends on: (a) thermal input determined as mass incinerated per hour x the net calorific value of the waste (CV waste) and (b) the composition of the waste. Item (a) is a key design parameter for the complete facility whereas item (b) can only ever be estimated in advance (but can be verified subsequently in practical operation afterwards).
- The air dispersion modelling considers 110 % thermal input by applying a margin of 10 % on the flue gas flow rate (in reference condition) estimated for the normal operating point (LP1) and operation at maximum mechanical throughput (LP2), noting that the facility will not operate for extended periods at either 110 % thermal input or maximum mechanical throughput due to process fluctuations expected when processing a fuel such as MSW, but the assumptions cover all expected operating variations and contingencies.
- The air dispersion is modelled using a stack exit temperature at 130 °C to accommodate potential alternative energy recovery configurations which may be offered by technology providers, though it is most likely that the final design will have an exit temperature closer to 140-145 °C, as determined by the base case heat and mass balance.
- The stack exit velocity of 20 m/s at the normal operating point (100% thermal input) will be a key stack design parameter for the EPC contractor. The AQA has conservatively assumed that the velocity remained at 20 m/s despite the 10% design margin applied to the flue gas flow rates used to determine the mass emission rates.
- Mass emission rates have been determined based on the normalised flue gas flow rate at reference conditions (dry, 11% Oxygen) multiplied by the ELV (a mass concentration also expressed at the same reference conditions). This practice ensures that irrespective of any final selection of combustion air stoichiometry by the technology provider as well as entrance of air

during flue gas treatment etc., there will be no change in the pollutant mass emission rates included in the AQA.

- The selection of the stack height is such that the AQA has demonstrated that the BERC facility will have an insignificant impact on air quality in the local air shed. This means that the AQA has clearly demonstrated that the design includes significant conservatism with respect to the key stack parameters and estimated emission rates.

In summary the air quality assessment is based on a conservative scenario using maximum EU BREF emission concentration limits. This means the modelled emissions and resulting ground-level concentrations already reflect upper-bound conditions. Any future changes to final stack or technology design will be reviewed against this conservative modelling basis and additional assessment will be undertaken if required to ensure ongoing compliance with air quality objectives and environmental standards.

Item 16 North Maclean Air Quality Monitoring Data

Information Requested

The AQA report utilised data from the Springwood and Woolloongabba monitoring sites to represent background conditions for PM₁₀, PM_{2.5}, NO₂, and SO₂ in the Bromelton State Development Area (SDA). However, there is a DETSI air quality monitoring station located at North Maclean, approximately 25 km from the SDA, which is significantly closer to the proposed facility than the Springwood site. The North Maclean station has been operational since 1994 and monitors relevant parameters, with data available since 2000. The report does not explain why data from this closer and more relevant monitoring station was not used for the background analysis.

The proponent is requested to submit a revised AQA report with a justification for not using data from the North Maclean air quality monitoring station for background analysis. If the data is deemed unsuitable, the reasons for its exclusion should be clearly explained. Alternatively, the report should incorporate data from the North Maclean station to provide a more accurate representation of background air quality conditions in the study area.

Response

The following pollutants are measured at North Maclean, NO₂, PM₁₀, PM_{2.5}. A summary of background levels from North Maclean are presented in Table A4. The data have analysed for 1-hour and 24-hour average periods (the 70th percentile value has been presented in the table). The maximum annual average is also presented.

The data show:

- Concentrations of NO₂ measured at North Maclean are lower than those measured at Springwood and used in the air quality assessment
- Concentrations of PM₁₀ measured at North Maclean are lower than those measured at Springwood and used in the air quality assessment for all years with the exception of 2023. Smoke from vegetation burning and a large bushfire were reported to affect North Maclean in August and September 2023 leading to the higher than usual levels.
- Concentrations of PM_{2.5} measured at North Maclean are lower than those measured at Springwood and used in the air quality assessment for all years with the exception of 2023 and 2024. Annual average concentrations of PM_{2.5} were above the annual air quality objective of 7 ug/m³, that was implemented at the beginning of 2025. At the time of monitoring the annual average objective was 8 ug/m³. Vegetation and bushfires were reported to affect North Maclean in August and September 2024.

As vegetation and bushfires affected the North Maclean monitor in 2023 and 2024, these years do not represent typical years. Background levels used in the air quality assessment are lower than North Maclean data in non-bushfire years.

Table A4 Background air quality measured at DETSI North Maclean monitoring station

Pollutant	Averaging Period	Objective	2019	2020	2021	2022	2023	2024	Background used in AQA ⁽²⁾
PM ₁₀	24-hour	50			16.5	15.1	22.0	17.7	18.5
	Annual	25			14.7	13.3	19.7	16.2	16.5
PM _{2.5}	24-hour	20			6.6	6.2	8.3	7.6	7.0
	Annual	7			5.9	5.4	7.9	7.2	6.6
NO ₂	1-hour	164	10.3	8.2	8.2	6.2	8.2	6.2	16.4
	Annual	31	7.9	6.6	6.0	5.0	6.4	4.8	12.8

Table note:
⁽¹⁾ Presented concentrations for averaging periods less than 1 year are 70th percentiles; for averaging periods of 1-year the presented concentrations are annual averages.
⁽²⁾ The backgrounds used in the air quality assessment are the maximum 70th percentile/annual average across the eight years considered for that pollutant. Data obtained from Springwood and South Brisbane.
Green cells denote concentration less than the background used in the assessment
Blue cells denote concentrations higher than the background used in the assessment
Red indicates an exceedance of the ambient air objective

Section 4.4.2 of the AQA report has been updated to incorporate the North Maclean data to transparently document the basis for background selection. The air quality modelling will continue to adopt the Springwood (and Woolloongabba) datasets, as these provide a more conservative representation of background conditions and are considered appropriate for assessing potential impacts of the Project.

Item 17 Actual flue gas flow rate

Information Requested

The AQA report provides stack characteristics for Load Point 1 (LP1) and Load Point 2 (LP2) in Table 16, stating that the actual flow rate of flue gas (wet basis) was used to size each flue and calculate the exhaust exit velocity. However, it is unclear how the actual flow rate of flue gas (wet basis) was determined. Additionally, there is a possibility that stack parameters, including the flue gas flow rate, may change after the selection of the moving grate technology provider, potentially impacting the exhaust exit velocity and dispersion modelling.

The proponent is requested to submit a revised AQA report with a justification of the methodology used to determine the actual flow rate of flue gas (wet basis) and how this value was applied to calculate the flue gas exit velocity. Furthermore, the report should discuss how potential changes to stack parameters, including flue gas flow rate, will be managed to ensure accurate modelling and compliance with air quality objectives.

Response

The “actual” flow rate (wet basis) is determined by a combustion calculation based on the thermal input as described in the response to Item No.15. The actual flow rate will depend on the combustion air stoichiometric ratio selected by the technology provider. As such, the exit velocity of 20 m/s at nominal (100% thermal input) will be a design parameter. As noted at item No. 15, Katestone conservatively assumed that the exit velocity remained at 20 m/s despite applying a 10% margin on flow rate, to accommodate operation at up to 110% thermal input. Note that the facility will not operate for extended periods at either 110% thermal input or maximum mechanical throughput, hence these assumptions cover all expected operating contingencies.

The wording in the table notes of Table 16 in the AQA report have been updated to reflect this.

Item 18 Accuracy of NH₃ predictions

Information Requested

The ammonia (NH₃) emissions were modelled using the daily average emission limit from WI BREF 2019, as there are no short-term air emission limits for NH₃ in the European Union Industrial Emission Directives (EU IED) 2010. However, NH₃ has a 1-hour average air quality criterion, and it is unclear how accurately the 1-hour average ground-level concentrations (GLC) of NH₃ can be predicted using a 24-hour average emission rate.

The proponent is requested to submit a revised AQA report with a detailed explanation of why the predictions of 1-hour average NH₃ ground level concentrations were based on a 24-hour emission rate, as well as the accuracy of this assumption on the assessment of potential impacts.

Response

The IED does not include NH₃ as a pollutant, so there is no short-term emission limit value for NH₃. The BAT-AEL (upper) concentration level requires 48 x 30-minute average measurements to average less than or equal to 10mg/Nm³ for a maximum daily average emission limit value for NH₃. From the data presented in the BREF-WI Annex 8.7 for NH₃, for those facilities with moving grates, SNCR, (no Wet Scrubber), large and recent, the half-hourly maximum values are generally less than 50mg/Nm³ (dry, 11% O₂) while the 97% percentile values generally less than 20mg/Nm³ (dry, 11% O₂) (refer to Figure 8.71 and 8.72 of BREF).

The air quality assessment found that ground-level concentrations of NH₃ are predicted to be 0.36% of the 1-hour guideline for maximum location off-site and 0.17% of the 1-hour guideline for a sensitive receptor. Therefore, for ground-level concentrations to exceed the relevant air quality objectives the emissions of NH₃ would need to be more than 274 times higher (for maximum off-site to exceed) and 600 times higher (for an exceedance at a sensitive receptor) than the 10 mg/Nm³ @11%O₂ that has been used based on the daily average emission limits.

Item 19 Discrepancy in predicted maximum SO₂ concentrations

Information Requested

The AQA report presents predicted maximum SO₂ 1-hour concentrations at the commercial receptor for LP2 under both daily average in isolation and isolation + background scenarios (36.1 µg/m³ and 164.4 µg/m³ respectively, as demonstrated in Table 29 and Table 30). The SO₂ emissions from the short-term average are significantly higher than the daily average. However, the predicted maximum SO₂ 1-hour concentration in isolation + background for the LP2 daily average (164.4 µg/m³, Table 30) is nearly identical to the LP2 short-term average SO₂ 1-hour concentration (164.5 µg/m³, Table 34).

The proponent is requested to submit a revised AQA report with a detailed explanation of the modelling approach, including any assumptions or limitations. Provide an explanation of why the predicted maximum SO₂ 1-hour concentrations in isolation + background at the commercial receptor from LP2 average (Table 30) is approximately the same as LP2 short-term average SO₂ 1-hour concentration (Table 34) and confirm the accuracy of the reported results.

Response

It should be noted that for the presentation of "Project in isolation" and "Project + background" the receptor at which the maximum concentration is presented may be in a different location. For instance for SO₂, for the "Project in isolation" the maximum at a commercial receptor occurs at a receptor to the immediate

north of the Project. However, for the "Project + background" the maximum at a commercial receptor is at a receptor to the south in the vicinity of AJ Bush.

With respect to the question above, the location where the maximum SO₂ concentration for "Project + background" occurs is a commercial receptor located near AJ Bush. At this location the contribution from the Project is small and therefore emissions from AJ Bush are the main contributor to ground-level concentrations. Therefore, when comparing cumulative SO₂ concentrations between daily average and short-term scenarios, the difference due to the Project is not seen, as AJ Bush is the main contributor.

Additional text has been added to Section 7.1.2 of the AQA report to explain the difference in location of the maximum when comparing results due to the Project in isolation with results due to the Project plus background.

Item 20 Correction of PM_{2.5} annual average objective

Information Requested

The PM_{2.5} annual average air quality objective in Table 30 of the AQA report is incorrectly listed as 8 µg/m³. The correct value is 7 µg/m³.

The proponent is requested to submit a revised AQA report with this error corrected.

Response

Table 30 of the AQA report has been revised to correct the value to 7 µg/m³.

Item 21 Provision of PM_{2.5} and PM₁₀ concentrations based on LP1 and LP2 short-term emissions

Information Requested

The AQA report indicates that the maximum PM_{2.5} annual average ground-level concentration from the project, including cumulative background, is 95% of the relevant air quality objective at sensitive receptors when based on LP1 daily average (upper) emission concentration limits (Section 7.1.2.1). For the same scenario, the predicted PM₁₀ annual average concentration at a commercial receptor with cumulative background is 67% of the relevant objective. This shows PM_{2.5} is the most critical contaminant. However, the report does not present the maximum predicted PM₁₀ and PM_{2.5} 24-hour and annual average concentrations based on LP1 short-term emissions (Section 7.1.2.2).

Similarly, the AQA report does not include the maximum predicted PM_{2.5} and PM₁₀ 24-hour and annual average ground-level concentrations based on LP2 short-term emissions (Section 7.1.2.5).

The proponent is requested to submit a revised AQA report with the maximum predicted PM_{2.5} and PM₁₀ 24-hour and annual average ground-level concentrations based short-term emissions being adopted for both LP1 and LP2.

Response

Ground-level concentrations associated with the Project operating at LP1 and LP2 short-term emission concentrations have been presented for short-term (1-hour average or less) averaging periods only. This is because these scenarios represent conditions that are expected to be relatively short in duration (a matter of hours). These conditions will not occur for 24-hour periods or longer, because the Project is required to meet the daily average limits over a 24-hour period. If elevated emissions were to persist, the

facility would be required to implement corrective actions, including load reduction (de-loading) or, where necessary, shutdown to ensure compliance with daily emission limits.

PM_{2.5} and PM₁₀ air quality objectives are based on 24-hour and annual average averaging periods. Compliance with these objectives is therefore appropriately assessed using the daily average (upper) emission concentration limits, which represent the maximum allowable sustained operating emissions over periods relevant to the applicable ambient air quality criteria.

Section 7.1.2 of the AQA has been updated to include the above text.

Item 22 Percentage compliance with air quality objectives

Information Requested

In Section 7.1.2.1 and Section 7.1.2.4 of the AQA report, the maximum NO₂, SO₂, PM₁₀, and PM_{2.5} concentration modelling results for LP1 and LP2 are presented as dot points, indicating percentage compliance with the relevant air quality objectives. However, it is unclear whether these percentage compliance values correspond to the 1-hour, 24-hour, or annual air quality criteria.

The proponent is requested to submit a revised AQA report that explicitly specifies whether the percentage compliance values for NO₂, SO₂, PM₁₀, and PM_{2.5} concentrations in Sections 7.1.2.1 and 7.1.2.4 represent 1-hour, 24-hour, or annual air quality criteria

Response

Sections 7.1.2.1 and Section 7.1.2.4 of the AQA have been updated to specify which averaging periods the percentage compliance values represent.

Item 23 Percent compliance values for different contaminants

Information Requested

The Executive Summary and Section 11 (Conclusion) of the AQA report state that the modelling results of Project operation phase identified the following in the air quality assessment:

- *Project operating at the LP1 daily average (upper) emission limits scenario, the maximum ground-level concentrations due to the Project with cumulative background do not exceed 95% of the relevant objectives.*
- *The Project operating at the short-term emission limits scenario, the maximum ground-level concentrations due to the Project with cumulative background do not exceed 76% of the relevant objectives.*

These statements are unclear because they do not specify that the percentile compliance values refer to different contaminants (i.e. PM_{2.5} in the first case and SO₂ in the second case). The PM_{2.5} concentration in the second case would not be less than 95% of the relevant objective.

The proponent is requested to submit a revised AQA report clarifying the percentage compliance values in the two scenarios referring to different contaminant.

Response

The Executive Summary and Section 11 of the AQA report have been updated to present the percentage compliance values in the two scenarios referring to different contaminants.

ATTACHMENT B RESPONSE TO DETSI'S ADDITIONAL ISSUES

Additional item (a) PFAS emissions were not modelled

Information Requested

EnRisks HHRA in Section 5.7 states that: "PFAS have been added to the air dispersion modelling undertaken for this Project in Katestone (2026). Data to allow this modelling was taken from studies in Sweden (Björklund 2024; Björklund, Weidemann & Jansson 2023, 2024). These studies evaluated the potential presence of PFAS in flue gas from an EfW facility in Sweden combusting municipal solid waste (60%) and industrial waste (40%)." Therefore, this implies that PFAS modelling may have been undertaken separately for HHRA after the AQA report was already submitted in February 2026.

The proponent is requested to submit an updated AQA report which includes the predicted impacts of PFAS emissions must be submitted as part of the official IR response.

Response

Appendix D Dispersion modelling of PFAS has been added to the AQA report. This section details the emission rate of PFAS from the facility as well as the maximum predicted ground-level concentrations off-site, at a commercial receptor, at a residential receptor and at the visitor centre.

Additional item (b) Project emissions

Information Requested

Note 5 and 6 of Table 17 (Project Emissions) of the Katestone report states: IED 2010/75/EU Annex VI Part 6 Monitoring of Emissions clause 1.3. At the daily emission limit value level, the values of the 95 % confidence intervals of a single measured result shall not exceed the following percentages of the emission limits values:

Emission	Units
CO	10%
SO ₂ /NO _x	20%
Particulates/TOC	30%
HCl/HF	40%

The proponent is requested to provide detailed explanation how the percentage values listed in the table above were incorporated in the modelled emission rates (if any).

Response

The IED currently includes provisions for EfW facilities to adjust validated average measured values (also see response to additional item (c) below) for measurement uncertainty when assessing compliance with emission limit values (ELVs). The current approach is described in IED Annex VI Part 8 point 1.2 (inserted below). This approach recognises that all measurements have a level of uncertainty associated with the measurement method as well as instrument calibration uncertainty. Since the allowable adjustments are made to the individual time averaged measured values, the ELV still remains as the regulatory concentration limit, and is therefore the basis for determining both the short-term and longer-term pollutant mass emission rates in the Air Quality Assessment.

However, please note that DIRECTIVE (EU) 2024/1785 amends DIRECTIVE 2010/75/EU (the Industrial Emissions Directive) by inserting a new Article 15a Compliance assessment. This new article requires the Commission to (by 1 September 2026) establish a new method for assessing compliance under normal

operating conditions with ELVs. While no official guidance has been released as yet, it is widely expected that the EU is moving away from the current fixed, ELV-based subtraction of 95 % confidence intervals, toward a harmonised, method-based and statistically robust compliance framework, where uncertainty is likely to be:

- Tied to actual measurement performance
- Incorporated into a broader compliance assessment (including exceedance frequency), rather than applied as a simple deterministic correction.

IED Annex VI Part 8 (Assessment of compliance with emission limit values)

1. Air emission limit values

1.1 The emission limit values for air shall be regarded as being complied with if:

(d) for carbon monoxide (CO)

(i) in case of waste incineration plants:

— at least 97 % of the daily average values over the year do not exceed the emission limit value set out in point 1.5(a) of Part 3; and,

— at least 95 % of all 10-minute average values taken in any 24-hour period or all of the half-hourly average values taken in the same period do not exceed the emission limit values set out in points 1.5(b) and (c) of Part 3;

1.2. The half-hourly average values and the 10-minute averages shall be determined within the effective operating time (excluding the start-up and shut-down periods if no waste is being incinerated) from the measured values after having subtracted the value of the confidence interval specified in point 1.3 of Part 6. The daily average values shall be determined from those validated average values.

To obtain a valid daily average value no more than five half-hourly average values in any day shall be discarded due to malfunction or maintenance of the continuous measurement system. No more than ten daily average values per year shall be discarded due to malfunction or maintenance of the continuous measurement system.

IED Annex VI Part 6

1.3. At the daily emission limit value level, the values of the 95 % confidence intervals of a single measured result shall not exceed the following percentages of the emission limit values:

<i>Carbon monoxide:</i>	<i>10 %</i>
<i>Sulphur dioxide:</i>	<i>20 %</i>
<i>Nitrogen dioxide:</i>	<i>20 %</i>
<i>Total dust:</i>	<i>30 %</i>
<i>Total organic carbon:</i>	<i>30 %</i>
<i>Hydrogen chloride:</i>	<i>40 %</i>
<i>Hydrogen fluoride:</i>	<i>40 %.</i>

Additional item (c) Determination of daily average values from CEMS data for compliance

The proponent is requested to provide detailed explanation how the daily average values are to be determined from the CEMS data for compliance purposes.

Response

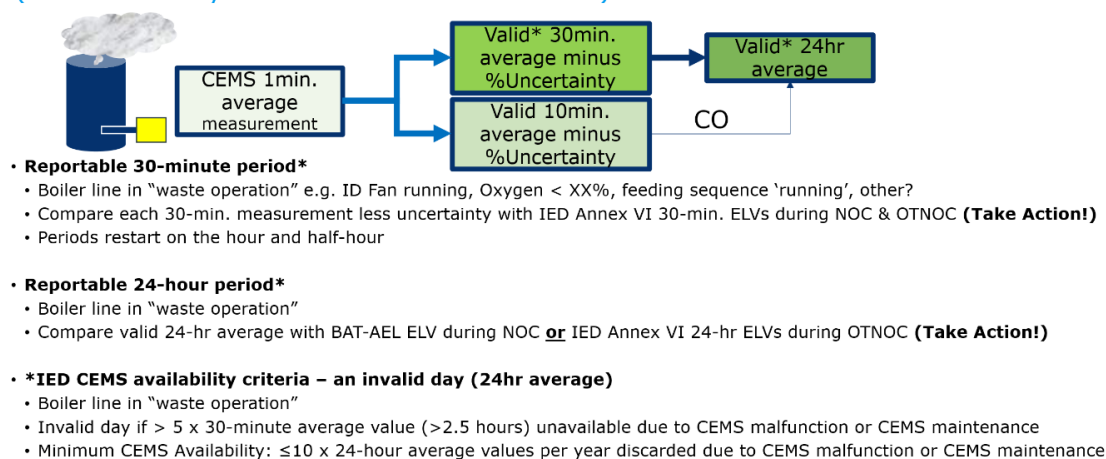
With reference to the proposed response to additional item (b) above, the best explanation of how the daily average values are determined from the CEMS data for compliance purposes is to quote IED Annex VI Part 8 point 1.2:

1.2. The half-hourly average values and the 10-minute averages [for CO] shall be determined within the effective operating time (excluding the start-up and shut-down periods if no waste is being incinerated) from the measured values after having subtracted the value of the confidence interval specified in point 1.3 of Part 6. The daily average values shall be determined from those validated average values.

To obtain a valid daily average value no more than five half-hourly average values in any day shall be discarded due to malfunction or maintenance of the continuous measurement system. No more than ten daily average values per year shall be discarded due to malfunction or maintenance of the continuous measurement system.

As illustrated in Figure B1 from a Ramboll presentation to the 2025 WMRR National EfW Conference, a valid and reportable daily average measurement is built up from a minimum of 43 valid half-hourly average measurements (i.e. 48 less a maximum of 5 invalid measurements) or, in the case of CO, 137 valid 10-minute average measurements (i.e. 144 less a maximum of 7 invalid 10-minute average results) each adjusted for measurement uncertainty within a 24-hr period, as described in IED Annex VI Part 8 points 1.1 and 1.2. The valid daily average is then compared with the daily average ELV for the relevant pollutants.

Emissions Monitoring & Reporting (Assessing Compliance) (for Continuously monitored emissions via CEMS)



Ramboll

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Figure B1 Slide from Ramboll's presentation to the 2025 WMRR National EfW Conference