



DOC22/57975-12

Ms Deana Burn
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Dear Ms Burn

Shoalhaven Starches – MP_0228 Mod 23 – Gas Fired Co-generation Plant – EPA Comments on Revised AQIA

Thank you for the request for advice, requesting the review by the NSW Environment Protection Authority (EPA) of the revised Air Quality Impact Assessment (revised AQIA) for the proposed modification (MP06_0228-Mod-23) at 160 Bolong Road, Bomaderry.

The EPA has reviewed the following documents, which were prepared in response to EPA's request for additional information, outlined in the letter to the Department of Planning dated 26 November 2021:

- *Modification 23: Response to NSW EPA comments relating to air quality* – GHD – 19 January 2022
- *Shoalhaven Starches Modification 23 – gas fired co-generation Air Quality Assessment* – GHD – 19 January 2022

The EPA's review of the documents has found that the revised AQIA has adequately provided the information requested by EPA, and as such EPA are able to recommend conditions relating to air quality. Attachment A contains the recommended conditions.

The EPA additionally notes that the revised Noise Impact Assessment has not adequately provided the information requested by the EPA. The EPA's letter to the Department of Planning dated 14 February 2022 contains further details on this matter, and I note that further discussion and assessment is being undertaken in this regard.

If you have any questions about this request, please contact Amanda Fletcher on (02) 6229 7002 or via email at info@epa.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Janine Goodwin', written over a white rectangular area.

22/02/2022

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Attachment A - Recommended Conditions of Approval

In EPA's letter to the Department of Planning dated 26 November 2021, EPA identified that the AQIA included an inadequate assessment of operational air impacts and requested the following information:

- (a) *Which coal fired combustion units will be converted to gas, and clarify if all existing coal fired combustion units will be converted to gas*
- (b) *The proposed use of existing combustion units under the proposed modification*
- (c) *Where existing combustion units are proposed to remain and utilised at the premises, they must be accounted for in a revised Air Quality Impact Assessment.*

The additional information provides further clarity on the proposed utilisation of existing and proposed combustion units. The proposal seeks to rely primarily on the proposed gas-fired co-generation plant, however some boilers would operate at reduced capacity to meet steam demands, whilst other boilers would be allocated to standby duty (offline and not operating) for use during maintenance of the cogeneration plant. The cogeneration plant and Boilers 5 and 6 are proposed to be utilised for typical operations, with other boilers on standby duty. A summary of the fuel changes and proposed utilisation is provided in the table below.

Unit	Current Fuel	Proposed Fuel	Proposed Utilisation
Boiler 1	Gas	Gas	Standby Duty
Boiler 2	Coal/woodchips	Gas	Standby Duty
Boiler 3	Gas	Gas	Standby Duty
Boiler 4	Coal/woodchips	Gas	Standby Duty
Boiler 5 & 6	Coal	Gas	Active
Boiler 7	Gas	Gas	Standby Duty
Boiler 8	-	Gas	Standby Duty
Cogen 1	-	Gas	Baseload
Cogen 2	-	Gas	Baseload

The revised AQIA includes an additional modelling scenario (the Maintenance scenario) to represent site operations when a gas turbine is brought offline to maintenance. This scenario assumes boilers 5 and 6 would operate at an increased output and boiler 8 would operate to cover short term changes to steam demand.

The EPA recommends the following condition be implemented into EPL 883:

4 OPERATING CONDITIONS

O4 Other operating conditions

O4.4 During periods where one or more of the cogeneration plant gas turbines is not operating, only one of the other gas fired boilers (boilers 1, 2, 3, 4, 7 or 8) is permitted to operate in conjunction with boiler 5/6.

The EPA also requested the following information:

The proponent provide manufactures design specifications and/or emission guarantees for the proposed cogeneration plant and demonstrate that the AQIA is based on the proposed design.

The additional information advises that the discharge properties and emissions to air from the proposed gas fired cogeneration plant were supplied by the proposed supplier of the plant. Manufacturers specifications and emission guarantees have been provided as attachment 1 in the additional information.

The EPA recommends the following changes to the emission limits on EPL 883 based on the emissions adopted in the revised AQIA for the cogeneration plant:

2 DISCHARGES TO AIR

P1 Location of monitoring/discharge points and areas

EPA identification No.	Type of Monitoring Point	Type of Discharge Point	Location Description
35	Air emission monitoring	Discharge to air	Combined boiler stack for number 5 and 6 boilers labelled "35" on map titled "Monitoring & Discharge Points Factory Area" dated 5 June 2018 (DOC18/371657)
42	Air Emission monitoring	Discharge to air	Boiler number 4 discharge point labelled "42" on map titled "Monitoring & Discharge Points Factory Area" dated 5 June 2018 (DOC18/371657)
45	Air emission monitoring	Discharge to air	Boiler number 2 discharge point labelled "45" on map titled "Monitoring & Discharge Points Factory Area" dated 5 June 2018 (DOC18/371657).
48	Air emission monitoring	Discharge to air	<discharge stack for boiler 8>
49	Air emission monitoring	Discharge to air	<Cogeneration unit 1 discharge stack>
50	Air emission monitoring	Discharge to air	<Cogeneration unit 2 discharge stack>

3 LIMIT CONDITIONS

L2 Air Concentration Limits

Point 35

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging Period
Nitrogen dioxide (NO ₂) or Nitric oxide (NO) or both, as NO ₂ equivalent	milligrams per cubic metre	150	Dry, 273 K, 101.3 kPa	7 %	1 hour
Volatile Organic Compounds (VOCs) as n-propane	Milligrams per cubic metre	20	Dry, 273 K, 101.3 kPa	7 %	1 hour

Point 49,50

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging Period
Nitrogen dioxide (NO ₂) or Nitric oxide (NO) or both, as NO ₂ equivalent	milligrams per cubic metre	40	Dry, 273 K, 101.3 kPa	15 %	1 hour
Volatile Organic Compounds (VOCs) as n-propane	Milligrams per cubic metre	20	Dry, 273 K, 101.3 kPa	15 %	1 hour

M2.2 Air Monitoring Requirements

Point 35

Pollutant	Unit of Measure	Frequency	Sampling Method
Moisture	Percent	Special frequency 1	TM-22
Molecular weight of stack gases	grams per gram mole	Special frequency 1	TM-23
Oxygen	Percent	Special frequency 1	TM-25
Temperature	Degrees Celsius	Special frequency 1	TM-2
Volumetric flowrate	Cubic metres per second	Special frequency 1	TM-2
Nitrogen dioxide (NO ₂) or Nitric oxide (NO) or	Milligrams per cubic metre	Special frequency 1	TM-11

both, as NO ₂ equivalent			
Volatile Organic Compounds (VOCs) as n-propane	Milligrams per cubic metre	Special frequency 1	TN-34

Point 42, 45, 48

Pollutant	Unit of Measure	Frequency	Sampling Method
Moisture	Percent	Special frequency 2	TM-22
Molecular weight of stack gases	grams per gram mole	Special frequency 2	TM-23
Oxygen	Percent	Special frequency 2	TM-25
Temperature	Degrees Celsius	Special frequency 2	TM-2
Volumetric flowrate	Cubic metres per second	Special frequency 2	TM-2
Nitrogen dioxide (NO ₂) or Nitric oxide (NO) or both, as NO ₂ equivalent	Milligrams per cubic metre	Special frequency 2	TM-11
Volatile Organic Compounds (VOCs) as n-propane	Milligrams per cubic metre	Special frequency 2	TN-34

Point 49, 50

Pollutant	Unit of Measure	Frequency	Sampling Method
Moisture	Percent	Special frequency 3	TM-22
Molecular weight of stack gases	grams per gram mole	Special frequency 3	TM-23
Oxygen	Percent	Special frequency 3	TM-25
Temperature	Degrees Celsius	Special frequency 3	TM-2
Volumetric flowrate	Cubic metres per second	Special frequency 3	TM-2
Nitrogen dioxide (NO ₂) or Nitric oxide (NO) or both, as NO ₂ equivalent	Milligrams per cubic metre	Special frequency 3	TM-11
Volatile Organic Compounds (VOCs) as n-propane	Milligrams per cubic metre	Special frequency 3	TN-34

Special frequency 1 means two rounds of monitoring after conversion of boiler 5/6 units from coal to gas fuel, and every six months thereafter

Special frequency 2 means:

- (a) two rounds of monitoring after conversion from coal/wood chips to gas fuel for boiler 4, and boiler 2.
- (b) two rounds of post commissioning monitoring for boiler 8

Special frequency 3 means two round of post commissioning monitoring and every 6 months thereafter

E<X> Special Conditions

E<X>.1 Air emission verification report

Requirements

Within 6 months of completion of the initial monitoring (post commissioning and post fuel change) required under M2.2, the licensee must provide the EPA with an Air Emission Verification report (the Verification Report). The Verification report must:

- (a) Compare results of monitoring required under condition M2.2 with emission limits contained in this EPL; and
- (b) Compare results of monitoring required under condition M2.2 with prescribed limits contained in the Clean Air Regulation; and
- (c) Compare emission rates derived from monitoring required under condition M2.2 with emission rates contained in the revised Air Quality Assessment provided for project approval; and
- (d) Nominate mitigation measures to achieve emission limits contained in this EPL should a comparison under (a) identify emission limits are not being complied with; and
- (e) Nominate mitigation measures to achieve compliance with the Clean Air Regulation should a comparison under (b) identify that prescribed concentrations in the Clean Air Regulation are not being complied with; and
- (f) Provide a revised air quality impact assessment undertaken in accordance with the Approved Methods for Modelling, should a comparison required under (c) identify emission rates from site specific monitoring are greater than those adopted in the revised Air Quality Assessment provided for project approval.

The EPA may review and/or amend the conditions in this EPL upon review of the Verification Report.