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12 February 2021

Joanna Bakopanos
Team Leader
Industry Assessments
Department Planning Industry & Environment

Attention: Jeffrey Peng, Industry Assessments, Major Projects

Dear Joanna,

RESPONSE TO SUBMISSIONS – MODIFICATION 3 TO DA246/96 – 45 FRIENDSHIP ROAD, PORT BOTANY

1. INTRODUCTION

On behalf of Terminals Pty Ltd (the Applicant), we provide the following information as relevant to Modification 3 (MOD 3) of DA246/96. This correspondence is in relation to the installation of a second thermal oxidiser Section 4.55(1A) modification application lodged over land at 45 Friendship Road, Port Botany and otherwise referred to as DA246/96.

This letter clarifies a number of matters raised post lodgement in discussions with DPIE, but also provides a response to the Randwick City Council (RCC) letter dated 21 December 2021 and the Environmental Protection Authority (EPA) second referral letter dated 13 January 2021 on the Modification.

2. CLARIFICATION OF THE SITE AND PROPOSED WORKS

As discussed in the statement accompanying the Modification, there are two applications that form part of the broader project; one being the Modification to the DA246/96 (the subject application) and the other utilising the complying development provisions under the 3 Ports SEPP for connecting works and works to Site C (via a CDC).

This MOD 3 submission is for:

- Installation and operation of a second thermal oxidiser (combustor) and associated infrastructure at the premises, to combust liquid hydrocarbon waste generated at the premises.
- Demolition and removal of an existing liquid waste tank.
- Utilisation of an existing tank for use as a liquid waste tank

No works are proposed on Site C as part of this proposal and will form part of a CDC.

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As such to ensure a clear delineation of the two applications, the drawings that form part of the application have been updated as follows:

- Existing LAY-001 – as submitted/no change.
- New drawing "LAY-001 DA-MOD3" denotes work at T261 and lines to combustor
- New drawing "LAY-001 CDC" shows the line from T261 to corridor and line in corridor (this is existing on site). This does not form part of MOD 3 and is subject to a separate approval request via a CDC with Randwick Council.

Attached are the revised drawings of LAY-001 and LAY-001 MOD 3 prepared by CEC.

The submissions also draw reference to the matter of liquid waste and associated burning. For clarity, this has been stated clearly in the Waste Management and Impact Assessment report, prepared by Icubed Consulting as:

> "*Terminals Pty Ltd (Quantem) proposes to install a second thermal oxidiser adjacent to the existing unit at their site at Port Botany, NSW. The operation of a second thermal oxidiser will enable Quantem to treat the majority of liquid waste on site while providing redundancy to our VOC emissions control on site. The combustor will be larger than the current combustor to offer more operational flexibility, and presents the opportunity for the burning of liquid waste utilising the new purpose designed oxidiser. The burning of liquid waste provides additional security around waste disposal with difficulties experienced in offsite waste disposal. The new thermal oxidiser will be the primary thermal oxidiser with the existing thermal oxidiser utilised as a standby unit*".

It is worth noting that Clause 24 of the State Environmental Planning Policy (Three Ports) 2013 prescribes development within the Ports lease area that can be considered exempt development. Schedule 1 of the SEPP states the following development, as exempt:

> ***20 Pollution control facilities, work health and safety measures and environmental protection works***
>
> *(1) The construction or installation of facilities and works for the purposes of pollution control, work health and safety measures and environmental protection works, including any such facilities and works associated with liquefied petroleum gas storage tanks or fuel storage tanks, noise walls, environmental monitoring stations and stormwater treatment devices.*
>
> *(2) The development must—*
>
> *(a) satisfy any applicable pollution control provisions and guidelines, and*
>
> *(b) not be inconsistent with, or contravene, an existing development consent or an approval for a transitional Part 3A project that is an approved project applicable to the land or be undertaken for the purpose of remediating contaminated land.*
>
> *(3) Subclause (2) (b) does not apply to any provision or condition of an existing development consent or an approval for a transitional Part 3A project that is an approved project that limits development on the land to the use permitted by that consent.*

As such, the proposed thermal oxidiser has the potential to be considered as exempt development on the subject land, if it was not for the ability to burn liquid waste.

This exemption reflects the fact that environmental pollution controls are ancillary to this type of development and an acceptance that this type of equipment represents a low risk to the environment.

The waste itself is generated due to storage and handling and hence managing this waste is ancillary to storage and handling as approved in MOD2.

The burning of waste is limited to Terminals facilities at Port Botany and consists of the products stored and watered. Many of the products, including Benzene, are already treated by the existing combustor in the vapour phase (i.e. Displaced vapour from tanks including diurnal breathing and product transfers). Liquid burning involves atomizing the liquid which enables it to be treated with the safe efficiency as the vapour displaced from storage tanks. Consequently, given external waste is not treated, the burning of waste is essentially the same development as allowed as exempt development.

An analysis of emissions demonstrates that the additional volatile compounds emitted to the atmosphere will only represent approximately 70 kg, compared with approximately 10,000 kg emitted in the past year and compared with 25,000kg permitted by our EPA licence. There is clearly little impact of this change.

In summary it is considered that this modification complies with the substantially the same development test. Refer to a detailed assessment in **Section 6**.

Whilst not comparable in terms of the scale or complexity, it is worth noting that a modification undertaken by Vopak (27 December 2018 – MOD 2 – MP _06-0089) considered a similar notion as the proposed development. Part of the amendment was for the Vapour Recovery Unit (VRU) operational efficiency, where the assessment specifically stated that replacing the VRU (environmental control) would not require further approval (i.e. exempt development). The assessment report stated, *"The Department agreed that upgrading or replacing the existing VRU would not require a further approval and the Department acknowledged that the amendment was to facilitate operational efficiency"*.

Note: *Both the terms 'thermal oxidiser' and 'combustor' are used interchangeably throughout this document.*

3. THE CONSENT TO BE MODIFIED

The history of the subject DA, modifications and the approval pathway are summarised in the Table below:

Table 1 Development History

Development / Project Description	DA ref	RPA	EP&A Act Part	Approval Date	Comments	Applicable land
'Stage 5' approval for expansion of existing facility.	DA 246/96	DoP	Part 4	14-Jan-97	Of the 12 proposed tanks only one, Tank 270, was constructed prior	Lot 1 DP 62287

Development / Project Description	DA ref	RPA	EP&A Act Part	Approval Date	Comments	Applicable land
					to the modification listed below.	
'Stage 5A' modification for 3 tanks	DA 246/96 Mod1	DoP	Part 4 s.96	06-Sep-09	Modification was for the replacement of the above tanks that had not been constructed to be replaced with 3 tanks (one smaller, two larger).	Lot 1 DP 62287
Modification to increase the storage capacity for the site to allow for chemical storage	DA 246/96 Mod2	DP&I	S75W	31-Oct-13	12 tanks providing 14,500m³ (resulting in Stage 5 capacity of 39,500m³)	Lots 16-18 in DP 1126332 Part Lot 6 in DP 1053768 Lot 26 in DP 1009872

It is noted that the Statement of Environmental Effects dated July 2008 prepared in support of MOD 1 included the installation of an environmental control system being a Vapour Recovery Unit (VRU) as ancillary equipment to support the facility.

Subsequent to that, Quantem (then Terminals) were required by the EPA to install the existing combustor as an environmental control system which is also ancillary equipment to support the facility.

These ancillary components are integral to the bulk liquid tank facility and in place as an environmental management system.

Whilst MOD 2 was approved and implemented, the existing combustor was in place with its current vapour emissions burning ability in consistent with the operational functionality as the proposed MOD 3 apparatus and as part of the environmental management system.

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4. RESPONSE TO SUBMISSIONS

Reference is made to the Randwick City Council (RCC) and the Environmental Protection Authority (EPA) requests for information, issued via email correspondence on 21 December 2020 and 13 January 2021, respectively.

This letter is accompanied by the following amended documentation, which supports this response and comprehensively addresses the issues raised by Council:

- Drawings by CEC Engineers
- Waste Management and Impact Assessment report, prepared by Icubed Consulting
- Air Quality Impact Assessment prepared by Peter Ramsay and Associates
- Specification document issued by Gasco

Section 5 and 6 below address the first two points of the RCC referral.

5. CRITERIA UNDER SCHEDULE 2 OF THE EP+A REGULATIONS

This section responds to Council's first point in their referral correspondence, namely a full assessment against Clause 3BA(6)(b) of Schedule 2 of the *Environmental Planning and Assessment (Savings and Other Transitional Provisions) Regulation 2017.*

Under the Environmental Planning and Assessment (Savings and Other Transitional Provisions) Regulation 2017, and in particular, Clause 3BA(6)(b) of Schedule 2, any modification to a development consent that had previously been modified under the now repealed s75W (old Part 3A modifications) – when considering the substantially the same development test, we must consider it from when it was last modified.

An assessment against the provisions is extracted below:

3BA Winding-up of transitional Part 3A modification provisions on cut-off date of 1 March 2018 and other provisions relating to modifications

(1) For the purposes of this clause, the cut-off date is 1 March 2018.

The consent to Mod 2 was issued on 31 October 2013, which is prior to 1 March 2018.

(2) An approved project or a concept plan cannot be modified under section 75W on or after the cut-off date, except as provided by this clause.

Does not apply, in accordance with clause 3 below. The modification 2 was prepared and submitted on 25 March 2009 under the provisions of Section 75W (before the cut off date).

(3) Subclause (2) does not apply if the request to modify the approved project or concept plan under section 75W was lodged before the cut-off date. Accordingly, the provisions of this Schedule relating to a modification made pursuant to such a request continue to apply.

See response above – the provisions remain valid.

(4) A request to modify an approved project or concept plan under section 75W that may be dealt with because of subclause (3) cannot be dealt with under section 75W if—

(a) the request has not been determined by 1 September 2018, and

(b) the Secretary is of the opinion that insufficient information has been provided to deal with the request and notifies the person who made the request that it will not be dealt with under section 75W.

(5) A concept plan may continue to be modified under section 75W pursuant to a request lodged on or after the cut-off date (whether or not the project is or has ceased to be a transitional Part 3A project), but only if the Minister is satisfied that—

(a) the proposed modification is to correct a minor error, misdescription or miscalculation, or

(b) the proposed modification is of minimal environmental impact, or

(c) the project to which the concept plan as modified relates is substantially the same as the project to which the concept plan currently relates (including any modifications previously made under section 75W).

Clause 4(c) applies.

(6) In the application of section 4.55(1A) or (2) or 4.56(1) of the Act to the following development, the consent authority need only be satisfied that the development to which the consent as modified relates is substantially the same development as the development authorised by the consent (as last modified under section 75W)—

(a) development that was previously a transitional Part 3A project and whose approval was modified under section 75W

(b) development that was taken to be an approved project pursuant to clause 8J of the Environmental Planning and Assessment Regulation 2000 and whose consent was modified under section 75W.

(7) To avoid doubt, subclause (2)—

(a) applies whether the project remains or has ceased to be a transitional Part 3A project, and

(b) extends to a modification under section 75W in relation to a development consent that is taken to be an approved project pursuant to clause 8J of the Environmental Planning and Assessment Regulation 2000.

The original consent was a Minister's Approval (State Significant consent), dated 14 January 1997. At the time of the lodgement of MOD 2, clause 8J (8) of the Environmental Planning and Assessment Regulation 2000, deemed these consents to be taken to be approvals under Part 3A of the Act and can be modified by the Minister under section75W of the Act.

MOD 2 was assessed and approved under the provisions of Section 75W. As per clause 6 the consent authority, " *need only be satisfied that the development to which the consent as modified relates is substantially the same development as the development authorised by the consent (as last modified under section 75W*".

The Transitional provisions allow for the comparison between the consent, as it stands and as modified in MOD 2 and the subject MOD 3.

6. SUBSTANTIALLY THE SAME DEVELOPMENT

This section responds to Council's second point in their referral correspondence.

The applicant must demonstrate that the change, if carried out, would result in a development that would be substantially the same development as the original development. As per Section 5 above, this is taken to be the development as modified under the Section 75W in MOD 2.

The DPIE "Modifying an Approved Project Guidelines" provides guidance on the assessment of the "test" of substantially the same development. An applicant must have regard to the following considerations (outlined below), which have been established through decisions of the NSW Land and Environment Court. A response is provided in the Table.

Considerations established in LEC	**Response**
''Substantially'' means ''essentially or materially'' or ''having the same essence.'' [*Moto Projects (No 2) Pty Ltd V North Sydney C [1999] NSWLEC 280*]	The proposal will be consistent with the current approved operations as a bulk liquid storage facility including the inclusion of an existing thermal oxidiser at the site. The fundamentals of the approved development, as outlined in the consent, are unchanged as being an "*existing bulk liquid storage facility with associated loading/ unloading facilities, pipelines, safety systems, landscaping and fencing*". The proposed thermal oxidiser and waste tank is wholly consistent with the approved development and is proposed in an area of the site, adjacent to an existing thermal oxidiser. Due to the environmental management role that the thermal oxidiser plays, through the oxidising of vapour and liquid waste, it is an "environmental control and safety system" and includes environmental management measures consistent with the approved development. The proposal will be of a similar height and scale to the existing thermal oxidiser adjoining the proposal.

Considerations established in LEC	Response
A development can still be substantially the same even if the development as modified involves land that was not the subject of the original consent (provided that the consent authority is satisfied that the proposal is substantially the same). [*Scrap Realty Pty Limited v Botany Bay City Council [2008] NSWLEC 333*]	The approved development, as modified under MOD 2 applied to Lots 16-18 in DP 1126332, Part Lot 6 in DP 1053768 and Lot 26 in DP 1009872. The same land is contemplated in MOD 3. The land subject to MOD 2 compared to MOD 3 is shown in the drawing comparison in Appendix A.
If the development as modified, involves an ‘‘additional and distinct land use’’, it is not substantially the same development. [*Vacik Pty Limited v Penrith City Council (1992) NSWLEC 8*]. Notwithstanding the above, development as modified would not necessarily be substantially the same solely because it was for precisely the same use as that for which consent was originally granted	It is noted that the Statement of Environmental Effects dated July 2008 prepared in support of MOD 1 included the installation of an environmental control system being a Vapour Recovery Unit (VRU) as ancillary equipment to support the facility. Subsequent to that, Quantem (then Terminals) were required by the EPA to install the existing combustor as an environmental control system which is also ancillary equipment to support the facility. These ancillary components are integral to the bulk liquid tank facility and in place as an environmental management system. It is therefore apparent that at the commencement of MOD 2, the existing combustor was in place along with its current vapour emissions burning ability as part of the environmental management system. It is therefore apparent that at the commencement of MOD 2, the existing combustor was in place along with its current vapour emissions waste burning ability. An additional or distinct land use is not sought in MOD 2.

To determine whether something is ‘‘substantially the same’’ requires a comparative task between the whole development as originally approved and the development as proposed to be modified. In order for the proposal to be ‘‘substantially the same’’, the comparative task must:

- result in a finding that the modified development is ‘‘essentially or materially’’ the same
- appreciate the qualitative and quantitative differences in their proper context
- in addition to the physical difference, consider the environmental impacts of proposed Modification Applications to approved developments.

The results of the comparative task ‘‘*does not eclipse or cause to be eclipsed a particular feature of the development, particularly if that feature is found to be important, material or essential*” [*Moto Projects (No 2) Pty Ltd V North Sydney C [1999] NSWLEC 280].*

The DPIE “Modifying an Approved Project guidelines” provide a framework for the comparative task, described above and has been transposed in the table below under a series of considerations.

Table 2 Comparative Assessment

Criteria	**DA246/96 MOD 2**	**MOD 3**
Development size, scale and footprint	The capacity of the approved development (as modified by MOD 2) in Stage 5 is 39,500m³ bulk liquid storage. The overall development size and footprint comprises: ▪ Works to Lots 16-18 in DP 1126332, Part Lot 6 in DP 1053768 and Lot 26 in DP 1009872 ▪ A series of tanks up to 21m in height across the site. ▪ Combustor foundations are 500mm deep. ▪ Footprint of 2700m^2. Further, the existing EPL(licence) allows for the following as provided in the table below (source: icubed):	The capacity of the approved development (as modified by MOD 3) in Stage 5 is 39,500m³ bulk liquid storage, which is unchanged from MOD 2. Tank 261 is however proposed to be utilised to handle liquid waste. The liquid waste will have a lower risk profile due to the mix of water and varying combustible and flammable products present. All tanks on site have a product allocation detailed in the site’s manifest. The tank is designed to store a range of products already handled on site and suitable to be utilised for the waste liquid service proposed. . The existing tank is 200m^3 in capacity. The proposal is to install a larger combustor (+50%) of the same type as the existing combustor. The existing combustor has reached its capacity for peak operations hence the need for a larger combustor to ensure environmental compliance. The overall development size and footprint remains consistent with the approved development, as modified by MOD 2, and comprises:

<table>
<tr><th>Criteria</th><th>DA246/96 MOD 2</th><th>MOD 3</th></tr>
<tr><td></td><td>
<table>
<tr><th>Activity</th><th>Scale</th></tr>
<tr><td>Chemical storage waste general</td><td>> 100 T annual volume of waste generated or stored</td></tr>
<tr><td>Petroleum products and fuel production</td><td>> 10,000-200,000 T annual production capacity</td></tr>
<tr><td>Petroleum products storage</td><td>> 100,000 kL storage capacity</td></tr>
<tr><td>Shipping in bulk</td><td>> 100,000-500,000 T of annual capacity to lead and unload</td></tr>
<tr><td>Waste storage – hazardous, restricted solid, liquid, clinical and related waste and asbestos waste</td><td>Any listed waste type stored</td></tr>
</table>
</td><td>

Works to Lots 16-18 in DP 1126332, Part Lot 6 in DP 1053768 and Lot 26 in DP 1009872
A series of tanks up to 21m in height
Combustor foundations are 500mm deep.
A tank and loading footprint of 2700m3 approximately
An additional footprint of 33 m^2 for the new combustor which is a negligible increase in the development. The existing combustor with ancillary equipment has a footprint of approximately 50 m2 -The new combustor utilises the same ancillary equipment.
The land subject to MOD 2 compared to MOD 3 is shown in the drawing comparison in Appendix A
An additional combustor is proposed in an area previously approved as hardstand and within the approved development lot. The height of the proposed combustor at 17.3m is comparable to the existing combustor adjacent.

The existing EPL remains valid and license emission limits do not change as a result of MOD 3.
</td></tr>
<tr><td>Intensity including rates of production</td><td>The existing combustor destructs vapours from existing operations and is licensed under EPL1048</td><td>The new combustor will destruct the same vapours within the limits of the EPL 1048.
The throughput for liquid waste is ~1000 m3 per annum. Liquid waste will be atomised and then destructed at a rate of 6.5 litres per minute.</td></tr>
</table>

Criteria	DA246/96 MOD 2	MOD 3
Primary, secondary and ancillary use	The approved use is the expansion of a bulk liquid storage facility with ancillary and associated loading/ unloading facilities, pipelines, safety systems, landscaping and fencing. The treatment of liquid waste associated with the bulk liquid facility is integral to the approved use of the site as a bulk liquid storage facility as waste is generated from that activity. The environmental management processes as sought in MOD 2 and as then dictated by the EPL are fundamental to the site's use. As such an analysis of the current/approved waste management process involves off-site treatment and disposal through several steps (as stated by Icubed): 1. Solids removal, by gravity settlement, skimming, or course filtration. Solids are disposed to landfill, and liquid proceeds to step 2. 2. Hydrocarbon separation, by gravity settlement (Note this does not remove the water-soluble components, such as ethanol). Contaminated water is sent to step 3, and hydrocarbons are sent to step 4. 3. The water phase is treated biologically, and eventually disposed of into Sydney Water sewer once it meets their acceptance standards. Methane, which is generated during this step, is not captured and is released (disposed) to atmosphere. Sludge is disposed to landfill. 4. The hydrocarbon phase is transported to Gladstone in Queensland by truck, where it is combusted for useful heat in a cement kiln	The proposed use is unchanged in MOD 3 as consistent with the expansion of a bulk liquid storage facility with ancillary and associated loading/ unloading facilities, pipelines, environmental & safety systems, landscaping and fencing By comparison to the current situation, the installation of the new thermal oxidiser in MOD 3, the proposed liquid waste disposal process will provide the following benefits over the current liquid waste disposal methodology (as stated by Icubed): ▪ it eliminates all road transport emissions; ▪ it eliminates the pollutant load on Sydney Water; ▪ it eliminates the waste material ending up in landfill; ▪ it will provide broadly equivalent waste destruction of the insoluble flammables in comparison to offsite fuel burning, such as in kilns, in equipment which meets or exceeds the relevant standards. ▪ it will provide redundancy in the site's liquid waste management system and greater guarantees around liquid waste disposal, with reduced impacts on operations; and ▪ it will provide an overall lesser greenhouse gas impact than the current liquid waste management process. In terms of the Waste Hierarchy, a portion of waste currently produced by the site does fall within the energy recovery option, while the remainder is treated and disposed of. The proposed waste management process will move away from energy recovery as all waste will be disposed of by incineration. While this is a change from a more preferable (energy recovery) to a less preferable (waste treatment) management option, a comparative assessment of the current process

Criteria	DA246/96 MOD 2	MOD 3
		against the proposed process has concluded that the overall environmental impacts, measured in CO2-equivalent emissions, will be significantly reduced. This is principally due to the elimination of the methane release during the biological treatment step, in favour of vaporisation. Energy recovery was considered, however with the inconsistent load profile it was not a viable option. It also must be noted that the process utilises heat from the combustor as a benefit by destructing liquid waste. In terms of infrastructure, the existing Tank T-261 will be utilised as part of this proposal. Waste liquid will be pumped using a combination new and existing piping from the existing tank T-261, to the proposed second thermal oxidiser for treatment.
Project life and hours of operation	MOD 1 included the approval of the installation of a Vapour Recovery Unit as part of the proposal as this was regarded as ancillary equipment to support the facility as an environmental control measure. Subsequent to that, Quantem (then Terminals) were required by the EPA to install the existing combustor as an environmental control system which is also ancillary equipment to support the facility. These ancillary components are integral to the bulk liquid tank facility and in place as an environmental management system. The existing combustor is operating near to the design capacity and therefore Site A has no vapour destruction redundancy. The existing design relies on the VECS (vapour emission control system) carbon beds to temporarily handle any shutdown of the existing combustor which results in a restriction to Site A activities.	The key driver of the project is due to the capacity limitations of the existing combustor. The project seeks to install a second combustor at Site A to ensure sufficient capacity for concurrent operations during peak thermal load scenarios. The additional capacity ensures all environmental obligations are continued to be met during peak load requirements. Presently peak concurrent operations are restricted due to the existing combustor sizing. The second combustor will be 50% larger in capacity along with added liquid waste burning capability. It will be used in normal operations with the existing combustor remaining as the back-up combustor for 100% redundancy for normal operational load. The addition of the new larger combustor is a business risk reduction project to ensure redundancy is also available. The back-up carbon beds are significantly less effective if called upon to operate. The provision of this

Criteria	DA246/96 MOD 2	MOD 3
		combustor provides greater surety that emissions, particularly benzene, are controlled to the maximum amount achievable at all times. The same operational hours of the combustor and site are sought and the same construction hours of M-F 7am to 6pm, Sat 8am to 1pm will be applied to the subject modification, consistent with MOD 2.
Extent, duration and severity of impacts	The following impacts or attributes are existing one site or were approved as part of the approved development, as modified by MOD 1 and 2: ▪ Emissions from current waste management process: 7,641 tonnes CO2-equivalents ▪ The site currently has two systems to treat flammable vapours generated on the site: – one (1) Vapour Combustion System (VCS) operating on the site to thermally oxidise flammable vapours – one (1) Vapour Emission Control System (VECS) with carbon bed adsorption. This operation results in liquid waste generated on the site to be currently collected by Cleanaway using a vacuum loading truck, and is transported to be treated and disposed of at an EPA-compliant facility. The proposal operates under a Safety Management System and Environmental Management Plan. The facility is certificated to ISO 9001Quality Management System and ISO 14001 Environmental Management System. The Environmental Management Plan was updated to reflect the revised tanks and associated works.	The benefit of the new combustor is the opportunity to use the unutilised energy to destruct selected site liquid waste which is predominantly water. The following impacts or attributes are proposed in MOD 3: ▪ Emissions from proposed waste management process: 1,746 tonnes CO2-equivalents ▪ Quantem are seeking to install a second thermal oxidiser, and undertake thermal treatment of the liquid waste, including hydrocarbons, currently collected by Cleanaway.. This new thermal oxidiser can run in parallel with the existing oxidiser for peak load or variances of products and will be the primary combustor with the current combustor providing redundancy or vice versa depending on operational requirements.. The smaller existing thermal oxidiser will continue to run from time to time depending on operational requirements and is not nearing the end of its life. This action will result in the reduction in waste truck movements from the site. ▪ The proposal will eliminate the pollutant load on Sydney Water and eliminate the waste material ending up in landfill. ▪ The MOD 3 works will provide broadly equivalent waste destruction of the insoluble flammables in comparison to offsite fuel burning, such as in kilns, in equipment which meets or exceeds the relevant standards.

Criteria	DA246/96 MOD 2	MOD 3
	The proposal operates in accordance with the updated manual, inclusive of spill response measures.	▪ Operationally, it will provide redundancy in the site's waste management system and greater guarantees around waste disposal, with reduced impacts on operations; and ▪ The installation of the combustor will provide an overall lesser greenhouse gas impact than the current waste management process. ▪ The additional quantity of VOC emissions is negligible Conditions of consent as relevant to environmental management conditions remain valid. As per the existing approved development, the proposed development will incorporate the additional combustor operations and involve: ▪ An amendment to the Safety Management System and Environmental Management Plan. The facility is certificated to ISO 9001Quality Management System and ISO 14001 Environmental Management System. ▪ The Environmental Management Plan will be updated to reflect the additional combustor and associated works. The proposal will continue to operate in accordance with an updated plan, inclusive of spill response measures. ▪ This Manual will consider hazard, noise and water management and this will be generally comparable with MOD 2.

7. RESPONSE TO SUBMISSIONS TABLE

The content of each of the Government and agency submissions have been carefully reviewed and captured. The discussion below sets out the key issues raised and provides a response to the submission issues. Where the response relies on the assessment of technical matters by the project team, a summary is provided, and the reader is directed to the supporting technical document for a full analysis of the issue. The following table provides a response to each of the items raised by RCC (excluding points 1 and 2, discussed above) and EPA.

It is noted that the detailed design of the combustor is still to be prepared and as such there is the ability to impose any specific requirements as conditions of consent prior to the works commencing.

Table 3 Response to RFI

Summary of Issue	Response
Randwick City Council comments	
3. In addition to the above concerns, Council notes the following deficiencies in the proposed modification application that, otherwise, would be subject to a more in-depth and comprehensive assessment under a development application: The Proponent broadly states that the proposal will ensure compliance with all relevant EPA guidelines for ongoing operating noise and vibration. However, no acoustic study has been prepared to ensure there is no unexpected adverse operational and construction noise impacts to surrounding receivers, noting that the subject site is located in a heavy industrial area that has been the subject of ongoing noise nuisance complaints from surrounding residents.	MOD 2 included a Noise and Vibration assessment prepared by GHD. This report assessed the proposal against the Interim Construction Noise Guideline (ICNG) (DECC July 2009), Road Noise Policy (RNP) (DECCW 2011), Industrial Noise policy (INP) (EPA 2000) and Assessing Vibration a Technical Guideline (Dec 2006). As part of the previous assessment GHD adopted the following conservative rating background levels (RBLs) were used to establish operational and construction noise criteria of: Day – 40 LA90(Day).

Summary of Issue	Response
	Evening – 35 LA90(Evening). Night – 30 LA90(Night). *AS1055 -1997 Acoustics – Description and measurement of Environmental Noise*, describes these levels as relevant to an area with negligible transport and no commerce or industry. As the nearest residential receivers are located adjacent to the Port Botany industrial area, these RBLs were considered conservative and remain relevant to the proposal. GHD prepared adjusted operational noise criteria at the residential receivers as being 45LAeq (day), 35 L Aeq (evening) and 30 LAeq (night). The same operational hours and the same construction hours of M-F 7am to 6pm, Sat 8am to 1pm will be applied to the subject modification, consistent with MOD 2. The predicted noise levels of the works sought as part of MOD 2 at the residential receivers were below the night-time adjusted amenity noise criteria of 30 dB(A). The predicted noise levels at the other noise sensitive land uses are also below the respective adjusted amenity noise criteria. Therefore it was concluded for Mod 2 that the proposal would not contribute cumulatively to the existing industrial noise in the area and would be acceptable from an acoustic perspective. Given the proposed combustor's Noise and Vibration specification states, the design of the combustor will meet Australian standards and not

Summary of Issue	Response
	exceed 85dba within 1m. In any case the new combustor will not be noisier than the current combustor. Therefore, the current operations are well below the criteria outlined in the INP for the nearest sensitive receivers, the proposal is acceptable from an operational noise perspective. There is also a reduction in the truck movements as a result of the proposal. Construction noise can be adequately managed through the conditions of consent. An inlet silencer has been allowed for the combustion air fan to mitigate noise impacts as part of the design. See Gasco's specification document, accompanying this response. Terminals is prepared to conduct noise logging at the site boundary to confirm the noise level of the current combustor. Gasco, the manufacturer and installer, will be undertaking a noise study and vibration study as part of detailed design prior to works commencing. It is worth noting that confirmation of noise levels of equipment is not normally done until after a planning approval. If thought desirable an inspection of the site to witness the noise level of the existing combustor would demonstrate noise levels are not unacceptable. Alternatively, a limit could be specified in the approval.

Summary of Issue	Response
Details of onsite commissioning and associated emission monitoring to ensure the thermal oxidiser is functioning as designed and as predicted in the air quality impact assessment report is missing.	MOD 2 included an Air Quality Assessment prepared by GHD. This report assessed the proposal against the National Pollutant Inventory (NPI) and US EPA emission estimation technique manuals. Further, the report assessed the impact of potential emissions to air from the operation of the new facilities and deemed the air emissions to meet the NSW OEH design criteria for the new tanks. As the second combustor was not contemplated in Mod 2, an updated AQIA has been prepared. This also responds to the EPA's comments. The conditions of consent advise the following: *The Applicant shall undertake air quality monitoring outlined in the EPL for the development* (condition 24 Mod 1). This remains valid and will be complied with. It is noted that an EPA licence amendment is required. It is normal practice for the EPA to require confirmation of performance. This was done with the original combustor and has also been specified for an upgrade our recently upgraded VRU for the fuel facility. *The Applicant shall prepare and implement a Construction Environmental Management Plan for DA No. 246/96 MOD 2 to the satisfaction of the Director-General. The Plan must (among other things):* *c) outline in detail all environmental management measures to be implemented (in particular for air quality, traffic, noise and vibration) and the practices and*

Summary of Issue	Response
Details of leak sensors to assist in the early detection of any potential spillage or leakage of liquids or gases has not been provided for the proposal to form part of the Vapour Emission Control system as advised in the SEE. This is a requirement which is outlined in the following documents: Port Botany Development Code 2009 Checklist under Criteria 10 requires that pipeline joints are required to have a bunded pit and leak detection system, and; HAZOP Report completed by Pinnacle Risk Management for the proposal. This HAZOP report recommends an action of further assessment for additional controls that may be required to address potential leak detection of liquid waste from the piping system (Node # 0.02). Council notes that no details of this pit and detection system is included in the SEE for the proposal and this should be addressed and mandated before consent is granted as a HAZOP requirement.	*procedures to be followed during construction of the modification* (condition 37A Mod 1). A CEMP will be prepared for MOD 3, consistent with the conditions of consent and address matters including air quality. An updated AQIA has been provided detailing the checks required during onsite commissioning. Refer to **Appendix C**.. Onsite emission monitoring is conducted on a prescribed basis in accordance with the EPL1048 Leakages - a gas detector at the combustor is a safety requirement as part of the revised specification. The design will include spill containment at the gas appliance for any credible volumes of spills combined with the gas detection. Daily inspections are conducted on the existing combustor and this will apply for the new combustor as part of routine operational checks. As such, any potential leak points at the combustor will be monitored and contained. Gasco, the manufacturer and installer, will provide a spill containment mechanism at the combustor waste pipe connections, which may entail a hood and tray arrangement to achieve this. This is consistent with the HAZOP recommendation. Outside this connection, the pipe will be fully welded and runs within the bunded area of the existing terminal similar to other existing pipes. Piping is inspected and maintained routinely in accordance with maintenance and operations procedures. These attributes can be dealt with under the conditions of consent.

Summary of Issue	Response
Council notes that the proposed second thermal oxidiser has the added capability of burning liquid waste which will be sourced from Waste Tanks 2 and 3 at Site A and the existing tank, T-261, which will be re-purposed as a new waste tank. The proposal has no safety provisions for managing any potential spills and ensuring contaminants do not enter the stormwater system Council in and around the thermal oxidiser site.	Tank T261 is an existing tank and will be utilised to store liquid waste from the various liquid waste streams on site. T261 is suitable for this service and is in a bunded area which complies with the requirements of AS1940. This tank has secondary containment by virtue of the bund and the bunded area is drained through a pollution control system being the interceptor system with ancillary equipment. Existing waste tanks 2 and 3 have exactly the same arrangement for spill containment as Tank 261 and other existing tanks on site. If any waste streams are picked up from the pollution control system these are collected in the waste tank and treated by the combustor which is a directly related benefit of the project. Previously treated this waste stream on site was not possible which means the new system is an improvement to the current arrangement.
Environmental Protection Authority comments	
1. Matters to be addressed prior to determination **Air quality** The AQIA has not been completed in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (Approved Methods) and is not appropriate for decision making purposes. The	**1. Matter to be addressed prior to determination** **Air quality** The AQIA has been updated to respond to EPA comments. In particular, the AQIA has been modelled against Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (Approved Methods) with the exception

Summary of Issue	Response
assessment methodology, including emissions calculations, modelling and meteorology has not been adequately presented and the proposed process has not been described in sufficient detail to enable the EPA to understand the proposed operations. While the impacts of the modelled pollutants are predicted to be low at receptors, the emissions inventory has not been constructed with adequate transparency. Benzene impacts have not been considered in accordance with the Approved Methods and total VOC emissions concentrations have not been included. See Attachment A for full details of the EPA's review of the AQIA	that AERMOD was the preferred method used instead of AUSPLUME. EPA was consulted regarded the use of the dispersion system and the advice was that "AERMOD can be used in place of AUSPLUME provided the use can be justified as the more appropriate selection." Further, the AQIA strengthens the emissions calculations, as follows: "*The modelled emission scenario assumes a worst-case situation. The discharge rates from the proposed and existing thermal oxidisers were assessed assuming emissions at the licence limit of 20 mg/m3 for total VOCs, 1 mg/m3 for benzene and 350 mg/m3 for nitrogen dioxide. The emission from the VRU is assumed to be at the emission limit of 10 mg/m3. Emissions from the bitumen combustor are for worst case as described in the report Botany PMB and CRMB Project Air Quality Assessment, prepared by GHD dated 14 October 2020 (Appendix D).* *The dispersion modelling has been used to identify the potential air quality impacts in the vicinity of the site with additional focus on the nearest residential locations. The predicted maximum concentrations from the dispersion modelling have been used to assess potential impacts."* The AQIA adequately addresses the modelling and meteorology throughout both Sections 4.4 and 5.3 respectively.

Summary of Issue	Response
Attachment A – EPA comments on AQIA	
1. The EPA recommends the proponent provides manufacturer emission guarantees for the proposed thermal oxidiser including any supporting information, data and technical specifications of the unit proposed to be installed. The EPA recommends that the proponent uses the concentration limits specified in the licence for all existing emission sources in the assessment, and that for all other pollutants recent test data is used.	Licence limits for the combustor have been used for the dispersion modelling. For pollutants that do not have a licence limit in EPL 1048, the emission rates were calculated using CEC engineering data and where these were not available, the NPI Emission Estimation Technique Manual was used. Past emission testing reports have also been considered in establishing the emission rates. Refer to Section 5.2.
2. The EPA recommends that the proponent provides a detailed process description, including but not limited to a process flow diagram relating to the inputs and outputs of the two thermal oxidisers, all other emission sources, detailed discussion on unit operations and operational variability and parameters.	A detailed process description for the thermal oxidizers, bitumen combustor and VRU and carbon bed system has been included. Refer to Section 4.6 of the Report.
3. The EPA recommend all assessment methodology, including emissions and modelling, be clearly described in the AQIA and any assumptions used to determine impacts are clearly explained and justified.	Assumptions that were made have been outlined in various sections of the report.

Summary of Issue	Response
	▪ Meteorological assumptions are included in Section 4.4, 5.4.3 and Appendix C ▪ Air dispersion modelling assumptions are provided in Section 5.4 ▪ Emissions inventory and emissions estimation input assumptions are included in Section 2, 4.5, 5.3
4. The EPA recommends that the proponent provide the maximum benzene concentration at or beyond the facility boundary, contour plots for all significant pollutants and provide adequate discussion that emissions of benzene from the proposed thermal oxidiser will be appropriately minimised through application of best-practise process design and emission controls.	Receptors have been added at the facility boundary to predict the highest concentration at the property boundary for benzene in addition to sensitive receptors. This is explained in section 5.2. Contour plots have been included for all significant pollutants. (Figure F3 - F7).
5. The EPA recommends that the proponent evaluates and provides expected total VOC emission concentrations from the thermal oxidisers. Any supporting documentation, including manufacturers guarantees or test data, must be provided.	Refer to Section 4.5.1 of the Report.
6. Benzene emission rate (Table 5) for the second thermal oxidiser is given as 0.00203 g/s, however, The EPA calculates them to be 0.00958 g/s.	This has been adjusted to reflect both the thermal oxidisers operating at the licence limit for the existing thermal oxidiser (Refer to Table 4).

Summary of Issue	Response
7. The EPA recommends that the proponent consider the appropriate meteorological data to use in the assessment and should the 2017 Sydney Airport BoM data be appropriate, the proponent must adequately justify that it is representative of long-term meteorological patterns at the facility. The EPA recommends that the proponent validate the meteorological data used in the model against data from a met station that was not used to generate model data.	Refer to Section 4.4 of the Report. Comparison to historical data has been included to justify that 2017 is representative of long-term meteorological patterns at the facility.
8. The EPA recommends that the proponent justify the use of AERMOD to accurately reflect the meteorology of a coastal site.	Refer to Section 5.4.1 of the Report.
Claimed benefits of proposal Section 3.4 of the WMIA states that the proposal "provides the following benefits over the current waste disposal methodology: a) It eliminates transport emissions, including fuel burnt, fugitive emissions from tyres/brakes as well as releases associated with loading/unloading, and wear/damage to roads; b) It reduces the pollutant load on Sydney Water; c) It reduced the quantity of waste material ending up in landfill;	**Claimed benefits of proposal** Icubed provided the following response which relays the discussions in the meeting with EPA: a) The existing waste disposal process includes trucking Quantem's waste to off site facilities and whilst this is a minor benefit as discussed, we note that the emissions from transport are eliminated under this proposal b) Quantem's understanding of the current waste disposal process is that residual chemicals are disposed as trade waste and that would also be eliminated under this proposal. Quantem/iCubed are not able to obtain data as to the volumes that go to trade waste however note that the

Summary of Issue	Response
d) It will provide equivalent or better waste destruction in comparison to offsite fuel burning such as kilns (natural gas being a cleaner accelerant than coal); and e) It will provide redundancy in the site's waste management system and greater guarantees around waste disposal. The EPA notes that little data has been provided to support the above claims. Section 3.5 of the WMIA provides an estimate of annual CO2 emissions from the proposal in comparison to the current waste management strategy. However, little information is provided about types or volumes of other pollutants. Section 7.2.3 of the SEE discusses benzene and sulphur dioxide emissions, but these pollutants are not included in the WMIA. The EPA recommends that all relevant pollutants should be identified for the current and proposed treatment options, and a life cycle analysis for each pollutant should be provided and compared between options.	proposed amount from the new development is zero for the waste managed by the proposed development. c) Quantem's understanding of the current waste disposal process is that solids are removed by gravity settlement or coarse filtration and end up in landfill. Under the current proposal the agitation process will mean that these solids are destroyed through the combustor. d) Section 3.5 of the WMIA report addresses this. Whilst the data for the kiln is not available to Quante, the use of natural gas as opposed to coal, is significantly better for the environment. As concluded in Section 3.5.6, the CO2 equivalent of the proposal is more than 4 times better. the thermal destruction of the liquid waste on site carries a significantly lower environmental impact than current practices, due mainly to the biological release of methane to atmosphere which is eliminated. e) With one combustor in the existing arrangement, there is no redundancy and a combustor outage results in shutting down. Introduction of a 2nd combustor will allow backup in the event one of the combustor goes down or to allow maintenance. With one combustor in the existing arrangement, a combustor outage results in emissions being sent to the carbon beds. Introduction of a 2nd combustor will allow backup in the event one of the combustor goes down. Within Section 3.5 details have been added as to the volumes of pollutants and discussion added on benzene and sulphur dioxide.

Summary of Issue	Response
	Icubed provided the following response: The report estimated CO2-equivalents, not CO2. This is a measure of equivalent greenhouse effect, using CO2 as the units of measure. It includes, for example, methane (the majority environmental impact which is prevented under the proposal). In relation to sulphur dioxide and benzene: this sort of analysis is more suited to an AQIA, rather than a WMIA, but to address it, the increase of each at the Port Botany site was estimated. This is detailed in Section 3.5. The impact is very minor. Overall, the proposed Mod 3 will have consistent operation and environmental management measures in place as that approved as part of Mod 2 and as established for the existing bulk liquid storage facility on site such as: This includes operating under a Safety Management System and Environment Management Plan. The facility is certificated to ISO 9001 Quality Management System and ISO 14001 Environmental Management System. The Environmental Management Plan would be updated to reflect the proposed changes to the site. The proposal must be operated in accordance with the updated plan, inclusive of spill response measures.

Summary of Issue	Response
Consistency with the Waste Hierarchy The Waste Hierarchy is a set of priorities for the efficient use of resources in NSW, and underpins the objectives of the Waste Avoidance and Resource Recovery Act 2001. The hierarchy considers treatment of waste through thermal destruction (as is proposed) acceptable only if the waste cannot be reused or recycled in some way. Section 3.4 of the WMIA states that “the current management of the waste liquid stream is to have it collected by Cleanaway, and treated at their facility.” The waste is separated into three components; solids, which go to landfill; oil, which is combusted at a facility in Gladstone; and effluent, which is discharged as trade waste to sewer. Section 3.4 of the WMIA states that “Cleanaway have indicated that… the oil phase from the waste… is combusted in a kiln for useful heat.” The EPA notes that the portion of the waste that is used in the kiln may constitute energy recovery under the Waste Hierarchy, and therefore would be a more beneficial reuse of the waste than that proposed. However, it is not clear what volume of hydrocarbon waste from the premises is used in the kiln, and what fuel source will be used in place of the hydrocarbon waste. Section 3.5 of the WMIA implies that coal will be used in place of the hydrocarbon waste in the kiln, but this is not confirmed in the WMIA.	**Consistency with the Waste Hierarchy** As detailed in the accompanying WMIA prepared by Icubed Consulting, whilst energy recovery has been identified as a potential option for the project, it is not economically viable at present. The volume of hydrocarbon used in the kiln is detailed in Section 3.5 of the WMIA to be 680 tonnes per year. It is impossible to know what fuel the kiln may use in place of Quantem’s liquid waste, but some calculations do assume coal, as an indicative option under Section 3.5 of the WMIA. Life cycle analysis was completed, however it has been further detailed, breaking down hydrocarbons into soluble and insoluble, as well as adding in some extra steps, previously excluded as they were known to be minor. This was confirmed by the calculation. The benefits are: • Zero methane emissions (ref WMIA section 3.5.6) representing a significant improvement over existing • Reduced truck movements and emissions

Summary of Issue	Response
The EPA recommends that the life cycle analysis recommended above include information about how much hydrocarbon waste fuel is used in the kiln, and what type and quantity of fuel will be used in place of the hydrocarbon waste. Further, the applicant should provide data to demonstrate the claim that the move from a more beneficial waste management option (energy recovery) to a less beneficial option (waste treatment) under the Waste Hierarchy will be offset by gains made through transport reduction, reduced landfill, etc. The EPA recommends that the applicant provide further information to justify the above claim.	• Reduced load on the environment due to trade waste disposal offsite at Homebush treatment facility Operation efficiency in handling waste on site. The new combustor presents the opportunity for liquid waste burning. All of the above is detailed in Section 3.5. There will be some energy recovery as natural gas for the destruction of waste will provide heat for the destruction of the waste (i.e. for maintenance of temperature in the combustion chamber). However, when considering the overall impacts of the existing and proposed pathways, in terms of the equivalent carbon dioxide emissions (CO2¬-e) the on-site thermal oxidation is preferable by a wide margin.
Destruction of pollutants Section 3.4 of the WMIA states that “Quantem’s proposed treatment of the liquid waste stream on site will result in higher destruction rate of pollutants [than the kiln].” However, no data is provided to support this statement.	**Destruction of pollutants** Icubed provided the following response: As discussed with EPA, this claim has been removed, although it is very similar to the above where it was reworded “broadly equivalent”, and the same comments apply. To reiterate: - several factors are unknown, but more importantly, the difference is inconsequential in the overall balance, which is further detailed in Section 3.5.

Summary of Issue	Response
2. Minor matters **Licensing for energy recovery** Based on the information provided, the EPA understands that the proponent is not intending to recover energy from the proposed burning of liquid waste. However, Section 3.6 of the WMIA states “There will also be consideration in the design of the thermal oxidiser for the future installation of a heat recovery system to minimise energy use.” Table 2 of the WMIA states “Energy recovery has been identified as a potential option for this project. There is potential to use the heat of combustion from the waste stream coupled to a heat exchanger to generate hot water or steam that could be used on the site.	Whilst energy recovery has been identified as a potential option for the project, it is not economically viable at present.

8. CONCLUSION

This RTS report has considered the submissions received from Randwick Council and EPA as part of the referral process. During the RTS process the Applicant and the project team have worked with DPIE and EPA seeking clarification of a number of technical issues raised to aid in our understanding of the key issues in order to comprehensively address the comments received and work through key matters.

We are of the opinion that all raised matters have been addressed in this response.

Overall, the proposal will deliver a feasible and workable development on the subject site.

We would welcome further discussions on the matters if that would assist. Please speak to Liam Butler or Naomi Daley from Urbis or Trent Gearside from Quantem if you require further information.

Yours sincerely,

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APPENDIX A MOD 2 PLANS

APPENDIX B MOD 3 PLANS

APPENDIX C AIR QUALITY IMPACT ASSESSMENT

APPENDIX D WASTE MANAGEMENT AND IMPACT ASSESSMENT