STATEMENT OF ENVIRONMENTAL EFFECTS - SECTION 4.55(2) TO DA246/96

SECOND COMBUSTOR - TERMINALS, PORT BOTANY

URBIS

PREPARED FOR TERMINALS PTY LTD

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Clare Brown
Associate Director	Naomi Daley
Consultant	Liam Butler
Project Code	P_27096
Report Number	FINAL - 01

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APPENDICES

A. DA246/96 Mod 2 Approval, dated 14 January 1997;

B. Correspondence with the Department of Planning, Industry and Environment on the matters to be addressed in the Modification Report, dated 5 November 2020;

C. Drawings prepared by CEC Engineers, dated 22 October 2020 and 15 October 2021;

D. HAZOP, prepared by Pinnacle Risk Management Pty Ltd, dated 28 October 2020;

E. Preliminary Hazard Analysis prepared by Pinnacle Risk Management Pty Ltd, dated 14 November 2020.

F. Air Quality Assessment (Rev 4) prepared by Peter Ramsay and Associates dated 8 November 2021;

G. Waste Management and Impact Assessment prepared by Icubed dated 9 November 2021

H. Waste Management and Heat Recovery Report prepared by Quantem dated 11 August 2021

I. Technical Specification VOC and Liquid Waste prepared by CEC dated 9 November 2021

J. Gasco letter (Rev 0) dated 20 May 2021

K. Response to EPA RFI prepared by Ricardo dated 9 November 2021 EPA response

L. Ports Development Code Checklist, prepared by Urbis and Terminals

STATEMENT OF VALIDITY

This Section 4.55(2) Report has been prepared by Naomi Daley of Urbis Pty Ltd on behalf of Terminals Pty Ltd.

It is declared that this report has been prepared to the affect that:

- The statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure to which the statement relates, and
- That the information contained in the statement is neither false nor misleading.

Name: Naomi Daley

Signed:

Position: Associate Director

Date: 18/11/2021

1. INTRODUCTION

1.1. OVERVIEW

This Statement of Environmental Effects (SEE) has been prepared by Urbis on behalf of Terminals Pty Ltd to accompany an application under Section 4.55(2) of the Environmental Planning and Assessment Act 1979 to modify Development Consent No. 246/96 at 45 Friendship Road and 9 Simblist Road, Port Botany (Site).

The then Minister for Urban Affairs and Planning granted approval to DA 246/96 on 14 January 1997, which included consent for the '*expansion of an existing bulk liquid storage facility with associated loading/ unloading facilities, pipelines, safety systems, landscaping and fencing'*.

This proposal is for Modification 4 to the original consent, DA246/96, to allow for a second thermal oxidiser and associated infrastructure and demolition and removal of an existing waste water tank on the existing Terminals' Site.

It is noted that this application follows on from the submission of a Section 4.55(1A) dated 19 November 2020, seeking a comparable proposal, however on the Department's advice is now revised to require the submission of a Section 4.55(2) following an ongoing dialogue with EPA. Design amendments and additional reporting has been prepared since the original submission (to be withdrawn) given the proposed installation is classified as a Group 6 Treatment plant under the *Protection of Environmental Operations (Clean Air) Regulations 2010*. (See also commentary in Section 4). This submission somewhat builds on the past, withdrawn modification application.

Two subsequent modifications have been approved including:

- **Mod 1** - approved 6 September 2009 for an on site capacity of 25,000m^3 of diesel, petrol and ethanol at the site at any one time (the proposal added two 10,000 cubic metre tanks). Given the age of the original consent, Schedule 1 and Schedule 2 of the consent were updated in line with current legislation and operating procedures.
- **Mod 2** - was sought under the provisions of the Section 75W and sought broadly to allow for twelve additional tanks with an increase in storage capacity of 14,500m^3 bringing the Stage 5 capacity up to 39,500m^3 (from its existing approved 25,000m^3). Importantly works were also approved relevant to land known as Stage 1-4 and included new exchanger pit, new pump bay and extension to an existing pump bay and new associated truck loading bay at Friendship Road frontage.

  These amendments were implemented through modification to conditions 5, 19 and 33 of Development Consent No. 246/96.

This proposed amendment relates to land that forms part of the broader Terminals site. It is noted that the original approval was subject to land known as Stage 5, to the south of the site, however Modifications have been approved to land known as Stage 1-4, to the north of the site.

This subject application (**Mod 4**) is seeking to rely on Clause 3BA(6)(b) of Schedule 2 of the *Environmental Planning and Assessment (Savings and Other Transitional Provisions) Regulation 2017*, that considers any modification to a development consent that had previously been modified under the now repealed s75W (old Part 3A modifications), that when considering the substantially the same development test, must consider it from when it was last modified (i.e. Mod 2). The implication being that for the purposes of the approval, the land within Stage 1-4 and Stage 5 form part of the development consent, D246/96.

This report includes the following components:

- A description of the site and its surrounds;
- A detailed description of the proposal;
- An assessment of the proposal under section 4.55(2) of the Environmental Planning and Assessment Act 1979;
- An assessment of the proposal against the provisions of section 4.15 of the Environmental Planning and Assessment Act 1979; and
- A discussion of the key impacts of the proposal.

The application is accompanied by the following Attachments:

M. DA246/96 Mod 2 Approval, dated 14 January 1997;

N. Correspondence with the Department of Planning, Industry and Environment on the matters to be addressed in the Modification Report, dated 5 November 2020;

O. Drawings prepared by CEC Engineers, dated 22 October 2020 and 15 October 2021;

P. HAZOP, prepared by Pinnacle Risk Management Pty Ltd, dated 28 October 2020;

Q. Preliminary Hazard Analysis prepared by Pinnacle Risk Management Pty Ltd, dated 14 November 2020.

R. Air Quality Assessment (Rev 4) prepared by Peter Ramsay and Associates dated 8 November 2021;

S. Waste Management and Impact Assessment prepared by Icubed dated 9 November 2021

T. Waste Management and Heat Recovery Report prepared by Quantem dated 11 August 2021

U. Technical Specification VOC and Liquid Waste prepared by CEC dated 9 November 2021

V. Gasco letter (Rev 0) dated 20 May 2021

W. Response to EPA RFI prepared by Ricardo dated 9 November 2021 EPA response

X. Ports Development Code Checklist, prepared by Urbis and Terminals

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

1.2. MATTERS TO BE ADDRESSED IN THE MODIFICATION

In accordance with the Department of Planning, Industry and Environment's (**the Department/DPIE**) protocols, DPIE has reviewed the proposed approach to preparing a modification application, and requests the Statement of Environmental Effects and final documentation address the matters outlined in Attachment A of the DPIE correspondence dated 5 November 2020.

A Scoping Meeting was held on 29 October 2020. Table 1 summarises the matters to address in this Modification 4 and a corresponding response.

Table 1 DPIE Correspondence

Requirement	**Response**
1. Description of the modification, including: ▪ A short description of the approved development (the terminal site the subject of the original application DA 246/96) and the reasons why the modifications are required ▪ A detailed description of the proposed modification, including the relationship with and changes to existing operations ▪ Identification of conditions to be modified and any proposed wording ▪ Identification of any proposed variations to other licences and approvals.	Refer to **Section 3** and **Section 5.**

Requirement	Response
2. Strategic and statutory context, including ▪ The need and justification for the proposal having regard to its location and impacts, the suitability of the site and the public interest ▪ Consideration of all relevant legislation, strategies, environmental planning instruments, including identification for any inconsistencies ▪ Detailed justification the proposal is of minimal environmental impact in accordance with section 4.55(1A) of the Environmental Planning and Assessment Act 1979.	Refer to **Section 6** and **Section 7.** *It is noted that since the scoping meeting, the approval pathway has been determined to be a Section 4.55(2).*
3. Community and stakeholder engagement, including: ▪ Details of findings from any engagement/s with the local community and the relevant public authorities (including Council and the Environment Protection Authority)	Refer to **Section 4**.
4. Assessment of the modification, including: ▪ A detailed assessment of the key environmental issues associated with the proposal, which includes: ▪ An assessment of the relevant impacts associated with the construction and operation of the new thermal combustor. ▪ An assessment of the potential impacts of all stages of the development, including any cumulative impacts of the proposal with the existing operations on site. ▪ An assessment of the merits of the proposal.	Refer to **Section 7** of this report.
5. Hazards, including: ▪ A clear description of the thermal combustor, including the interaction of this plant with existing plant and operations ▪ Identification of hazards associated with the thermal combustor, including but not limited to any additional hazards associated with existing plant and operations due to the thermal combustor, along with clear identification of safeguards to address these hazards ▪ Verification that the overall site inclusive of the thermal combustor can continue to comply with the Department's Hazardous Industry Planning Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning'.	Refer to **Section 7** and **Appendix D and E**.
6. Air quality and Odour, including:	Refer to **Section 7** and **Appendix F**.

Requirement	Response
An assessment of the potential air quality, dust and odour impacts associated with the new thermal combustor in accordance with the relevant Environment Protection Authority guidelines.	

2. BACKGROUND

2.1. THE APPLICANT

Terminals Pty Ltd is an Australian company providing service to industry in the form of bulk liquid storage facilities leased to customers at strategic Australian port locations. The legal name is Terminals Pty Ltd, however they operate under the trading name as Quantem, so some accompanying reports and drawings may reference Quantem.

Quantem includes facilities under the legal names of Terminals Pty Ltd and Liquid Terminals Australia Pty Ltd. They are owned by the parent company. However, the only sites owned by Terminals Pty Ltd are Port Botany, Coode Island, Corio and Pelican Point. Largs Bay and Fremantle are part of Liquids Terminals Australia (LTA). LTA also includes Pinkenba (QLD), Devonport (TAS), and North Laverton (Vic).

Terminals Pty Ltd's Port Botany facility is located at 45 Friendship Road and 9-11 Simblist Road, Port Botany in the local government area of Randwick. The site forms part of the Port Botany industrial area and is surrounded by heavy industrial uses. The Terminals' facility is used for bulk liquid storage and handling for hazardous and non-hazardous bulk liquids. It accommodates 91 storage tanks (7 which are bitumen) in service and has an overall storage capacity of 200,000L.

The site is leased from NSW Ports who in turn hold a 99 year lease from the NSW Government. Terminals have been the lessee and operator of the existing bulk liquid storage and handling facility for hazardous and non-hazardous bulk liquids at Port Botany since 1979. The original facility has undergone multiple subsequent expansions, each involving the construction of additional storage capacity.

2.2. APPROVED DEVELOPMENT

Under the existing operations, a range of fuels and chemicals are currently received by ship at the nearby Bulk Liquids Berth No. 1 (see Figure 1) and transported by pipeline to the storage tanks on site before being dispatched by truck to a range of Terminal's customers across NSW and Australia. The Terminals facility operates under a number of Part 4 consents issued by Randwick City Council (known as Stages 1-4), a Part 4 consent issued by the then Minister for Planning (known as Stage 5) and a number of Part 5 approvals issued by Sydney Ports Corporation and CDCs, certified by Randwick Council. Terminals facility includes (but are not limited to) ethanol, hexene and styrene.

Appendix A contains the original development consent and copies of MOD 1 and MOD 2.

2.2.1. Relevant consent

The then Minister for Urban Affairs and Planning granted approval to DA 246/96 on 14 January 1997, which included consent for the '*expansion of an existing bulk liquid storage facility with associated loading/ unloading facilities, pipelines, safety systems, landscaping and fencing'* at 11 Simblist Road, Port Botany.

This approval involved 12 tanks totalling 20,250m³ in capacity and is known as the 'Stage 5' expansion. This development was legally commenced by the construction of Tank 270 and the associated works including the construction of a large hard surfaced area surround by a bund wall and development of associated infrastructure, comprising loading/unloading facilities, pipelines, safety systems, landscaping and fencing.

2.3. APPROVED MODIFICATIONS

2.3.1. Mod 1

On 6 September 2009, the then Minister for Planning approved a modification to DA No. 246196 (MOD 1, known as Stage 5A) for the expansion of the existing bulk liquids storage facility with supporting infrastructure. The expansion allowed Terminals to cater for increased customer demand for larger deliveries.

In particular, Modification 1 permitted Terminals to construct two additional storage tanks, each with 10,000m3 capacity (of diesel, petrol and ethanol at the site at any one time) rather than the 1 1 remaining tanks previously approved to be built in 1997 as part of DA No. 246/96; to increase the approved total storage capacity of the facility from 20,250m3 to 25,000m3; to construct a new Vapour Recovery Unit (VRU)

to recover petroleum vapours from the tanker loading operations and return it to the respective storage tank; and for loading and unloading faculties, pipelines, safety systems, landscaping and fencing.

Given the age of the original consent, Schedule 1 and Schedule 2 of the consent were updated in line with current legislation and operating procedures.

2.3.2. Mod 2

A further modification (Mod 2) was sought to the original consent to allow for twelve additional tanks with an increase in storage capacity of 14,500m³ bringing the Stage 5 capacity up to 39,500m³ (from its existing approved 25,000m³).

Specifically, the modification included:

- Installation of an additional 12 tanks within the area of the site known as Stage 5;
- Total volume capacity of 14,500m³, increasing the total capacity subject to this approval to 39,500m³;
- Storage of combustible liquids;
- New exchanger pit;
- New pump bay and extension to an existing pump bay; and
- New associated truck loading bay at Friendship Road frontage.

The amendments were implemented through a modification of the following conditions of Development Consent No. 246/96:

- Condition 5 - amended the reference to the storage capacity to store not more than 39,500m³ and the type of products stored as being non-flammable products (generally combustible liquids);
- Condition 19 – amended the wording of the condition relating to vehicle queuing;
- Condition 33 – amended the wording in relation to landscape management; and
- Site plans at Appendix A of the approval were amended

3. SITE AND SURROUNDING CONTEXT

3.1. TERMINALS LAND

Port Botany is one of the major ports in NSW with one of the predominant trades being the storage and handling of petroleum products, liquefied petroleum gas, and liquid chemicals. The majority of industries in the Port Botany Industrial Area and surrounding the site are involved in the storage and distribution of these products including Terminals, Qenos Pty Ltd, Origin Energy Pty Ltd and Vopak.

The site is leased from NSW Ports who in turn hold a 99 year lease from the NSW Government. Terminals are the lessee and operator of three bulk liquid storage and handling facilities at Port Botany, NSW, i.e. Sites A, B and C (at 51 Friendship Road).

The subject site (Sites A and B) are located at:

- 45 Friendship Road, Port Botany and is legally described as Lots 16, 17, 18 in DP1126332 and Lot 102 in DP1182871

The original facility has undergone three subsequent expansions, which have resulted in changes to the historical Lots and Deposited Plans. A breakdown of these changes is detailed in the table below.

Table 2 Lot and Deposited Plan Breakdown

Application	Street Address	Lot and DP
DA246/96	11 Simblist Road	Lot 1 DP 62287
MOD1	9-11 Simblist Road, Botany	Lot 1, DP 62287
MOD2	▪ 43-45 Friendship Road, Port Botany ▪ 9-11 Simblist Road, Port Botany ▪ Bulk Liquids Berth	▪ Lots 16, 17, 18 in DP1126332 ▪ Part Lot 6 DP 1053768 ▪ Lot 26 DP 1009872
Current Section 4.55(2) application (Mod 4)	45 Friendship Road, Port Botany	▪ Lots 16, 17, 18 in DP1126332 ▪ Lot 102 in DP1182871

Built development within the site consists of storage containers, administration buildings, car parking, store rooms, workshops, truck loading bays, weighbridge and storage areas. Storage containers / tanks are generally located in the southern portion of the site. There are currently 91 storage tanks (7 which are bitumen) accommodated within the site. The entire Terminals site has an overall storage capacity of 200,000L.

The entire site, the subject of the modified consent, is identified in Figure 1 below in red.

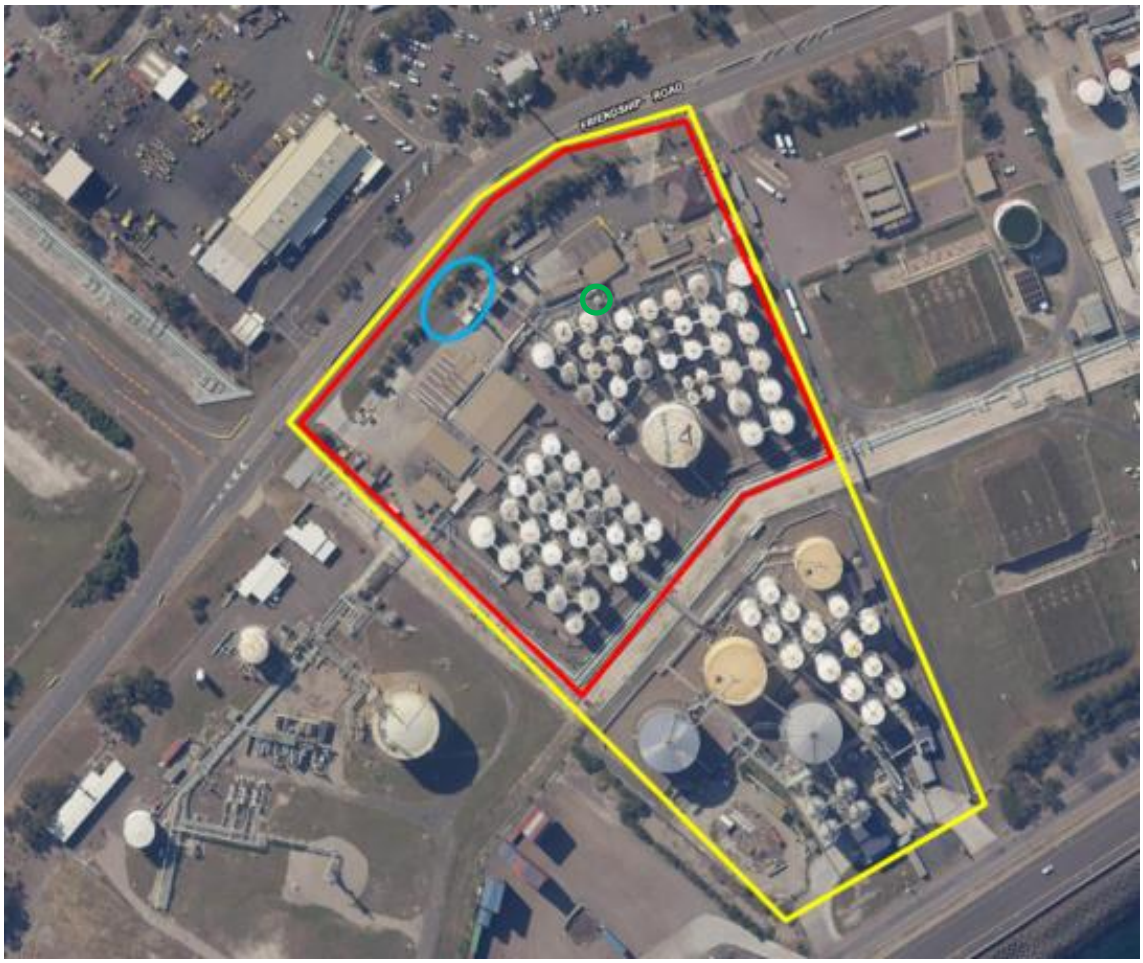
Figure 1 Site Aerial

Source: SIX Maps

3.2. THE DEVELOPMENT SITE

The site of the proposed works are located in the northern area of the site adjacent to the existing thermal oxidiser identified in red (historically known as Stages 1- 4) with the location of the existing and the proposed thermal oxidisers circled in blue and replacement of the waste water tank indicated in green below.

Figure 2 Aerial Close



Source: SIX Maps

Photos of the existing combustor and the immediate area of the proposed works are below.

Figure 3 – Existing combustor and area of proposed works

Picture 1 – Looking south east

Picture 2 – Looking south

3.3. SURROUNDING LAND USES

Port Botany has been specifically developed for industrial purposes relating to shipping and port based activities. The majority of companies which operate within Port Botany involve industries relating to container imports/exports and logistics, petroleum products, liquid petroleum gas and liquid chemical. In the vicinity of the site these companies include:

- Qenos Pty Ltd;
- Origin Energy Pty Ltd; and
- Vopak Terminals Australia Pty Ltd

The closest residential development, Phillip Bay, is located 1.5km east of the site. Botany Bay is located 125m east of the site.

3.4. DEVELOPMENT HISTORY

Terminals has owned and operated the site as a bulk liquid storage and handling facility for hazardous and non-hazardous bulk liquids since 1979. The original facility has undergone three subsequent expansions, each involving the construction of additional storage capacity. A summary of the planning history for the site is provided in the table below (see also Section 5.8):

Table 3 – Planning History

STAGE	NUMBER OF TANKS	ADDITIONAL CAPACITY (M^3)	DATE OF DA AND REF (WHERE AVAILABLE)	COMMENTS
1 (original DA)	20	22,350 (original capacity)	940/77 (23-6-1978)	
2	12	5,810	1780/79 (15-1-1980)	
3	28	18,820	1341/85 (21-2-1986)	
4	4	800	1989 (840/45/D – 161/88)	Other reference 1988/1131/00 (8-3-1989)
	1		0278/00 (4/5/1992)	Tank 217
			0073/00 (28/01/1993)	Boiler
			840/45/D-480/94 (22/11/1994)	Fire system upgrade
5	12 (actually constructed one - Tank 270)	20,250 (actually constructed 5,000)	1997 (DA 249/96)	Consent for 'expansion of an existing bulk liquid storage facility with associated loading/unloading facilities, pipelines, safety systems, landscaping and fencing'. Works known as the 'Stage 5'. This development was legally commenced by the construction of 1 x 5,000 m^3 tank (Tank 270) and the construction of a large hard surfaced area surrounded by a bund wall.
	-		97/00120/CN (5/3/1997)	Caustic Dockline DL5
5A	Additional 2	Additional 20,000	September 2009 (DA 249/96 Mod 1)	The proposed modification involves the installation of 2 larger tanks, each with a capacity of 10,000m^3, rather than the approved 12 smaller tanks; increasing the storage capacity from 20,250m^3 to 25,000m^3. This development was named as 'Stage 5A'.
5A	2	3,500	C09/1141	Part 5 assessed by Sydney Ports Corporation

STAGE	NUMBER OF TANKS	ADDITIONAL CAPACITY (M^3)	DATE OF DA AND REF (WHERE AVAILABLE)	COMMENTS
5A	5	1x 10,000 4 x 1,000	C10/7175	Part 5 assessed by Sydney Ports Corporation: Relevant to Bitumen import facility Commissioned started in September 2012
-	-	-	C12/1297	Part 5 assessed by Sydney Ports Corporation: Approval for a new office building and associated works on Friendship Road frontage
-	-	-	C11/1703	Part 5 assessed by Sydney Ports Corporation: Relocation of an existing weighbridge (on Friendship Road frontage)
5A	12	Additional 14,500	S75W Mod 2 to DA246/96	31 October 2013
5B	2	2 x 1,000	CDC/71/2014	4 April 2014 - Obtained through Randwick Council

3.5. PARALLEL CDC WORKS

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 Three Ports SEPP for connecting works and works to Site C (via a CDC).

As is detailed in Section 5, this MOD 4 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.

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

- Existing LAY-001
- “LAY-001 DA-MOD3” denotes work at T261 and lines to combustor (as well as LAY- 005 Rev A, LAY-002 Rev B and LEY -001 Rev B)

- “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 4 and is subject to a separate approval request via a CDC with Randwick Council.

The drawing set prepared by CEC is attached.

4. CONSULTATION

Prior to lodgement of a Section 4.55(1A) in November 2020, Terminals met with Department of Planning, Industry and Environment (DPIE) on 6 May 2020 to discuss the proposed development, the project objectives and the approval process.

DPIE correspondence dated 5 November 2020 states that Terminals should consult with the local community and the relevant public authorities (including Council and the Environment Protection Authority).

In response to the above, the following has occurred:

- Terminals have formerly consulted with NSW Ports on 18 June 2020. As a consequence, the Planning Department required the completion of a compliance table relevant to the Ports Development Code (See **Appendix L**). A copy of the lodged submission is required to be issued to them when the Environmental Assessment is submitted to DPIE.
- Terminals had informal discussions with Randwick Council in relation to the previous Section 4.55(1A) modification application in November 2020. Council has provided 'in principle' support of the application.
- Environmental Protection Authority (EPA) has been briefed on the proposal on 30 June 2020. An amendment to the existing license is required and Terminals is currently in discussions on the amendment.

As part of the assessment and referral of the Modification dated November 2020, the following occurred:

- Randwick City Council (RCC) and the Environmental Protection Authority (EPA) requested additional information, issued via email correspondence on 21 December 2020 and 13 January 2021, respectively. Terminals provided a response including amended documentation and comprehensively addressed the issues raised by Council including provision of:
    - Amended 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

An ongoing dialogue has occurred with the DPIE and EPA regarding the Modification dated November 2020 until the current day and as such the preparation of this Section 4.55(2) has had due consideration to their feedback, including correspondence dated:

- EPA, dated 31 August 2021 requesting the proposed thermal oxidiser treatment plant categorisation as being a Group 6 under the Clean Air Regulation.
- DPIE, dated 29 April 2021 requesting additional information on environmental impacts as per EPA request
- DPIE, dated 13 January 2021 requesting additional information on the proposal as per EPA correspondence
- DPIE, email dated 23 December outlining Randwick City Council's referral comments
- DPIE, dated 7 December requesting a waste management and impact assessment

This subject Modification attempts to draw all the required documentation together and submit comprehensively under a Section 4.55(2) application. It is further noted that a comprehensive response to the EPA RFI on the matters of air quality and waste management has been prepared by Ricardo Energy Environment and Planning, initially in response to the matters raised in the EPA's correspondence dated 28 April 2021. See also Section 7.3.

5. DESCRIPTION OF THE PROPOSED MODIFICATION

5.1. OVERVIEW

The proposal seeks consent for the installation of a new thermal oxidiser with associated servicing and infrastructure and removal of existing waste tank 1 (WT1) and repurposing of tank T-261 as a new waste tank.

Appendix C includes the drawings prepared by CEC of the proposed works and modification.

5.2. PROJECT OBJECTIVES

The proposal will comprise a thermal oxidiser with associated servicing and infrastructure. The development will seek to:

- Support the current site operations and existing thermal oxidiser.
- Increase the design capacity of our emissions control equipment
- Enable waste burning capabilities to provide waste disposal assurance and remove the need for sending it interstate.
- Provide greater security of waste disposal.
- Reduce truck movements to and from the site.

5.3. PROPOSED USES

The proposal will comprise a thermal oxidiser with associated servicing and infrastructure.

The proposed second thermal oxidiser is required to support the existing operations and thermal oxidiser in the event that the current thermal oxidiser fails. It will also have waste burning capabilities.

The proposed thermal oxidiser is ancillary to the predominant operation of the site, being a bulk liquid storage facility.

5.4. THE NEED FOR THE PROPOSAL

The modifications are required to improve the integrity of the operation and reduce or remove the need to transport waste on public roads.

The second combustor will be 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 and used in conjunction with the second combustor for site thermal peak load scenarios. This will avoid potential contraventions to the site's Environmental Protection License (EPL).

5.5. PROPOSED THERMAL OXIDISER AND WASTE TANK

The Section 4.55(2) modification application seeks consent for the:

- Construction of a thermal oxidiser and associated servicing and infrastructure adjacent to the existing combustor.
- Demolition and removal of waste tank 1 (WT1).
- Repurposing of existing tank T-261 as a new waste tank.

5.6. ALTERNATIVES CONSIDERED

No other meaningful alternatives were contemplated. The alternative of 'do nothing' would mean the likelihood of the existing thermal oxidizer failing remains at risk as it is nearing its end of lifecycle. An extended shutdown would place the current operations of the facility under pressure, limiting the ability to operate.

5.7. PROJECT DESCRIPTION

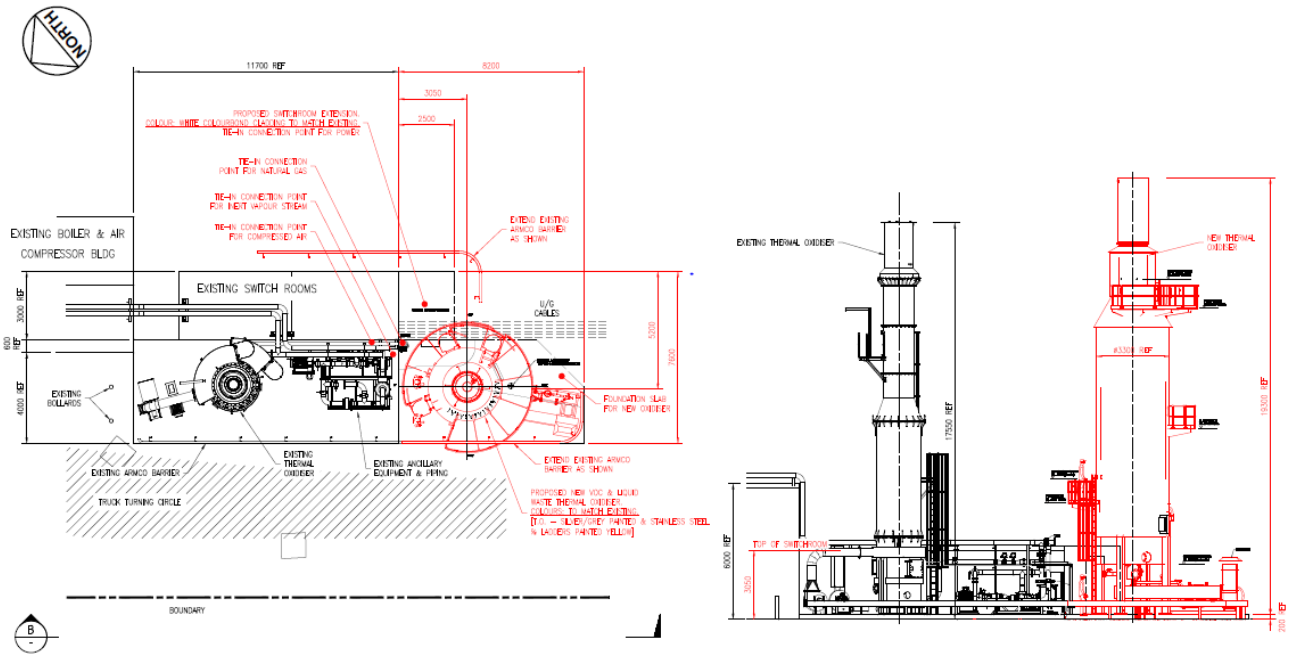
The key project parameters are described as follows:

- Further, the objectives are to install a second combustor at Site A to comply with EPA regulations as well as support the site during peak thermal load scenarios. 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 second combustor will be 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 and used in conjunction with the second combustor for site thermal peak load scenarios. This will avoid potential contraventions to the site's Environmental Protection License (EPL).
- Secondly, the project has the potential value add benefit of liquid waste burning to reduce waste disposal costs of the site and reduce export waste disposal from the site and its associated truck movements (that currently remove waste via road).
- The vapour supply to the new combustor will be from the existing vapour header to the current VECS and combustor systems. The supply piping design and controls to the new combustor will be identical to the existing combustor.
- Waste liquid will be sourced from a number of locations, namely Waste Tanks 2 and 3 at Site A.
- As part of this project, Waste Tank 1 and its associated equipment at Site A will be removed. Existing tank, T-261, will be re-purposed as a new waste tank. This is a fixed-roof tank with approximately 200 m3 capacity. It has redundant high level protection and fire protection (foam injection and exterior cooling water via sprays).
- Waste liquid from T-261 will be pumped to the proposed second combustor for treatment. If this combustor is not available, the waste liquid can be transferred via the existing piping systems to a road tanker, or Waste Tanks 2 and/or 3. When the waste liquid enters the proposed combustor, instrument air will be used to spray the waste liquid through a nozzle into the combustor to facilitate the combustion process
- The project entails a design and construct of a second thermal oxidizer, with flammable liquid waste processing ability, along with the required upgrades to Botany Site A auxiliary systems including electrical, automation, piping, PLC, civil. The project also entails liquid waste segregation at Site A along with transport only flammable waste reaching the combustor.
- Design and construct a new pipe bridge to support the additional piping and cable trays for the new thermal oxidizer.
- In terms of construction processes, the manufacture of the second combustor will take place off site and be assembled on Site A. Piping and associated infrastructure will be constructed on site and considering the brownfield limitations/constraints.

The location of the proposed oxidizer, waste tank and infrastructure are detailed within the layout and elevations in Figure 4 below.

Figure 4 Proposed Layout and Elevation Plans

Source: CEC Engineers



Source: CEC Engineers

5.7.1. 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) propose 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 liquid waste on site while providing redundancy to the existing VOC emission control. It will have a greater capacity than the existing unit, offering more operational flexibility, and be purpose designed to handle both liquids and vapours. The on-site treatment of the liquid waste stream provides additional security around waste disposal, noting that difficulties have occurred in the past with off-site treatment. The new unit will be the primary and the existing unit will act as a standby*".

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.

5.7.2. Operational Details

The proposal will result in approximately 40 construction jobs throughout the construction of the thermal oxidiser. No additional operational jobs will be created as part of the development.

5.7.3. Safety and risk management procedures

Terminals' safety management strategy is to conduct operations such that risks to staff, the public, the environment and property are rigidly controlled. Terminals have a Safety Management Manual which details the applicable elements of Process Safety Operations to Terminals' operations. All incidents, accidents and unusual occurrences on the Terminals site are reported and investigated.

5.7.4. Standards (to be adopted)

Terminals will comply with the relevant standards. The principal Standards used for the project include, but not limited to:

- AS 1940: The Storage and handling of corrosive substances
- ANSI B31.3: 2016. Process Piping
- AS3814 - Industrial and Commercial Gas Fired Appliances;
- AS5601 - Gas Installations
- AS3600:2009 Concrete Structures
- AS/NZS 3000: 2018 – Wiring Rules
- AS 60079:2008 Electrical Apparatus for explosive gas atmospheres

5.7.5. EPA Approval

EPA license approval for the additional discharge point will be obtained. EPA is required to approve waste burning and this application follows on from the EPA referral advice and comprehensive engagement that has occurred between EPA and Quantem since November 2020. An amendment to the licence is concurrently occurring.

5.7.6. Security Measures

The Terminals site is surrounded by approximately 1.5 kilometres of high security boundary fences and entry to the stage 5 site is via a locked emergency gate. Internal and external patrols are carried out after hours and over weekends. In addition, the site has CCTV cameras monitoring the site as well as existing cameras monitoring the existing site A and B. All movements are recorded on hard disk and kept for up to six months.

5.7.7. Fire Prevention and control

Fire prevention will be consistent with the existing operations, as follows:

"Fire protection for the proposed storage tanks is via a firewater ring main supplied by two diesel operated fire water pumps in the existing site with 1,400m³ of water in storage and continuous replenishment from Sydney Water reticulation. These pumps are automatic upon opening up a hydrant due to low pressure activation. If the fire water systems are activated an alarm is raised to the NSW Fire Brigade.

An automatic foam deluge delivery system at the truck loading gantries for flammable liquids already exists. This system is activated by infrared detectors located in the truck fill, which are inspected and checked every six months. The extended additional bay for combustible liquid loading/unloading will have access to firewater hydrants as well as portable fire extinguishers available and ready. At the exit of the loading bay is a manual fire call point and there will be an automatic emergency stop for the stage 5B pumps."

5.7.8. Truck and Vehicle movement

The installation of a second thermal oxidiser will result in a reduction of vehicular and truck movements of 1 truck per week for Site A (and also a reduction at Site C, located further along at 51 Friendship Road).

5.8. 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 to the modification listed below.	Lot 1 DP 62287
'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 4 apparatus and as part of the environmental management system.

5.9. MODIFICATIONS TO THE CONDITIONS OF APPROVAL

These amendments to the project will be implemented through a modification of the following conditions of Development Consent No. 246/96, as modified. Where relevant, the changes sought by the proponent are shown with strike-through text (deletions) and red text (additions).

- **Schedule 1**:
  - ~~*Development Consent (DA No. 246/96), granted by then Minister for Urban Affairs and Planning on 14 January 1997, as modified by DA No. 246/96 MOD 1*~~
  - Include a reference to Mod 2 in the "Application Number"
  - ~~*No. 11, Simblist Road, Port Botany in the Randwick local government area*~~
  - Update the "Land" to apply to the entire site, as per previous modifications by including the address of 45 Friendship Road and 9-11 Simblist Road, Port Botany
  - ~~*DA No. 246/96 MOD 2:*~~
    - ~~*expansion of existing bulk liquids storage by constructing 12 additional storage tanks with a capacity of 14,500m3 and associated infrastructure*~~
  - Include a reference to the current modification to state, "*DA246/96 MOD 4:*

- *Installation of a new thermal oxidiser with associated servicing and infrastructure and removal of existing waste tank 1 (WT1) and repurposing of tank T-261 as a new waste tank"*

- **Schedule 2**:

  – ~~*Condition 2 – the development as described by modification application DA No. 246/96 MOD 2, accompanying Environmental Assessment and plans dated August 2013 and Response to Submissions Report and plans dated October 2013, prepared by Urbis Pty Ltd*~~

  – Insert reference to MOD 4 in Condition 2 – Terms of Approval, which states, "the development described by modification application DA246/96 MOD 4, accompanying Statement of Environmental Effects dated 9 November 2021, prepared by Urbis and plans prepared by CEC and dated 15 October 2020 and 15 October 2021

- ~~***Figure 1** in Appendix A -Site Plans*~~

- Site Layout Proposed Equipment Locations, Drawing No. LAY-001, Revision B, dated 15 October 2020

6. STATUTORY CONTEXT

6.1. OVERVIEW

This application proposes to modify State significant development consent DA No. 246/96 granted by the then Minister under Part 4 of the Environmental Planning and Assessment Act 1979 (the Act).

The Minister was the approval authority for the original development consent and is consequently the consent authority for this application.

6.2. SECTION 4.55(2) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

In accordance with Section 4.55(2) of the EP&A Act, the consent authority must take into consideration the relevant matters outlined in Section 4.55. These are addressed within the following subsections.

Section 4.55(2) specifies:

> ***(2) Other modifications -*** *A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if—*
>
> > *(a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and*
> >
> > *(b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and*
> >
> > *(c) it has notified the application in accordance with—*
> >
> > > *(i) the regulations, if the regulations so require, or*
> > >
> > > *(ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and*
> >
> > *(d) it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.*
>
> *Subsections (1) and (1A) do not apply to such a modification.*

The proposal is substantially the same development, as specified below.

6.2.1. Section 4.55 2 (a) Substantially the Same Development

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 overpage.

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.
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 4.
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 4 Comparative Assessment

<table>
<tr><th>Criteria</th><th>DA246/96 MOD 2</th><th>MOD 4</th></tr>
<tr><td>Development size, scale and footprint</td><td>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):

<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>The capacity of the approved development (as modified by MOD 4) 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:

▪ 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 is the same as MOD 4

▪ 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 19.3m is comparable to the existing combustor adjacent.</td></tr>
</table>

Criteria	DA246/96 MOD 2	MOD 4
		▪ The existing EPL remains valid and license emission limits do not change as a result of MOD 4.
Intensity including rates of production	The existing combustor destructs vapours from existing operations and is licensed under EPL1048	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.
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 4 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 4, 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 against the proposed process has concluded that the overall environmental impacts, measured in CO2-equivalent emissions, will be significantly reduced. This is

Criteria	DA246/96 MOD 2	MOD 4
		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 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	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 4: • 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

Criteria	DA246/96 MOD 2	MOD 4
	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 proposal operates in accordance with the updated manual, inclusive of spill response measures.	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 4 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. • 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

Criteria	DA246/96 MOD 2	MOD 4
		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.

6.2.2. Section 4.55 2 (b) Consultation

The Department will consult, if required, with the relevant agencies in relation to any condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body.

6.2.3. Section 4.55 2 (c) Notification

In accordance with Section 4.55(2)(c) a consent authority is to notify in accordance with the regulations. Given the minor nature of the proposed modification, it is unlikely the application will require notification.

6.2.4. Section 4.55 2 (d) Submissions

In accordance with Section 4.55(2)(d) the consent authority is to take into consideration any submissions received during the required notification period (as required) in accordance with the regulations.

Further, we submit that this environmental assessment addresses this requirement in that the proposed modification can be justified on economic, social and environmental grounds as demonstrated in this statement.

6.3. ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATIONS

A full assessment against Clause 3BA(6)(b) of Schedule 2 of the *Environmental Planning and Assessment (Savings and Other Transitional Provisions) Regulation 2017* is outlined below.

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.

Response: 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.

Response: 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.

Response: 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).

Response: 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, &

(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.

Clause 8J Transitional Provisions, states:

(8) For the purposes only of modification, the following development consents are taken to be approvals under Part 3A of the Act and section 75W of the Act applies to any modification of such a consent:

(a) a development consent granted by the Minister under section 100A or 101 of the Act,

(b) a development consent granted by the Minister under State Environmental Planning Policy No 34—Major Employment-Generating Industrial Development,

(c) a development consent granted by the Minister under Part 4 of the Act (relating to State significant development) before 1 August 2005 or under clause 89 of Schedule 6 to the Act,

(d) a development consent granted by the Land and Environment Court, if the original consent authority was the Minister and the consent was of a kind referred to in paragraph (c).

The development consent, if so modified, does not become an approval under Part 3A of the Act.

Response: The original consent was a Minister's Approval (State Significant consent), dated 14 January 1997 (under Section 100A of the Act). 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 4.

7. ENVIRONMENTAL ASSESSMENT

The following environmental assessment addresses the key issues raised in the DPIE's correspondence dated 5 November 2020 and subsequent correspondence (both DPIE and EPA) from December 2020 to present.

7.1. STATUTORY COMPLIANCE

This Environmental Assessment has undertaken a consideration of:

- State Environmental Planning Policy (State and Regional Development) 2011;
- State Environmental Planning Policy (Three Ports) 2013;
- State Environmental Planning Policy No. 33 – Hazardous and Offensive Development;
- Randwick Local Environmental Plan 2012;
- Protection of the Environment Operations Act 1997;
- Protection of the Environment Operations (Clean Air) Regulation 2002;
- Occupational Health and Safety Act 2000;
- Ports and Administration Act 1995; and
- Port Botany Development Code 2013.

7.1.1. State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 sets out the types of development to which proposals are deemed to be state significant development, under Schedule 1 including development with a capital investment value (CIV) of more than 30 million dollars for the purpose of "*port facilities and wharf or boating facilities*". The proposal's CIV is approximately $25 million and therefore is not considered to be state significant development under the SEPP.

Further, given that the proposal is an amendment to a previous consent issued under Part 4 of the EP&A Act, this SEPP does not impact upon the assessment of the application.

7.1.2. State Environmental Planning Policy (Three Ports) 2013

As of 31 May 2013, new legislation, being *State Environmental Planning Policy (Three Ports) 2013*, guides the development of the Port Botany land including Terminals' leased area.

Under Clause 8 of the SEPP, the consent authority is the Minister for land within the lease area, such as the subject site.

Under the SEPP, the land is zoned SP1 Special Activities and has the following zone objectives,

- *To provide for special land uses that are not provided for in other zones.*
- *To provide for sites with special natural characteristics that are not provided for in other zones.*
- *To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.*
- *To maximise the use of waterfront areas to accommodate port facilities and industrial, maritime industrial, freight and bulk storage premises that benefit from being located close to port facilities.*
- *To enable the efficient movement and operation of commercial shipping and to provide for the efficient handling and distribution of freight from port areas through the provision of transport infrastructure.*

- *To provide for port related facilities and development that support the operations of Port Botany and Port Kembla.*
- *To facilitate development that by its nature or scale requires separation from residential areas and other sensitive land uses.*
- *To encourage employment opportunities.*

The proposed development is defined as 'Port facilities' and are defined as,

> ***port facilities*** *means facilities on land in the Lease Area used in connection with the carrying of freight and persons by water from one port to another for business or commercial purposes, and includes any of the following:*
>
> *(a) facilities for the embarkation or disembarkation of passengers onto or from any vessels, including public ferry wharves,*
>
> *(b) facilities for the loading or unloading of freight onto or from vessels and freight receival, processing, land transport and storage facilities,*
>
> *(c) wharves for commercial fishing operations,*
>
> *(d) refuelling, launching, berthing, mooring, storage or maintenance facilities for any vessel,*
>
> *(e) sea walls or training walls,*
>
> *(f) administration and port operations buildings and facilities,*
>
> *(g) communication, security and safety facilities,*
>
> *(h) utilities and services, road and rail infrastructure, pipelines and car parks.*

Port facilities are permissible with consent in the SP1 zone.

The proposed thermal oxidiser and waste tank will be ancillary to the overall port facility operating at the site. Tank T-261 will be repurposed as part of this proposal. Waste liquid will be pumped from the existing tank T-261, to the proposed second thermal oxidiser for treatment. When the waste liquid enters the proposed combustor, instrument air will be used to spray the waste liquid through a nozzle into the combustor to facilitate the combustion process.

Under the SEPP, a maximum building height for the site is part 32.5m (for the northern section) and part 18m (for the southern section), as detailed on the map below.

The proposed thermal oxidiser height will be approximately 19.3m, which is largely consistent with the adjacent thermal oxidiser and below the maximum height limit of 32.5m for the subject portion of the site.

For these reasons, the proposed tanks outlined in the Modification are appropriate in the context of the site with the proposal having a comparable height as the existing tanks within Stage 5 and other structures on the broader Terminals site and in the vicinity. The proposal does not detract from regional or local views of importance or present a safety concern for aircraft.

7.1.3. State Environmental Planning Policy No.33 - Hazardous and Offensive Development

State Environmental Planning Policy No.33- Hazardous and Offensive Development (SEPP 33) requires specific matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the policy. The proposed development is classified as 'potentially hazardous industry' which is defined as:

> *A development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:*
>
> *(a) to human health, life or property, or*
>
> *(b) to the biophysical environment,*
>
> *and includes a hazardous industry and a hazardous storage establishment.*

A Hazard and Operability Study (HAZOP) and Preliminary Hazard Analysis (PHA) has been prepared by Pinnacle Risk Management and determined that the proposal can appropriately manage any hazard impacts.

7.1.4. Randwick Local Environmental Plan 2012

The subject site is under the *Randwick Local Environmental Plan 2012* and is indicated as "MD" on the zoning map meaning land that falls under the *SEPP (State and Regional Development) 2011* (formerly known as *SEPP (Major Development) 2005* or "MD" before the Part 3A repeal). The relevant provisions for any future development therefore are contained in the State Environmental Planning Policies, as detailed above and accordingly the Randwick LEP does not apply to the subject land.

7.1.5. Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* aims to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development and is administered by the Environment Protection Authority. 'Petroleum products storage' is listed in Schedule 1 of the Act and is therefore declared to be a scheduled activity.

Clause 47 of the Act states that an Environment Protection License is required for development of a premise for the purpose of a scheduled activity, meaning the proposal requires such a license.

The site has an environmental protection licence (L1048) issued by the Environment Protection Authority (EPA) under the Protection of the Environment Operations Act 1997 (POEO Act) which does not permit pollution of waters. The majority of the site is sealed surfaces and issues associated with surface water are managed in accordance with Terminals Port Botany Environmental Management Plan such that all liquid waste and wastewater is contained and stored prior to transport off-site to an EPA licensed treatment facility.

Given the introduction of an additional thermal oxidiser to intermittently burn waste, an amendment to the existing EPA license is required. Terminals is concurrently seeking this approval and has been in discussions with EPA on the matter since November 2020.This submission submits and addresses EPA's past referral comments to DPIE as part of the former Section 4.55(1A) mod.

7.1.6. Protection of the Environment Operations (Clean Air) Regulation 2002

The *Protection of the Environment Operations (Clean Air) Regulation 2002* prescribes environmental controls for particular types of development. EPA has categorised the proposal as a Group 6 plant and as such this consideration has been incorporated into the submission.

Section 2.1 of the accompanying Air Quality report (**Appendix F**) addresses the POEO Act and Regulations.

7.1.7. Port Botany Development Code 2013

The Port Botany Development Code 2013 has been prepared to articulate NSW Ports' design and operational requirements for new developments in the area, set minimum standards for design and operation and provide a guide for consent authorities to assess and determine new development at Port Botany. The site is subject to this code.

As requested by NSW Ports, Terminals have completed a compliance table assessing the requirements in the Port Botany Development Code 2013 (attached at **Appendix L**).

7.2. ADDITIONAL MATTERS TO BE ADDRESSED

7.2.1. Overview

For the sake of completeness, the following Environmental Assessment is undertaken having regard to the potential impacts generated from the proposed amendments and as described in DPIE's correspondence dated 5 November 2020 and subsequent comments on the former Section 4.55(1A) for the comparable proposal, including the EPA.

The likely impacts of the proposed development are further discussed in the following sections.

7.2.2. Hazard and Risk

Hazard and Operability Study

Pinnacle Risk Management has undertaken a Hazard and Operability Study (HAZOP) that provided a detailed risk assessment associated with the proposed Modification and additional thermal oxidiser and associated infrastructure. This report details the results of the HAZOP study in accordance with the requirements of the Department of Planning's HAZOP Guidelines. Refer to **Appendix D**.

In general terms, Pinnacle describes the assessment as, "*A HAZOP study is a hazard study which concentrates on how the design will cope with abnormal conditions, rather than on how it will perform under normal conditions. The study is comprised of a review of each unit operation, examining each for possible causes of a wide range of process abnormalities and their consequences*".

The statement also provides in Section 1 and 2, a clear description of the thermal combustor, including the interaction of this plant with existing plant and operations.

The study detailed the identification of hazards associated with the thermal combustor, and any hazards associated with existing plant and operations as well as a clear identification of safeguards to address these hazards. The most significant potential hazards identified were as follows (noting that the identified events pose high risk provided good industry practice is implemented):

- Loss of containment of waste liquid in the area surrounding the second combustor (potential for environmental impact);
- High level protection in T41 (an existing knockout pot in the vapour header system);
- Oxygen ingress into the vapour headers (risk of internal pipe explosions);
- Preventative maintenance requirements, e.g. the non-return valves on the low point drains from the vapour header that prevent oxygen ingress;
- Tank overfill protections, e.g. T-47, and Waste Tanks 2 and 3;
- Potential for hammer (slow-closing actuated valves required);
- Pressure relief capacity for T-261;
- The need for top entry to T-261 for waste liquid from the Site A sump pumps to prevent reverse flow; and
- Potential for a pump fire for P-02 (combustor feed pump).

The HAZOP report details the safeguards and actions to be implemented to eliminate any potential hazards.

In summary, the HAZOP has concluded the following along with recommendations:

> *"None of the identified potential events result in a high risk provided good industry practice is implemented.*
>
> *There will be safety critical instrumented systems in this process, e.g. combustor trips. These are to be routinely maintained to ensure reliability as determined via a Safety Integrity Level (SIL) study.*
>
> *Any significant changes to the HAZOP design should be separately assessed for new potential hazardous events and operability problems. This is commonly achieved by utilising a management of change programme within the project and may require further review using the HAZOP technique.*
>
> *Completed HAZOP actions need to be tracked within the project's HAZOP action register or equivalent. Regular project meetings should include a review of the progress of closing-out all of the actions. It is normally the responsibility of the project manager to ensure that all of the HAZOP actions are completed. The HAZOP drawings and a record of the completed actions should be retained with the plant files".*

The outcomes of the HAZOP will be adhered to by Terminals.

Further, in terms of potentially 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.

In terms of managing any potential spills and ensuring contaminants do not enter the stormwater system, 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.

Preliminary Hazard Analysis

A Preliminary Hazard Analysis (PHA) was prepared by Pinnacle Risk Management Pty Ltd that assesses the credible, potential hazardous events and corresponding risks associated with the proposed second combustor only with the potential for off-site impacts. The report has been prepared in accordance with recommended approach by DPIE in HIPAP 6 (Ref 1).

The analysis identified Site A to store and handle the following chemicals:

- Combustible liquids such as base oils, monoethylene glycol and jet fuel;
- Flammable liquids such as ethanol, methanol, BTX (benzene, toluene and xylene), acetone and hexene;
- The only Dangerous Good (DG) Class 6 (i.e. toxic material) the site has recently stored and handled is methanol. The DG Class for methanol is 3 with a subsidiary risk of 6.1;
- Corrosive liquids such as sodium hydroxide; and
- Natural gas, e.g. to the combustors.

The report assessed the following risk criteria and determined:

> ***Natural gas, and flammable and combustible liquids releases***
>
> *The ALARP (As Low As Reasonably Practicable) principle is achieved; primarily due to compliance with the Australian Standards for piping.*
>
> ***Cumulative and propagation risk***
>
> *Given that significant levels of radiant heat from potential fires remain on-site, e.g. the natural gas jet fires are up to an estimated 9 m, and that the likelihoods of a catastrophic failures with ignition are acceptably low then it is reasonable to conclude that the proposed combustor does not make a significant contribution to the existing cumulative risk in the area.*
>
> ***Societal risk***
>
> *In this study of the proposed combustor, the risk of off-site fatality is below the HIPAP 4 risk criteria. As the nearest house is approximately 1,000 m away and the adjacent area at Port Botany has a low population density, the concept of societal risk applying to populated areas is therefore not applicable for this project.*
>
> ***Risk to the biophysical environment***
>
> *Whereas any adverse effect on the environment is obviously undesirable, the results of this study show that the risk of losses of containment is broadly acceptable.*

Therefore, the report found:

> *"The risks associated with the proposed second combustor at Quantem's Site A have been assessed and compared against the DoP risk criteria.*
>
> *The results are as follows and show compliance with all risk criteria.*
>
> *Societal risk, area cumulative risk and environmental risk is also concluded to be acceptable.*

The primary reasons for the low risk levels from the second combustor are that significant levels of radiant heat from potential fires are contained on-site and the likelihood of catastrophic equipment failures is acceptably low. As the proposed combustor feed pipes and equipment have already been reviewed via the HAZOP technique then there are no further recommendations from this PHA."

Refer to **Appendix E.**

7.2.3. Air Quality and Odour

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.

Peter Ramsay and Associates has prepared an air quality impact assessment associated with the proposed modification. The AQIA has been updated to respond to EPA comments.

As part of the impact assessment, dispersion modelling was undertaken to gauge the impacts to air quality and odour surrounding the site when both thermal oxidisers (existing and proposed) are operating simultaneously with modelling using worst case input data. The impact assessment covers the following:

- Modelling considered sixteen sensitive receptors, noting that the closest sensitive receiver was 1.36km to the south east.
- The sources of the potential pollutants form the stack emissions of the existing and proposed thermal oxidiser assuming that both were operating concurrently and at the highest emission rate.
- The estimation of air emissions from the combustion system was undertaken by CEC Engineers from process data which were provided by Quantem

The assessment concluded the following:

- Benzene and sulphur dioxide were the only pollutant concentrations that exceeded the assessment criteria and as such dispersion of emissions of these compounds was modelled. The impact of other pollutants was assessed as negligible because the in-stack concentrations are lower than the assessment criteria at ground level.
- Based on the modelling results (undertaken in accordance with the relevant assessment criteria), there is no exceedance of the impact assessment criterion for benzene at any receptor. The highest concentration of benzene at ground level was 0.000017 mg/m3 at Receptor 13, and this is only 0.06% of the benzene impact assessment criterion of 0.029 mg/m3.
- For sulphur dioxide, the maximum predicted concentration will also be experienced at Receptor 13. It was predicted that sulphur dioxide will peak at 110 µg/m3 which includes the addition of background concentration which was obtained from NSW EPA ambient air quality data. The expected peak level concentration is approximately 20% of the impact assessment criteria.

Therefore, the report found:

> "*The predicted ground level concentrations from the dispersion modelling of benzene and sulphur dioxide emissions show that the proposed addition of a second thermal oxidiser (TO-2) will not cause exceedances of the relevant impact assessment criteria at the most impacted off-site receptors. The assessment was undertaken assuming worst case emissions from both thermal oxidisers operating simultaneously, and worst-case ambient concentrations from the nearest monitoring station*
>
> *…*
>
> *Therefore, emissions from the operation of the proposed thermal oxidiser, in addition to the existing oxidiser, will not have unacceptable impact on the air quality at the nearest sensitive receptors*".

Further, the conditions of consent of DA No. 246196 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 procedures to be followed during construction of the modification* (condition 37A Mod 1). A CEMP will be prepared for MOD 4, 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 F**. Onsite emission monitoring is conducted on a prescribed basis in accordance with the EPL1048.

7.2.4. Waste Management and Impact

Icubed have prepared a comprehensive Waste Management Impact Assessment (WMIA) (**Appendix G**). This report focuses on the comparative environmental impacts of on-site compared with off-site treatment of the liquid waste. This report builds on the response to previous referral comments issued by the EPA as part of the previous application.
The report provides the following comments and **benefits over the current waste disposal methodology**:

- *It eliminates all road transport emissions, including noise and vehicle emissions associated with the management of the flammable liquid waste stream*
- *It will provide broadly equivalent waste destruction of the insoluble flammables in comparison to offsite fuel burning such as kilns, in equipment which meets or exceeds the relevant standards*
- *It will provide redundancy in the site's waste management system and greater guarantees around waste disposal, reduced impacts on operations*
- *It will provide a reduction in transport related greenhouse gas impacts when compared to the current operations.*
- *It manages wastes at the point of generation*
- *It reduces overall environmental risk*

The report considers the following matters:

- Liquid waste generation
- Waste stream generation and composition
- Waste composition
- Current management approach
- Proposed management
- Benchmarking
- Comparative assessment
- Results summary

The report contains the following findings:

- *The operation of a second thermal oxidiser will increase treatment capacity, enable Quantem to treat liquid waste on site, and remove the need for transport to a third-party waste disposal site. The*

increased capacity will provide a level of redundancy in the waste management system to increase reliability and improve system performance. Thermal treatment of the liquid waste stream on site will effectively minimise disposal of any wastes associated with the management of the flammable liquid waste stream to landfill or Sydney water.

- *The current waste disposal process involves off-site treatment through a number of steps, including destruction of a portion of the waste in a cement kiln. This has some beneficial heat recovery in the calcining process, by displacement of another fuel. There is no additional, secondary heat recovery, such as exhaust steam generation, or similar, in the proposed solution.*

- *A review of the proposed technique for waste disposal against accepted best available techniques was undertaken. While the concept of thermally oxidising an aqueous waste stream may seem counterintuitive, the best available alternate treatments involve transport off-site, dilution and biological treatments that will generate methane, a more potent greenhouse gas than the combustion products that are released as part of thermal oxidation. While there is no definitive guidance on the best treatment techniques for azeotropic aqueous/hydrocarbon waste mixtures, thermal oxidation is acknowledged as a treatment and based on the work of (Toth A. J., 2011) it is suitable for wastes with high COD, as is the situation in this instance.*

- *Quantem have in excess of 10 years of operational data and optimisation experience from a similar thermal oxidiser in use at the Coode Island facility where VOC destruction efficiency has been demonstrated to be greater than 99.99%. A review of alternative methods for waste destruction was undertaken by CEC Engineers that re-affirms thermal oxidation as the preferred destruction method.*

- *Premised on the fact that an upgrade to a category 6 emission control device is required regardless of the waste treatment routes; the comparison to the existing waste disposal methods and scenarios reveals that the proposed thermal oxidiser is no worse than existing disposal methods (and is most likely significantly better than some existing methods) and has many ancillary benefits including a reduction in overall environmental risk and secondary environmental impacts associated with vehicle movements*.

7.2.5. Traffic and Transport

Truck movements are proposed to be reduced by one truck per week for both site A and Terminals other site C (at 51 Friendship Road) resulting from the second thermal oxidiser. This will result in improved traffic conditions on surrounding public roads accessing the site.

7.2.6. Soil and Water Impacts

In terms of the current proposal, the extent of site excavation required to support the proposed combustor is anticipated to be minimal, being around 1m deep for the base 700mm slab. Given the small extent of surface disturbance it is considered that the extent of soil and groundwater impacts arising from the proposal to be minimal.

Consistent with the previous approved proposal (which is now subject to amendment), the proposed design incorporates best practice design of no underground tanks and no underground effluent piping. Specifically, protection of the soil and groundwater will be managed by:

- Plastic sheeting will be laid prior to installing concrete foundation slab. This is only a small section of paving which is fully paved. Any spilt liquid would collect in a sump that is isolated and be recovered.

- No underground storage or piping is proposed.

As per the previous EIS prepared for the site, the implementation of the above features will ensure that the potential for contamination of soil and groundwater from the proposed development to be minimal.

As there is no proposed impact to surface water, a surface water quality assessment is not required as part of this modification application.

Construction management:

- General site practices and responsibilities, such as keeping surrounding roadways clean of any sediment transport offsite by construction vehicles, and ensuring that plant and machinery is well maintained and does not have oil or fuel leaks

- Stockpile and topsoil management practises to control erosion and sedimentation such as placing sediment control devices downstream of any exposed areas, including stockpiles and excavated areas. These may include straw bales, sediment fences, turbidity barriers, stabilised site accesses, diversions and catch drains

- Monitoring the quality of discharges to the stormwater system; and

The proposal is to be integrated into the management and operational structure of the existing bulk liquid storage facility. This includes operating under a Safety Management System and Environmental Management Manual.

The facility is certificated to ISO 9001 Quality Management System and ISO 14001 Environmental Management System. The Environmental Management Manual would be updated to reflect the proposed changes to the site.

In summary, the proposed modifications to the approved development subject to appropriate mitigation measures will not have any impact upon the existing conditions and the established infrastructure already in place.

7.2.7. Visual Amenity

In terms of the current proposal, the proposed second thermal oxidiser and associated infrastructure will be internally located within the site and largely consistency in height to the existing thermal oxidiser adjacent. Therefore, the visual impacts of the proposed infrastructure have minimal, if any, impact to the surrounding uses or area.

The visual skyline of the Port Botany area is also dominated by the presence of cranes, storage tanks and stacked containers. The proposed thermal oxidiser will be consistent with this overall character of the area and skyline.

The surrounding context of the site contains a pre-existing dominance of large storage tanks and crane structures meaning that the twelve proposed storage tanks will be comparable with these features and will be consistent with the existing immediate pre-defined landscape.

The site is not located in any view lines of significance.

7.2.8. Noise and Vibration

In terms of ongoing operating noise and vibration, as a result of the proposal, Terminals will ensure compliance with all relevant EPA guidelines.

To ensure there is no expected adverse construction noise impacts to surrounding receivers, appropriate mitigation measures will be imposed, noting the context of the site in a heavy industrial context and substantially distanced from sensitive land uses.

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).
- 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 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.

7.3. RESPONSE TO EPA ENVIRONMENTAL ISSUES

Ricardo was appointed by Quantem to assist with the review, compilation, collation and summarisation of Quantem's supporting information in response to NSW EPA's document 'Request for more Information on Environmental Impacts' dated 29 April 2021 as provided as part of the previous application.

Specific responses by technical experts to NSW EPA's questions have been separately commissioned by Quantem, Ricardo is able to synthesis the key matters, namely air quality and waste management and provide a response.

The report concluded:

Overall, Ricardo notes that thermal oxidation of liquid wastes is an established technology and according to an international literature search its use is consistent with best practice where the flammable components are concentrated and cannot be further separated. In particular:

- *Quantem has used a similar process for the thermal oxidation of liquid wastes at its West Melbourne facility since 2007.*
- *The equipment vendor has provided similar systems for treatment of liquid wastes at: Queensland Alumina Ltd; APA Group (Orbost Gas Plant); Leigh Creek Energy, and Northern Oil Refinery.*

With regard to the Waste Hierarchy in the Waste Avoidance and Resource Recovery Act 2001:

- *Avoid and reduce waste: Quantem has implemented steps over the last 5 years to reduce waste as far as practicable. This has reduced flammable and combustible liquid waste volume by approximately 25%, to only about 0.2% of site throughput.*
- *Reuse waste: Given the relatively low volumes and low value of the end products, it was not considered practicable to re-use the waste.*
- *Recycle waste: Separable hydrocarbon wastes (i.e. not in the aqueous phase) are recycled by third parties, including approximately 25,000L of base oils per annum and 80,000L of waste oil recycling.*
- *Recover energy: Recovery of energy from the thermal oxidiser was not considered practical for reasons including a lack of heat demand in the vicinity and insufficient load for commercially available steam turbines.*
- *Treat waste: This option treats waste on-site as opposed to off-site waste disposal.*
- *Dispose of waste: Off-site waste disposal will be avoided.*

In addition to the ongoing waste avoidance and recycling programs, installation of the thermal oxidiser will allow treatment of liquid wastes on-site, rather than off-site disposal. This will reduce a range of

environmental impacts associated with off-site transport and disposal and increase control over the destruction of harmful components.

8. STATEMENT OF COMMITMENTS

The following represents Terminals Statement of Commitments, outlining all the proposed environmental management and monitoring measures as consistent with Schedule 4 of the approved development (Mod 1 of DA/246/96) and appropriate mitigation measures to ensure that the environmental impact is minimised:

Environmental Management Strategy

- Terminals' Environmental Management Plan will be updated to reflect the proposed changes to the site. The proposal will operate in accordance with the updated plan.

Incident Reporting

- Terminals will notify the relevant authorities or agencies within 24hours if there is any incident or potential incident with actual or potentially significant off site impacts on people or the biophysical environment or if there is an exceedance in the limits/performance criteria as outlined in this EA.

Independent Environmental Audit

- If directed by DPIE, Terminals will undertake an Independent Environmental Audit of the development within 12 months of the commencements of the subject works. Regardless an environmental audit is conducted annually by the corporate HSE team.

Noise

- All operational and construction noise and vibration will be appropriated managed. Any noise complaints received in relation to construction will be recorded, investigated and resolved as soon as practical.

Access, Traffic and Safety

- A traffic Construction Management Plan will be prepared prior to the commencement of works; and
- All construction personnel will ensure they undertake the relevant induction procedures.

Safety and Risk

- Adherence and implementation of the safeguards in the Preliminary Hazard Analysis prepared by Pinnacle Risk Management; and
- Adherence to Terminals Safety Management manual.

Air Quality

- Measures to ensure that the protection of the air quality will be managed appropriately during operation (and are generally in accordance with the Air Quality assessment). Further during construction:
  - Minimal excavation will be carried out; hence minimal dust will be produced; and
  - All trucks entering and leaving during construction will ensure their load is appropriately covered to prevent escape of materials.

Soil and Surface Water Quality

- Measures will be implemented to ensure that any water quality impacts are minimised;
- Measures to ensure the protection of the soil and groundwater will be managed;
- Although excavation greater than 1m is not proposed, an Acid Sulfate Soils management plan will be prepared if excavation exceeds 1m; and
- Operating and emergency procedures for the management the site.

Waste

- Waste minimisation, reuse, recycling and disposal measures will be implemented during construction works; and

- Any hazardous waste will be removed and disposed of in accordance with the requirements of NSW Workcover and any other relevant OH&S regulations.

General

- Adherence to safety and risk management procedures.

9. CONCLUSION

The application seeks to modify DA246/96 related to the Terminals bulk liquid storage facility to install a new thermal oxidiser with associated infrastructure and removal of existing waste tank 1 (WT1) and repurposing of tank T-261 as a new waste tank at the site. The revised development will utilise the existing Terminals facility and result in an improved operation, comply with EPA regulations as well as support the site during peak thermal load scenarios.

In the context of the existing approval, the proposed modification is considered to be generally aligned with the nature and scale of the approved development as:

- The proposed modifications would not result in significant additional environmental impacts through the implementation of safeguards and mitigation measures.
- The use will remain ancillary to the approved bulk liquid storage facility.
- The proposed modifications do not extend beyond the approved footprint of the development lot of Site A and B.
- The proposal will result in a reduction of truck movements of 1 truck per week for both site A, and the nearby site C, as the waste is not trucked off site via road.
- The estimated emissions from the operation of the proposed thermal oxidiser, in addition to the existing oxidiser, will not have unacceptable impact on the air quality at the nearest sensitive receptors.
- Any potential identified hazards can be appropriately mitigated through the implementation of safeguards and actions to eliminate any potential hazards.
- The proposal will be consistent with the current site operations and existing thermal oxidiser at the site, with the exception of the ability for waste burning.
- 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 are wholly consistent with the approved development.
- The proposal will be of a similar height and scale to adjoining thermal oxidiser and adjoining waste tank.

Accordingly, it is requested that the Minister, having due regard to the information in this application, approve the proposed modification under Section 4.55(2) of the EP&A Act.

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