



Response To Submissions

Vopak Terminals Sydney Pty Ltd
Site B Bulk Liquids Storage Terminal
1-9 and 20 Friendship Rd
Port Botany
24February 2018

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- Appendix B Response to NSW EPA Requirements for Planning Approval of Terminal Extensions, Vopak Site B, Port Botany, NSW, WSP Australia Pty Limited (WSP), 31 May 2017.
- Appendix C Air Quality Impact Assessment Section 75 W Modification, MP 06_0089 - Modification 2, AECOM Australia Pty Ltd (AECOM), 22December 2017.

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1. Introduction

An Environmental Assessment (EA) was prepared by PlanCom Consulting Pty Ltd (PlanCom) on behalf of Vopak Terminals Sydney Pty Ltd (Vopak) for the Site B Bulk Liquids Storage Facility at 1-9 (Lot 21 in DP 1045324) and 20 Friendship Road, Port Botany (Lot 10 DP 1126332).

The EA considered the environmental impacts associated with the proposal to modify Project Approval (06_0089) for the Vopak Site B Bulk Liquids Storage Facility and Associated Infrastructure dated 28 February 2007 in accordance with Section 75 W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The purpose of this EA was to:

- Describe the existing site and its surrounding context
- Present the project need, its justification and alternatives considered
- Identify and evaluate all matters affecting or likely to affect the environment
- Consider the relevant statutory framework as required under Section 75 W of the EP&A Act and other relevant legislation
- Consider and respond to matters raised by Department of Planning and Environment (DP&E) in the Secretary's Environmental Assessment Requirements (SEARs)
- Consult with NSW Ports, Randwick City Council, Environment Protection Authority, WorkCover NSW and Roads and Maritime Services
- Assess the environmental impacts of the modification to the Bulk Liquids Storage Facility
- Develop environmental management and mitigation measures to minimise potential environmental impacts identified for the proposed modification.

The EA was publicly exhibited from 14 December 2016 to 1 March 2017.

1.1. Report Purpose and Structure

The purpose of this Response To Submissions (RTS) report is to respond to the issues raised in the submissions received and amend the scope of the proposed modification and statement of commitments where required.

These points are addressed in the following key sections of the Report which are listed below in Table 1.1.

Table 1.1 Sections in the Report

Section	Issues Addressed
Section 1	Introduction
Section 2	Submissions Received
Section 3	Responses to Submissions
Section 4	Clarifications & Amendments to Proposed Modification
Section 5	Further Assessment
Section 6	Revised Environmental Management
Section 7	Conclusion
Section 8	References
Appendix A	Vopak Port Botany Expansion – Denison St Transport QRA – Response to Questions, Systra Scott Lister, 12 December 2017.
Appendix B	Response to NSW EPA Requirements for Planning Approval of Terminal Extensions, Vopak Site B, Port Botany, NSW, WSP Australia Pty Limited (WSP), 31 May 2017.
Appendix C	Air Quality Impact Assessment Section 75 W Modification, MP 06_0089 - Modification 2, AECOM Australia Pty Ltd (AECOM), 22 December 2017.

2. Submissions Received

The Department of Planning & Environment (DP&E), to finalise its assessment, required additional information to be provided.

A total of ten submissions were received during the exhibition period from the following respondents:

- Department of Primary Industries
- Environment Protection Authority (including B4 Air Quality Impact Assessment submission)
- Bayside Council
- Fire & Rescue NSW
- Huntsman
- Knight Frank Town Planning
- Randwick City Council
- Roads & Maritime Services
- Safework NSW
- Australian Environmental Network and School.

3. Responses to Submissions Received

3.1. Department of Planning & Environment

The DP&E, to finalise its assessment, required the following additional information to be provided.

3.1.1. Project Description

- The construction staging approach described in section 4.3.1 (page 37) and section 5.3 (page 55) of the EA is inconsistent. As part of your RTS please confirm the staging of the construction activities.

Response

We refer the DP&E to the staging as detailed on pages 7 and 8 of the Environmental Assessment for the correct staging of construction activities. These details are reiterated in Section 4.3 of the RTS.

- The EA states construction of the new road tanker entry from Fishburn Road and onsite queuing spaces would be carried out during Stage 2 works, once road tanker throughput has reached 2,600 Mega Litres (ML) a year. Randwick City Council has requested these works be carried out concurrently with Stage 1 works to minimise the potential for off-site impacts. Given Stage 2 is dependent on the road tanker throughput reaching 2,600 ML a year, it is the Department's preference the construction activities associated with the Fishburn Road entry be constructed within a certain timeframe rather than being triggered by throughput. Please discuss whether these works can be undertaken as part of Stage 1 works.

Response

The new road tanker entry from Fishburn Road represents a very substantial change to the overall site and requires a significant financial investment by Vopak. Before work on this entry is started, it is necessary the facility experiences a sustained increase in throughput supported by long term customer contracts as well as the current and projected (7 bays scenario) road tanker loading preloading waiting time increase to justify the investment.

Since submitting the EA Vopak has undertaken a business objectives verification study and risk assessment to assess if our Friendship Road entry and the construction of the Bay 7 can support our medium-term business objectives. The study and risk assessment showed that for the medium term the Friendship Road entry will support our business objectives and projected growth. Therefore, Vopak does not intend investing in the Fishburn Road entry until such time there is a demonstrated consistent change in business circumstances.

3.1.2. Traffic & Parking

- Section 6.2.2 (p 75) of the EA states existing traffic and intersection operations on the surrounding road network is constrained at certain periods of the day with significant queuing/delays and reduced levels of service. The Department requests further details on the traffic modelling including a quantitative assessment of the level of service at key intersections (e.g. SIDRA analysis), traffic signal times and numbers of light and heavy vehicles that may go through each signal cycle. Please demonstrate whether these numbers are acceptable.

Response

(DP&E response not required as stated in their correspondence dated 28 April 2017)

- The EA states Vopak's pipeline transfer volumes are expected to increase over time, which may lead to a reduction in average road tanker numbers per day (p 76). Please provide any numbers or forecasts to support this statement.

Response

Vopak currently has the infrastructure to transfer product via pipeline both into the Sydney Metropolitan Pipeline (SMP) and to Sydney Airport. Over the past five years (2012-2016), Vopak has seen pipeline export volumes grow on average by 34%. However, external factors dictate the requirement for Vopak to transfer volumes via pipeline. These external factors indicated on Page 36 of the EA are:

- 1. Customers agreeing on pipeline access arrangements with the owners of the Sydney Metropolitan Pipeline/Caltex JUHI Jet Fuel Transfer pipelines to pump product through these pipelines and/or lift product from their road tanker loading facilities, and*
- 2. The physical loading capacity (road tankers) must be available at other fuel distribution terminals (connected to Vopak Site B by pipeline).*

On Page 66 of the EA Vopak state we expect to see a proportional increase in pipeline transfers. This statement is based on information we receive from our customers who have agreements in place covering the external factors above.

- Section 3.4.3 (p 22) of the Traffic Impact Assessment (TIA) states the number of heavy vehicles travelling northbound along Denison Street constitutes over 16% of total traffic volumes with Vopak road tankers accounting for 14 % of heavy vehicles travelling northbound. The TIA also notes the impact of these tankers on road capacity and operations is considered to be minimal. Please provide a quantitative analysis to support this statement particularly around performance of key intersections along Denison Street and cumulative impacts.

Response

(DP&E response not required as stated in their correspondence dated 28 April 2017)

The DP&E provided correspondence dated 28 April 2017 requesting a response to the following details provided in the Traffic Impact Assessment (TIA):

- Table 3.4 (Page 18) compares the additional Vopak expansion generated traffic with the existing traffic volumes. Please confirm the scenario year and projected throughput that Table 3.4 is based on.

Response

Table 3.4 (page 18) uses the 2023 ultimate scenario once full throughput is reached. In 2023, the total daily traffic generation peaks at 280 road tankers per day, which equates to an additional 98 road tankers or 196 road tanker trips per day over and above the current (2016) average daily road tanker traffic. This is based on the road tanker throughput of 3,700 ML/year.

- Section 3.4.2 (Page 19) states the level of traffic increase attributable to Vopak's expansion will be well within any daily or seasonal variations that currently exist along the surrounding road network (i.e. Vopak would contribute approximately 1.3% on Bumborah Point Road and less than 1% on any other road). Please clarify with numbers (and confirm the source) the approximate daily or seasonal variations that currently exist along the surrounding road network, including Denison Street. Are these daily or seasonal variations likely to increase in the future 2023 scenario?

Response

Traffic count data was obtained for the Botany Rd / Beauchamp Rd intersection from RMS intersection TCS data (TCS 1526). The traffic data shows the total number of vehicle movements through the intersection and was obtained over five weekdays from Monday 27 March 2017 through to Friday 31 March 2017 (inclusive), in order to show daily variations over weekday periods.

The results (in vehicles per hour or vehicles per day) are as follows:

	AM peak	PM peak	Daily Total
Monday, 27 March 2017	2,404	2,624	36,316
Tuesday, 28 March 2017	2,530	2,489	36,687
Wednesday, 29 March 2017	2,533	2,555	37,529
Thursday, 30 March 2017	2,442	2,257	34,088
Friday, 31 March 2017	2,380	2,474	35,901
Daily Variations	2,380 to 2,533 = 6.4%	2,257 to 2,624 = 16.3%	34,088 to 37,529 = 10.1%

As discussed in Section 3.4.2 of the report, the level of traffic increase attributable to Vopak's expanded operations will be a maximum of approximately 1.3% of daily and peak hourly traffic along Bumborah Point Road and less than 1% of daily or peak hourly traffic along the remainder of the surrounding road network (refer to Figure 3.4 on page 20 of the TIA report). This is well within the daily variations that currently exist, as shown above.

Furthermore, it is considered that the current daily variations are inherent in a road network as large as Sydney's and typical of the majority of the road network. These types of variations are anticipated to also be valid for 2023 and beyond.

- The TIA concludes Vopak's current and future impact on road capacity and operations along Denison Street would be minimal. Please provide further discussion around the potential cumulative impacts in regard to proposed and recently approved developments in the surrounding area such as the Bunnings development and large residential developments. Please outline any additional traffic mitigation measures, if required.

Response

The cumulative traffic impacts of existing, recently approved and potential future developments contributing to traffic along Denison St are acknowledged, e.g. Bunnings, large residential developments, etc. However, as discussed in the TIA report, the impact of potential Vopak-generated traffic on road capacity and operations is considered to be minimal because Vopak-generated traffic would contribute less than 2% of the total existing traffic volumes and likely even less (as a percentage) of future traffic volumes, i.e. in 2023 and beyond. As discussed in dot-point 2 above, this would be well within any daily variation that currently exists along the surrounding road network. Significantly, even if Vopak was able to re-route all Denison St traffic from its site via other surrounding road network routes, any daily variations would still exist and be greater than the Vopak-generated traffic. Any mitigation measures required along Denison St need to take into account area-wide traffic movements and operations to develop appropriate management measures.

3.1.3. Air Quality

- Further details are required on the Vapour Recovery Unit (VRU) Project particularly any equipment/technology changes and timing for when the VRU upgrade is required.

Response

See response in Section 3.3.3.

- The modelling scenario in the Air Quality Impact Assessment (AQIA) assumes the operation of the existing VRU (with an efficiency of 93.57%) and does not consider the proposed VRU upgrade. As per EPA comments, please ensure the modelling is updated to reflect the VRU upgrade in the modelling assumptions.

Response

See response in Section 3.3.3.

- The AQIA does not discuss methods for reducing and managing benzene impacts as a result of the increase in product throughput at the site. As per the EPA's comments, please include a feasibility study to investigate benzene reductions at the Site B facility which should be incorporated into the assessment of benzene impacts.

Response

See response in Section 3.3.3.

- Please ensure any additional management and mitigation measures from a revised AQIA is included in your RTS.

Response

See Appendix C.

3.1.4. Hazards & Risks

Quantitative Risk Assessment (QRA)

1. In Table A.3 of the QRA, it is noted that Bulk Liquids Berth (BLB) 1 and 2 are designed to achieve flow rates of 1,750 m³/hr. However, the QRA assessment is based on a flow rate of 1,250 m³/hr for BLB 1 and 1,750 m³/hr for BLB 2.

- a. Please explain why different flow-rates are adopted for BLB 1 and BLB 2 in the assessment.

Response

BLB 1 is not designed for 1,750 m³/hr, it is designed for 1,250 m³/hr. BLB1 was modelled at 1,250 m³/hr as this corresponds to 7 m/s velocity limit for the BLB1 MLA and pipeline sizing. BLB2 MLAs and pipelines are larger diameter and were modelled at 1,750 m³/hr as this corresponds to 7 m/s velocity limit for the BLB2 system.

- b. Please note that any future increase in import flow-rates may change the risk result; therefore, a sensitivity analysis should be carried out to assess the worst case scenario at 1,750 m³/hr for both BLB 1 and BLB 2.

Response

There will be no increase to import rates from BLB1 as there are no modifications proposed to this system as part of the proposal. A sensitivity study is therefore not required.

2. Table A.3 shows the number of road tanker daily movements. Please clarify the following:

- a. What is the basis of 306 road tankers per day for the future case? This information is inconsistent with the 280 road tankers per day provided in the EA and the TIA (Table 3.3 of the TIA).

Response

The future export road tanker daily movements used in the QRA is based on Vopak's estimate for future operation as shown in Table A.2 divided by the average road tanker volume of 33.21 m³ per tanker advised by Vopak (when the initial QRA was prepared in early 2015) as per Table A.3. As per Table A.3 the average tanker volume is assumed to remain constant between the QRA current and future case. No shift towards B-doubles is accounted for, i.e. total future annual export by road tanker = 3,716,643 m³/year / (365 x 33.21) = 306 (rounded). With respect to the risk results, the number of road tanker movements used in the QRA (306 per day) is more conservative compared to the 280 per day provided in the EA and TIA. As noted in the TIA (Rev 4 July 2016), a shift to B-doubles has been accounted for in the future growth figures, i.e., the average tanker volume has increased in the TIA in the future case, hence the number of trucks is lower in the TIA than the QRA.

- b. Is the number of road tankers calculated based on the average load of tanker and makes no differentiation between B double or single barrel?

Response

The relevant assumption for the QRA is the annual number of loading arm connections in the tanker loading bay (located well within the site boundary) which is assumed to be an average of 3 per tanker for both the current and future case as per Table A.3. Note that the road tanker loading bay operation does not significantly affect the offsite risk as it is well within the Site B boundary. Also refer to response to Item 4 and 5.

3. The average load per tanker in Table A.3 is 33,210 litres/tanker. However, the average tanker load size provided in Appendix E of the QRA and the EA is 36.3 kilolitres. Please confirm the average tanker load and whether this assumption has any modelling impact. Please update the assessment if required.

Response

Reference to average tanker load size of 36.3 kilolitres was not found on Appendix E of the QRA report (Document ID: 20940-RP-001 Rev 3). which deals with change of product allocation. This assumption has minimal modelling impact as per response to Item 2 and a QRA update is not required.

4. Please provide justification for adopting 80 m³/hr as the transfer rate for a road tanker. Considering the actual pump rate is 120 m³/hr, the adopted transfer rate may be optimistic. A sensitivity analysis should be carried out based on 120 m³/hr.

Response

The average road tanker loading rate (80 m³/hr) was calculated based on the average road tanker load of 33,210 L/tanker, and the average loading time (as advised by Vopak) of 25 minutes/loadout.

Although the actual pump rate is up to 120 m³/hr, the usage of average loading rate of 80 m³/hr as used in the QRA is more appropriate to estimate the total "in use time" of the loading gantry equipment including pumps and piping as it allows for slow start and slow stop rates at beginning and end of RT loading. Use of maximum pumping rate will under estimate the in use time. The average pumping rate was only used to estimate the utilisation rate for the export pump and manifold. Given the high throughputs, a 100% utilisation of gantry equipment was assumed, so this assumption does not have any significant modelling impact and an update is not required. In the event of a major failure in piping downstream of a pump the rate at which the pool grows and spreads may be quicker as the pump is pumping against zero head. However, the maximum pool size will be limited/constrained to the bund/kerned area sizes and this has been accounted in the consequence modelling for Site B as per Appendix C, Section C.2 where secondary containment is provided throughout the site to limit pool size spreading. Hence the rate of release into a constrained area has no impact on the QRA model and a sensitivity study is not required.

5. In Table D.6, the online time for gasoline road gantry loading arm considers the percentage by products for gasoline in the future case presented in Table A.2. If the percentage of gasoline product handled at Vopak is more than 49% of the total throughput in the future, the gasoline road gantry loading arm operating time is likely to increase and hence the risks from the road gantry would subsequently increase. Please explain the basis for the forecast of 50% of gasoline throughput and whether the worst case scenario has been considered.

Response

The QRA basis and forecast of ~50% gasoline total throughput and likely export allocation between pipelines and road tankers was developed by Vopak as part of the future growth predictions, and is summarised in Table A.2 to reflect the future case operation and fuel product export allocation ("Mid Case - 2030"). All indications are that the trend is towards greater diesel use not greater gasoline use and therefore it is very unlikely that there would be a significant increase in the proportion of gasoline handled either overall or in the road gantry. The gantry is well within the Site B boundary. The consequence results for the gantry area (all products) as given in Appendix C show effects of up to around 50-60m and are similar for all products. Therefore, any frequency adjustment due to changes of product allocation in the gantry area will have minimal impact on offsite risk in any case even if 100% gasoline throughput were assumed at the road gantry. In addition, Appendix E contains checklists summarising the limiting assumptions in the QRA, including the annual site throughput of gasoline of up to 3,950,000 m³/year that can be used to flag the need for a reassessment of risk.

Appendix E of QRA (Transport Risk Assessment (TRA))

6. The study is based on an assumption of 10% of tanker drivers using Denison Street. As explained in Section 3 of the TRA, this is based on driver feedback and is dependent on the traffic conditions of the surrounding road network. As the traffic conditions and the preferences of road tanker drivers may vary over time, the chance of an increase in the usage on Denison Street cannot be ruled out. A sensitivity analysis should be carried out based on 20% of usage on Denison Street to assess the worst case scenario.

Response

In order to answer question 6, the 2023 forecast Vopak traffic on Denison St was increased from 10% to 20% and the models re-run. Apart from the Lot 20 subdivision populations changes, the remainder of the model was kept as it was for the July 2016 report.

The Safeti model used in the calculations has gone through a version update since the time the initial Denison St QRA was performed. Previously version 6.7 of the Safeti model was used, but for this study the model was upgraded to version 7.2 of the model. This change, is not observed to have any major impacts on the results. The results of the sensitivity analysis performed to address question 6 are presented in the Systra Scott Lister Report found in Appendix A

7. It is noted in Section 3.2.2 of the TRA, the analysis assumed only 65% of the Class 3 road tankers (gasoline) are using Denison Street. Please explain the basis for the assumption of 65%. In addition, please carry out a sensitivity analysis that is based on 20% of road tankers using Denison Street and 100% of the tankers using Denison Street are class 3 tankers.

Response

(DP&E response not required as stated in their correspondence dated 28 April 2017)

Appendix F of QRA (Transport Quantitative Risk Assessment (TQRA))

8. The Department notes the population presented in Table 1 of the TQRA does not reflect the latest population forecast for the area of the Orica 20 lot subdivision. The Department understands this area has been split into two areas. The area west of the Hensley Athletic Field is known as the "Masters Site" and the area south of the Hensley Athletic Field has been subdivided into 13 lots. Please clarify the following:
- Whether the population forecast for the Masters Site has been included in the analysis. What is the assumed population?
 - It is noted that the population south of the Hensley Athletic Field has updated its population forecast to 200. Please update the analysis based on a population of 200 on-site.

Response

With regard to question 8 the analysis has increased the population south of the Hensley Athletic Field to the population forecast of 200. The "Masters Site" was assessed as a population of 200 with a very small increment of societal risk from DGs (as reported in the Scott Lister report provided for that development proposal). The "Masters Site" is now the subject of an alternative development, the details of which Systra Scott Lister has not been provided. The allowance of 200 is believed to be adequate considering the estimate used for Bunnings was 200 and the estimate for the population south of Corish Circle on Lot 20 is also 200.

9. Section 4.1 of TQRA states there would be no increase in individual risk at distances of more than approximately 30 m from the road. Please clarify whether the 30 m is measured from the curb side of the road, or from the centre of the road where the road tankers would be.

Response

With regard to question 9, the distances are measured from the centreline of the road.

10. Following item 6 and 7 above, please provide a sensitivity analysis based on the assumption raised in these two points.

Response

The Vopak Future case (2023) values were increased from 6625 where 10% were assumed to use Denison St to 13250 to explore the sensitivity that 20% of tankers used Denison St. Increasing the assumption of 10% of tankers using Denison St to 20% of tankers using Denison St doubles the number of Vopak tankers from 6,625 to 13,250.

The Individual Fatality Risks (IFR) from the modelled scenarios were presented as Figure 1 for the base case and Figure 2 for the future case and there was no discernible difference between them.

In order to show the differences risk transects have been prepared. A risk transect is a graph of individual risk at distances along a line bisecting the risk contours. In this case the line is from the Gate 3 intersection on Denison St going west. It can be seen in pink on Figures 1 and 2.

Risk transects have been prepared for the base 2015 case, the 2016 case, the 2023 case with 10% using Denison St and the 2023 case with 20% using Denison St. This is presented as Figure 3.

Inspection of Figure 3 shows a very small difference between the results for all the cases considered.

To illustrate the differences further the individual risks from Vopak traffic only has been presented with Figure 4 as a series of risk transects west of Gate 3. As would be expected the results show the individual risk increases in proportion with the level of traffic. The level of individual risk drops rapidly from the centre of the intersection, to below levels of 1 in million at around 25m.

The increased number of tanker movements results in an almost imperceptible increase in the overall individual risk. Hence this particular output of the model is not sensitive to this major increase in Vopak Dangerous Goods (DG) traffic on Denison St (10% to 20%).

The reason the change in individual risk is not noticeable is that other contributors mask the individual risk increase associated with the Vopak tanker increase, as they present a much greater risk than that of petroleum. Such contributors are materials such as LPG, other class 2.1 materials and chlorine.

When the risks of the Vopak traffic is considered on its own, the increase is more apparent, with the risk rising in direct proportion to the traffic levels.

The increase in societal risk when the sensitivity of increasing the proportion of DGs tankers using Denison St has been determined. It shows some increase in societal risk in the 1 to 10 fatalities range.

The overall increase in societal risk is small when the assumption of the number of Vopak vehicles using Denison St is increased from 10% to 20%.

Further details of the results of the sensitivity analysis performed to address these questions are presented in the revised Scott Lister Report and can be found in Appendix A.

3.2. Department of Primary Industries

- The Department of Primary Industry advises that, as a condition of consent for the project, the proponent must prepare a Construction Soil and Water Management Plan in accordance with the guideline, Managing Urban Stormwater – Soils and Construction (Landcom 2004).

Response

The requirement forms part of the Mitigation Measures Table in Section 6.

3.3. Environment Protection Authority

The submission by the Environment Protection Authority (EPA) summarised the need for the following additional information:

- Details of the proposed Vapour Recovery Unit and a clear demonstration that it will be able to serve the premises when operating at the maximum capacity sought in the 75W Modification
- Assessment of the increase in throughput at the gantry and the resulting emissions
- Investigation of potential reduction in benzene impacts
- Demonstration of compliance with the Clean Air Regulation and ground level criteria at the proposed maximum capacity
- Further information that addresses the operational risk of stormwater pollution on Elgas Road
- Further information on any contamination on the premises and how unexpected finds will be managed.

Further details are as follows:

3.3.1. Air Quality – Recommendations from B4 Project

As part of the Vopak Site B4 Project development application process, the EPA provided advice and recommendations regarding the AQIA and site air emissions. The EPA's recommendations can be summarised as:

- Conduct a feasibility study to investigate benzene reductions at the entire Vopak site B complex
- Conduct a post-commissioning air quality report to characterise speciated VOC emissions from the site
- For any further air dispersion modelling in the future, robust methodology justification and validation should be included.

The EPA's recommendations are more comprehensively detailed at Attachment B. The EPA notes that any recommended benzene emissions reductions may influence the predicted impacts of benzene under the AQIA.

The DP&E's Environmental Assessment Report for the Vopak Site B4 Project indicated that benzene impacts from the adjoining site B facility will be assessed as part of the current proposed modification application. These impacts are not assessed in the current proposed modification.

The EPA's recommendations in regard to this AQIA are relevant to the current proposal and have not been considered in the current modification application.

3.3.2. Air Quality – Assessment at proposed maximum capacity

The EPA cannot assess the current proposal's air emissions impacts due to insufficient information being provided regarding these impacts at the proposed maximum product throughput.

The EA states that the existing Vapour Recovery Unit (VRU) only has sufficient capacity to ensure compliance with the Protection of the Environment (Clean Air) Regulation 2010 ("the Clean Air Regulation") for the current number of loading bays and existing throughput (Section 5.2.5).

The EA then further states that "to continue to ensure compliance with clause 64(2)(d)(ii) of the Clean Air Regulation under the scenarios envisaged in this EA, it may be required to increase the Vapour Recovery Capability prior to further substantial rise in throughput".

The AQIA submitted for the current proposal does not provide details of the proposed increase to Vapour Recovery Capability and does not identify when the current VRU will reach capacity before an upgrade will be required, so that compliance with the Clean Air Regulation is ensured.

The modelling completed in the AQIA appears to be modelled on gantry emissions from 3.5 tankers per hour (Section 5.5 of the AQIA). However, the Traffic Assessment (Section 6.2 of the EA) states that there would be an average of 11.7 tankers per hour and a peak of up to 20 tankers per hour at the proposed maximum capacity. The modelling completed therefore does not accurately predict emissions for the proposed maximum capacity.

The current information provided in the EA therefore does not demonstrate compliance with the Clean Air Regulation and ground level criteria.

3.3.3. Air Quality – Additional information required

To assess the environmental impacts of the proposed modification, the EPA requires:

1. Comprehensive details of the upgraded VRU that will be able to serve the proposed maximum capacity

Response

The objective of the VRU Project is to ensure the Site B road tanker loading gantry will stay in full compliance with the requirements of the Protection of the Environment Operations (Clean Air) Regulation 2010 specifically, Part 6, Div. 3 Clause 64.

The VRU would either be upgraded or replaced at a location near the current equipment to accommodate the proposed capacity increase. The following stack design measures have been proposed to minimise offsite air quality impacts:

- *Stack venting from the new or upgraded VRU at Site B would occur at 10m above ground level with vertical momentum, i.e., no witches' hats, T-junctions or other units that may limit stack vertical velocity; and*
- *Propose a stack concentration target of 10mg/L of total unrecovered vapours. This target is considerable lower than the limit of 110mg/L of volatile organic liquid outlined in cl.64.d(ii) of the Protection of the Environment (Clean Air) Regulation 2010 (NSW).*

AECOM have revised their Air Quality Impact Assessment (AQIA) in response to issues raised by the EPA. A full copy of the report forms Appendix C to the RTS. A response summary is provided below:

- *Proposed changes to the VRU are discussed in Section 1.2, Section 2.2, Section 9.2.2 and Appendix E of the AQIA. VRU emissions are also discussed in Section 6.4.3 and Section 6.5 of the AQIA.*

2. A feasibility study to investigate benzene reductions at the entire site B complex

Response

AECOM have revised their AQIA in response to issues raised by the EPA. A full copy of the report forms Appendix C to the RTS. A response summary is provided below:

A feasibility study was conducted to examine the potential benzene reduction methods that could be adopted onsite. The feasibility study is included in Appendix E of the AQIA. The feasibility Study examined four potential options including tank roof modifications, reduction in benzene fuel content, VRU modifications and flange and pump seal modifications. The study concluded modifications to the VRU could result in significant reductions to potential benzene emissions. Modifications to the VRU have been incorporated into the AQIA.

3. A revised AQIA that includes: the emissions and impacts at the proposed maximum capacity, and an assessment of benzene impacts that takes into account proposed outcomes from the feasibility study for benzene reductions above.

Response

AECOM have revised their AQIA in response to issues raised by the EPA. A full copy of the report forms Appendix C to the RTS. A response summary is provided below:

AECOM have prepared a project specific AQIA to assess the potential ground level air quality impacts from the proposed Site B capacity increase.

The proposed stack concentration target of 10mg/L of total unrecovered vapours from the VRU is compliant with cl.64.d(ii) of the Protection of the Environment (Clean Air) Regulation 2010 (NSW).

The proposal has been assessed based on a maximum product throughput of 7,800 ML per annum and is compliant with the relevant air quality ground level criteria as discussed in Section 7 of the AQIA.

As stated in response to Item 2 above, a feasibility study was conducted to examine the potential benzene reduction methods that could be adopted onsite. The feasibility study is included in Appendix E of the AQIA.

3.3.4. Groundwater and Land Contamination

The EA notes at Section 6.5.1 that an environmental audit for contamination was undertaken on Part of Lot 1 DP 11009870 and Lot 2 DP 877387 and land remediation of the site was undertaken, with the undertaking consultant concluding that the site was suitable for leasing the site for industrial purposes. Suitability for leasing purposes is not a statement regarding the suitability for any proposed construction works.

The EA does not make reference or assessment to any contamination or lack thereof in the proposed easement ("Elgas road") at Lot 21 DP 1126332 and Lot 52 DP 1182618 and any subsequent implications on the environmental impacts of the proposed development. For example, it is not clear whether there is any interaction between the roadworks works proposed, or if the proposed works will have any impacts on the groundwater movement in the area

3.3.5. Contamination – Additional Information required

To assess the environmental impacts of the proposed modification, the EPA requires the EA to provide information on:

1. the land and water contamination environment for the entire premises including the proposed leaseholds
2. any potential impacts as a result of the interaction between the proposed modification and any land or groundwater contamination in the area and how these have been avoided, mitigated or managed
3. a description of the potential impacts from any unexpected land and water contamination finds, and how these impacts will be avoided, mitigated, or managed.

Response

WSP Australia Pty Ltd (WSP) was commissioned by Vopak to provide a response to the additional information requested by the EPA. The following information is a summary of WSP's report dated 31 May 2017 (a full copy of the report can be found in Appendix B)

Based on the review of the available reports and the proposed upgrade documentation for the Vopak Site B facility, WSP concludes the following:

- All analysed soil samples have met the adopted guidelines for petroleum hydrocarbons, BTEX and PAH.
- There have been no reported visual indicators of contamination observed during soil sampling. However, some extraneous materials such as concrete and brick rubble are present within the fill at some locations.
- It is considered that bonded fibrous cement debris will likely be encountered in sub-surface soils in some areas, particularly adjacent the northern Site boundary.
- As part of the above upgrade works, it is considered unlikely that groundwater will be encountered.
- Wells MW7, MW8, MW11, MW12, MW13 and MW14 are clustered in the central western portion of the site in the vicinity of an underground oily water tank and water treatment unit. Groundwater in the vicinity of these locations is impacted by petroleum hydrocarbons. It is understood that no excavation is proposed within these areas.
- Based on NEPM (2013) assessment criteria, residual hydrocarbon contamination in groundwater exceeds the vapour intrusion risk criteria for human health for commercial/industrial land use in the vicinity of MW14. This risk must be considered if excavation works are proposed for areas in the vicinity of MW14.
- Unexpected finds can be managed according to the protocol provided in Section 10 of WSP's report in Appendix B.

3.3.6. Stormwater

The EA describes the new proposed leasehold "Elgas Road" as being largely unmonitored, due to the road tankers being empty (Section 6.5.3). The EA proposes that this area drains into the public stormwater drainage systems. Regardless of the tankers

being empty, the idling and queuing of these vehicles represents an opportunity for pollutants (such as leaks and spills from oils and coolants) to enter the stormwater system. The EA does not appear to propose any mitigation or protection measures for this potential environmental impact.

The feasibility of risk mitigation measures for the prevention of stormwater pollution on Elgas Road should be discussed in the EA. These options should include diversion of the new roadway to the site's existing stormwater treatment system and infrastructure, including any infrastructure or system changes necessary to ensure that this system can appropriately handle any additional loads placed upon it.

3.3.7. Stormwater – Additional Information required

Accordingly, to assess the environmental impacts of the proposed modification, the EPA requires that the EA:

1. Addresses the operational risk of stormwater pollution on Elgas Road including what safeguards and management measures have been considered to mitigate, prevent, and/or manage this potential impact, and a discussion of how acceptable any residual impacts are.

Response

The operational risks of stormwater pollution on the Elgas access road are considered low risk based on the following:

1. *There is low operational risk associated with site operations – spillage outside bunded areas and onto the access road,*
2. *Most road tankers are gravity or pumped dry during at their off-site delivery location therefore return to the site empty or with only small amounts of residual product onboard,*
3. *Historically, the site has not experienced a rupture or release of product from a road tanker in an unbunded area,*
4. *Road tankers are hydrostatically tested at five yearly intervals and also undertake a six monthly Safe Load Program inspection,*
5. *Road tankers delivering denatured ethanol or additives to the site will infrequently use the roadway.*

To address concerns for stormwater containment, reclamation or polishing Vopak could install systems that would ensure general compliance with EPA First Flush or similar proprietary oil-separation equipment (e.g. SPEL Ecoceptor or Puraceptors). This first flush system is in compliance with NSWPorts license and NSWPorts Development Code section 11.

Design Options:

1. *Free road drains to harbour - existing drains;*
2. *Upgrade road drains to Gross Pollutant Traps, e.g. with Spel Ecoceptor in existing road drains;*
3. *Further upgrade road drains for treatment via a proprietary oil/silt separator, e.g. a Spel Puraceptor;*
4. *Implement First Flush containment and pump-out to Site B WWTP – if at latest EPA recommendation of 15mm first-flush rainfall containment (EPA table 1), new storm pit would need to be up to 90cbm or approx. 6m x 15m x 1m deep depending on final first flush area. See links below:*

https://www.allpumps.com.au/assets/pdf/18_SPEL_Ecoceptor.pdf

<http://spel.com.au/products/puraceptor/>

<http://www.epa.nsw.gov.au/mao/stormwater.htm>

3.3.8. B4 Air Quality Impact Assessment

The EPA also provided a copy of their submission for Vopak's B4 project dated 14 June 2016. The EPA was satisfied that the revised AQIA addressed most of the issues previously raised. Where items were not addressed fully the EPA proposed the following consent conditions:

- A post commissioning air emissions report must be completed to verify the major emission sources assessed in the air quality impact assessment report prepared by AECOM and dated 27 May 2016. The post commissioning air emissions report must be completed by a suitably qualified and independent person(s) and include:
- Post commissioning sampling and speciation of VOC emissions from the storage tanks and vapour recovery unit for the fuel types assessed in the air quality impact assessment. Sampling must be undertaken by suitably qualified personnel.
- Records of the operating capacity and process rate of the activity at the time of sampling.
- Sampling undertaken in accordance with the requirements specified in the Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.
- Results of the post commissioning sampling must be compared with the modelled emissions in the air quality impact assessment and demonstrate compliance with the ground level criteria in the Approved Methods for Modelling and Assessment of Air Pollutants in NSW. Within six months of commissioning the licensee must submit a written report to the EPA detailing the results of post commissioning source emissions sampling and analysis.

Response

We acknowledge the conditions as per Condition B15. Post-commissioning Air Emissions Verification, Part B – Environmental Performance of Development Consent SSD 7000.

3.3.9. Additional Questions 19 September 2017

- Further detail should be provided as to how the VRU capability will manage the additional throughput.

Response

Vopak will build a new VRU on a plot of land in close proximity to the current VRU. The new VRU has been specified to suppliers to support the throughput of nine road tanker loading bays. Vopak provide below a typical VRU Specification for nine road tanker loading bays. Vopak request the specification should be used for indicative purposes only.

- Carbon absorption vapour recovery unit with dry vacuum pump or Liquid Ring Vacuum Pump design
- Instantaneous flow rate: 9 RTL Bays x 3 Arms (max per truck design) x 2,400LPM = 18LPM or 1,080 L/sec Total
- 15 minute throughput 300 m³
- 1 hourly throughput 1,150 m³

- 4 hourly throughput 4,500 m³
- Daily throughput 18,000 m³
- Average inlet vapour concentration 50%

- The proponent should clarify how the emission rates were derived.

Response

Please refer to Section 6.4.3 of the revised AQIA for an example of the calculations of Benzene mass emission rates.

- The AQIA should be revised using speciated VOC monitoring data of the VRU emissions. Monitoring should be undertaken when tanker vehicles are being filled with motor spirit, not distillate (diesel and fuel oil).

Response

As discussed and agreed with the NSW EPA, Vopak has included speciated data of VRU emissions from USEPA Speciate Database for gasoline grades.

- The AQIA should clarify whether the 10 mg/L limit used in the assessment is in terms of n-propane, If not, the AQIA should be revised.

Response

All calculations have been conducted in terms of n-propane (refer to Table 16 on Page 26 of the revised AQIA)

- The August 2017 AQIA should clarify and discuss unintuitive results. If there are errors in tables, the AQIA should be revised.

Response

All results have been recalculated as per the discussions with EPA and are contained in the revised AQIA.

- The revised AQIA should confirm why emissions from tanks at Site B have increased.

Response

The change in TANKS emissions between the AECOM (2016) Site B4 AQIA and the AECOM (2017) Site B Section 75W AQIA, is attributed to Vopak recently conducting an internal review of their TANKS fittings & roof type.

The TANKS in the AECOM (2016) AQIA were modelled as Domed External Floating Roof Tanks (DEFRTs), however the internal review identified that Internal Floating Roof Tanks (IFRTs) were a more accurate description for the tanks. Additionally, the TANKS Roof Construction & Fittings parameters were updated from the "Typical" setting, which estimates the average number of fittings and types based on the tank type & size, and changed to the "Detail" setting, where exact numbers & types of fittings were determined.

The changes to the TANKS settings had the following general impacts across the tanks:

- Increased Deck (Filling) loss
- Increased Deck (Seal) loss

3.4. Bayside Council

The submission by Bayside Council (formerly City of Botany Bay Council) raises numerous issues as detailed below.

3.4.1. Risk

Bayside Council engaged Arriscar to review the EA and provided a copy of their report. Arriscar provided the following conclusions:

- The EA clearly address two of the requirements in Section 7.2.4 of the Denison Street Land Use Safety Study Review of Planning Controls. It is unclear if the QRA of Dangerous Goods Transport presented in Appendix F has considered the cumulative impact of Dangerous Goods Transport and risk arising from nearby fixed facilities, as recommended in the Denison Street Land Use Safety Study Review of Planning Controls.
- The QRA of Dangerous Goods Movements on Denison Street (Appendix F) of the EA does not provide the consequence result detail required by HIPAP No.6 Hazard Analysis to provide a full appreciation of the consequences of hazardous events and thereby demonstrate claims about limited impact. As such, the accuracy and conclusions of Appendix F cannot be verified.

Accordingly, it is recommended that the proponent confirm if the cumulative effect of both fixed installations and Dangerous Goods movement was considered in Appendix F and provide the information if it has been omitted. This will enable Council to review its own planning scheme near Denison Street based upon the total risk of the area.

Response

The consideration of fixed installations was outside the scope of Vopak's road tanker DG risk assessment and it was not required by the SEARs.

3.4.2. Traffic

Council's main traffic concern is in regard to the transport of dangerous goods along roads in close proximity to residential and sensitive land uses, in particular Denison Street.

Response

The transportation of DGs, particularly along Denison Street had been assessed.

3.4.3. Environmental

Given the proximity of the proposed new road, following the western and northern sides of the property to the bay, Council requests that the new road be connected to the existing stormwater management system for the site and that any variation to the environment protection licence (EPL) (as referenced in the EA) in regard to stormwater discharge, not reduce the water quality requirements of the water discharged to the bay.

Response

Refer to response to Section 3.3.7.

3.4.4. Environmental Health

A number of air and noise emissions conditions were recommended by Council.

Response

Air and noise conditions would be determined by the EPA as part of the preparation of an EPL for the proposed modification.

3.5. Fire & Rescue NSW

The submission by Fire & Rescue NSW (FRNSW) provided numerous recommendations in relation to the preparation of a Fire Safety Study (FSS) for lodgement and consultation as follows:

1. Appropriate mitigation measures be developed and implemented for low likelihood fire scenarios such as, for example, onsite portable foam monitors and fixed bund pourers.
2. Details meteorological analysis to determine wind conditions that could produce the worst case fire or release event.
3. Examine individual and cumulative impacts associated with the establishment of the new road tanker loading bays, the Vapour Recovery Unit upgrade, the amenities block and the warehouse extension.
4. Consider scenarios resulting from the increase in total site throughput. This includes (but not limited to) consideration of fire scenarios with larger quantities of spills and releases, the impact on accessibility of fire hydrants and all other fire brigade requirements.
5. Heat radiant and risk contours should also be provided in the FSS for each assessed scenario, including those identified to be of low likelihood, in order to allow FRNSW to assess the adequacy of the proposed fire safety safeguards on site.
6. Outline all proposed fire protection measures and procedures including (but not limited to) manual and/or automated systems, the fire hydrant system design proposed, detection systems, time of foam based systems proposed and the procedures/systems available onsite for call out and liaison with the fire brigade.
7. In relation to flammable storage facilities at Site B, the actuation of active fire suppression and cooling water systems is expected to be initiated automatically by appropriate automatic detection systems, complete with local and remote initiation redundancy.
8. The onsite Incident Management Team (IMT) and relevant subject matter experts (SME) are expected to be readily available for liaison with FRNSW. A timely IMT/SME response to the site during an incident will be required to assist FRNSW incident management teams during formulation of incident management strategies and implementation of tactics. IMT/SME are expected to be onsite and available for FRNSW liaison within 30 minutes for incidents that may occur outside of normal business hours.

Response

All of these recommendations would be included during the FSS preparation and consultation process with FRNSW.

3.6. Huntsman

The respondent is generally supportive of the proposed development at Port Botany.

Concerns raised with the proposed development were the volume of anticipated traffic movements and car parking arrangements in Denison Street Hillsdale.

A recommendation was made to prohibit parking on the western side of Denison Street (along the Botany Industrial Park) and permit parking on the eastern side.

Response

The additional traffic movements resulting from the proposed modification along Denison Street were addressed in Section 6.2 of the EA.

The proposed modification would not impact upon on street parking at Denison Street.

3.7. Knight Frank Town Planning

The respondent had prepared the submission on behalf of the owners of the following properties: No's 110-116, 118 and 130 Denison Street legally described as Strata Plan 34222 and Lots 8-15 in Deposited Plan 21849.

Their client's main concern is the traffic impacts associated with the proposed expansion of the storage facility and in particular along Denison Street. Cumulatively, the proposed increase in capacity of the subject storage facility in addition to existing and future uses will result in significant traffic impacts on Denison Street with a consequent loss of amenity for business owners and residents on Denison Street.

Condition 14 of the existing approval (MP_06_0089) includes a restriction on the use of Stephen Road and Botany Road west as follows: "External Road Network – During the life of the project, the Proponent shall ensure that vehicles associated with the project do not transport hazardous goods along Stephen Road and Botany Road west of their intersection with Foreshore Road, unless for local deliveries only. Their client requests the Department of Planning & Environment to apply a similar restriction on the use of Denison Street by heavy vehicles, which should be required to use Foreshore Road only.

Response

The Beauchamp Road / Denison Street / Wentworth Avenue route is an authorised B-Double and dangerous goods route for heavy vehicles. It is identified as a 'secondary freight road' under the NSW Freight & Port Strategy 2013 and is utilised by Port Botany generated heavy vehicles, including road tankers originating from the Vopak Site, as a preferred access route when accessing Port Botany to / from the north.

Denison Street is also used as an alternative route to bypass the General Holmes Drive airport tunnel and travel around the airport precinct via Qantas Drive / Airport Drive / Marsh Street to access the south-western / southern areas of Sydney.

The placement of restrictions upon Denison Street as suggested in the submission would greatly impact the movement of heavy vehicles in this locality.

Road tanker routes to/from the Vopak site will follow a similar distribution to that which currently occurs. This is estimated to be 85% to/from the west, south and north via Foreshore Road, 10% to/from the north and east via Beauchamp Road and 5% to/from the east via Botany Road / Bunnerong Road.

As per existing operations, road tanker routes will adhere to Dangerous Goods routes and avoid restricted routes such as the Airport Tunnel and M5 East tunnel. They will be prevented from using local roads as per existing operations, e.g., via toolbox talks, professional driver conduct codes or similar.

The additional traffic movements resulting from the proposed modification along Denison Street were addressed in Section 6.2 of the EA.

3.8. Randwick City Council

The submission by Randwick City Council raises numerous issues as detailed below.

3.8.1. Fuel Mode of Transport

Randwick City Council in its submission indicates that Conditions Nos 9-11 of the original consent were applied as an effective means of controlling the adverse impact off-site impacts of fuel transportation and as reasonable means for protecting the amenity of surrounding residential areas from unregulated road transport. It concludes that removal of these conditions would “permanently remove the impact-mitigating provisions in these conditions”.

Response

The EA document and appendices supporting the application extensively assesses potential impacts of increases in truck movements in and out of the facility on surrounding areas and road network. The detailed reports can be found in the appendices of the Vopak application and summaries are provided in sections 6.2 and 6.3 of the EA. The stated reasons behind Randwick City Council’s objections are not supported by the content of the independent studies – summarised in some of the main conclusions as follows:

- *The traffic impacts from Vopak’s future expanded operations are considered to be minimal and will have an insignificant effect on road network and intersection operations.*
- *Overall it is concluded that the S75W proposal will have a very small impact on existing Dangerous Goods transport risk levels in the area when compared to previously published risk estimates.*

In conjunction with the above - it is important to note that the demand for fuels in Sydney and the State of NSW is largely market driven (the number of cars, fuel consumption in the transport sector etc). This means that the total quantity of fuels imported and distributed will not change in any material way by the granting of an approval for Vopak’s modification application. The total number of fuel trucks required on the road will also not substantially increase, because restrictions at Vopak would give rise to an equivalent increase in the number of truck movements at other fuel distribution facilities.

Throughput limits imposed as conditions in the modified planning approval would therefore not “control adverse off-site impacts of fuel transportation” - both because there is minimal adverse impact on transport risk levels related to an increase in truck movements out of the Vopak facility - and because the overall number of fuel trucks on the roads would not likely be reduced.

3.8.2. Noise, odour and emissions impacts on local residents

Randwick City Council raised the issues of noise, odour and emissions impacts upon local residents.

Response

As outlined in Section 3.1.3 of the EA a noise assessment was not a requirement of the Secretary's Environmental Assessment Requirements issued by DP&E. The Statement of Commitments recommend appropriate control to manage noise during construction and operation. The Environment Protection Licence (EPL) 6007 for Site B, contains provisions to control operational noise and would be updated as a result of the modification.

As outlined in Section 3.1.3, the Environment Protection Licence (EPL) 6007 for Site B, contains monitoring requirements for potential emissions and would be updated as a result of the modification.

Air quality emissions were assessed in Section 6.4 of the EA.

3.8.3. Traffic and transport considerations

Randwick City Council raised issues concerning offsite queuing and/or circling of trucks within residential areas adjacent to the Port prior to allocated receipt/delivery time slots, insufficient analysis of intersections and the suggestions that proposed Stage 2 onsite traffic mitigations be included as part of Stage 1 works

Response

Vopak refer council to the response provided in Section 3.1.3 in relation to the onsite traffic mitigations and staging of construction activities.

3.8.4. Emergency response

Randwick City Council indicated that the EA did not provide adequate details on leak detection and auto shutoff systems and emergency response procedures.

Response

A quantitative risk assessment was conducted as part of the EA. A summary of the assessment can be found in Section 6.3. A full copy of the assessment can be found in Appendix D.

3.8.5. Soil, water & air quality management

Randwick City Council raised concerns with no timeframe being provided for the upgrade or replacement of the Vapour Recovery Unit as well as other water pollutant control devices.

Response

Sections 5.2.5, 5.2.8, 6.4 and 6.7 of the EA address these issues.

3.8.6. Communications & notifications

Randwick City Council reiterated the importance of notifying adjacent residents of the timing for the proposed construction works and especially in regard to any proposed out of hours construction works. Randwick City Council also commented on condition M6.2 of the EPL.

Response

The distance of the nearest residences to Site B is approximately 1,500 metres away. Potentially affected neighbours would be consulted prior to proposed out of hours construction works. Vopak will comply with all relevant EPA notification requirements contained in its EPL.

3.8.7. Additional Randwick City Council Submission

Vopak submitted the first draft of this document to DP&E for adequacy review on 28 August 2017. After the adequacy review of the draft RTS by stakeholders Vopak received a response to the draft RTS from Randwick City Council. The response by Randwick City Council largely outlined the same points in their original submission.

After further to discussions with DP&E Vopak approached Randwick City Council for a meeting last year to which they declined.

On 16 October 2017 Vopak issued DP&E with an additional response to Randwick City Council's latest response.

DP&E advised Vopak that it would take into consideration Vopak's additional response to Randwick City Council's submission as part of its assessment of the modification.

3.9. Roads & Maritime Services

Roads & Maritimes Services raised no objection to the proposed modification.

3.10. Safework NSW

Safework NSW advised that if the proposed modification is approved, the Applicant will need to revise the current Safety Case for the facility under the provisions of the Work Health and Safety Regulation. It is essential that the final design of the modifications take into account the risk reduction measures to reduce the risks to So Far As Is Reasonably Practicable. Safework NSW would provide conditions of approval after it has reviewed the responses to the submissions.

Safework NSW sought clarifications to six points. These details are addressed below.

1. PHA Clause 1.5: Only existing controls have been taken into account. New controls have been left to be addressed at the safety case stage. Therefore, prior to completion of detailed design, the Applicant must carry out a risk assessment and identify all controls that could be included to achieve SFARP as required under the WHS legislation. Safety studies such as HAZOPs must identify possible controls to achieve SFARP. Controls to be included in the final design must be agreed with SWNSW prior to finalization of detailed design.

Response

Vopak is aware of these obligations and the need for them to be addressed accordingly.

2. PHA Clause 4.2: With the proposed throughput increase, please clarify if velocities in pipelines will increase. If so, surge issues must be addressed prior to completion of detailed design and controls identified and included in the design. For new

pipelines, surge issues must be included in the pipeline design and controls implemented.

Response

There are no new pipelines in this project. BLB1 is designed for 1,250m³/hr as this corresponds to 7m/s velocity limit for the BLB1 MLA and pipeline sizing. BLB2 MLAs and pipelines are larger diameter and designed for 1,750m³/hr as this corresponds to 7m/s velocity limit for the BLB2 system. The fluid velocity in the pipelines during import will not increase as the maximum flow rate is set such that the fluid velocity in the pipeline does not exceed 7 m/s as per the limiting MLA and pipeline sizes for BLB1 and BLB2 respectively. The QRA future case also considers export velocity / flow up to 1250m³/hr to BLB1 and BLB2 as per page 5 Table A.3 Appendix A of QRA report Vopak advise that the existing Site B surge study covers BLB1 Import at 1250m³/hr and BLB2 Import at 1750m³/hr but only 600 m³/ hr export. The surge study will be updated to cover the potential increased export flow in the detailed design phase of the project.

3. PHA Clause 4.2: If pipeline velocities will remain as current and duty factors are increased, were the new duty factors included in the QRA?

Response

Yes the duty factors were reflected by the utilisation rate/online time of BLB2 as per Table A.3 of Appendix A. Refer to BLB1 % Wharf Online - Import Pumping Time on 2nd page of Table A.3 and BLB2 % Wharf Online - Import Pumping Time on 3rd page of Table A.

4. PHA Clause 5.3.2: This clause states that the release rate in the event of a pipe failure is taken as the normal pumping rate. In the event of a full bore pipe failure of the pump delivery line, particularly close to the pump, the spill rate can be very much higher for centrifugal pumps, as the pump would be delivering at close to zero head. Please confirm if consequences and secondary containment capacities were calculated on this basis.

Response

A centrifugal pump will typically reach a run-out point between 120% - 150% (max) of its design flow (i.e., the best efficiency point), and beyond this will "run off the end of its curve". It will cavitate and flow will fluctuate wildly and the pump motor will most likely draw excessive power and trip on overload protection. The pump cannot sustain flow in these conditions. Therefore, an upper flow limit of 150% of design flow is set for the maximum flowrate that can occur in the situation where there is a major piping failure downstream of a pump. At this point the pump is generating virtually no pressure (zero head) and there is minimal potential for sprays or jets, a liquid pool is the outcome. In the event of full bore pipe failure on pump discharge side, assuming upper limit of 150% design flow, the rate at which the pool grows and spreads will be quicker compared to outflow at 100% design flow. However, the maximum pool size will still be limited/constrained to the bund size and this has been accounted in the consequence modelling for Site B as per Appendix C, Section C.2 where secondary containment is provided throughout the site to limit pool size spreading.

5. PHA Clause 5.3.3: For full bore pipe failure scenario for a tank bottom entry pumping line, should the spill rate be the pumping rate plus the tank outflow under tank head?

Response

We assume that that this query relates to the possibility of simultaneous flow both from the pump discharging into the bund and the tank contents emptying back into the bund in the event of a broken pump discharge pipe. The rate of release is not a modelled parameter in this case. All spills from the tank or piping within the bund are assumed to result in pools and to be contained and constrained within the bund. These are covered under bund fire scenarios in the QRA. In any case all tank main inlet entry points have a remote isolation valve immediately at the tank shell and all pump discharges have a remotely operable isolation valve in the discharge path. The bunds are sized for 110% of the largest tank volume. If the pump continued to run with a broken discharge there are numerous alarm parameters (such as no change of level or drop in level in receiving tank, high level in bund sump) that would alert the operators to this and allow the pump to be shut down well before an exceedance of bund capacity.

Therefore a scenario is not included in the QRA where the entire tank contents plus sufficient extra volume from an undetected broken pump discharge is available to overwhelm the bund capacity.

6. PHA Clause 5.6: If tank allocations between Diesel, Gasoline and Jet fuel can be changed from time to time, please justify factoring the ignition probabilities for jet fuel and diesel.

Response

Appendix E explains the main effects of risk of changes in product allocation. The QRA was undertaken to reflect the future case operation (~50% gasoline throughput) and fuel product tankage allocation required to achieve the projected throughput. It would be very conservative to assume all the tanks held flammable products 100% of the time and all terminal operations involved flammable products 100% of the time.

The ignition probability adjustment factors were used for the proportion of time a product is being pumped and can spill. For example, if a manifold is in diesel service 50% of the time and gasoline 50% of the time there are 2 events defined with the following frequencies:

- 1) gasoline = $0.5 \times \text{equipment leak frequency}$, and
- 2) diesel = $0.1 \times 0.5 \times \text{equipment leak frequency}$.

Although the tank allocations are changed from time to time between products the average number of tanks carrying a particular product is unlikely to change as this is a function of the throughput. All tanks have a tank top fire scenario. The frequencies for a specific tank top fire were also adjusted to account for the product allocation which is shown in Figure 3.2 of QRA report. This can be regarded as having a similar effect on the risk calculations as a probability of presence of a flammable in a particular tank. The consequences are quite similar regardless of hydrocarbon fuel product and as all tanks have an allocated tank top fire scenario, the change in frequency has a relatively minor effect of the contours immediately around the tanks as can be seen in Figure 9.2 in the QRA. Any restrictions in allocation of products to specific tanks are related to fire safety (rather than having a major effect on offsite risk) and are identified in the relevant FSS checklist in Appendix E.

All bunded areas (B1, B2, B3) have some flammable products allocated to them and have intermediate and full bund fire scenarios included in the QRA model.

3.11. Australian Environmental Network & School

The Australian Environmental Network & School raised concerns regarding cumulative risk, the need for sustainable technology instead of the fossil fuel industry, hazardous heavy traffic around Hensley Athletic Field and the Botany area needing a detailed environmental sustainable plan.

Response

Cumulative risk was addressed in Section 6.3 (particularly Sections 6.3.2.3 and 6.3.2.4 (incorrectly labelled 6.2.3.4)) of the EA.

The proposed modification is a response to the increase in demand for finished petroleum product, see Section 4 of the EA.

Transport risk around Denison Street was addressed in Section 6.3 (particularly Sections 6.3.4, 6.3.5 and 6.3.6) of the EA.

The preparation of a detailed environmental sustainable plan is not the role of the EA for the proposed modification.

4. Clarifications & Amendments to Proposed Modification

4.1. Removal of Vapour Return Unit Project from Section 75W scope

As the Vapour Return Unit project is an upgrade or replacement of a Vapour Return Unit that received consent under DA38/94 (1995) and subsequently carried forward to Project Approval 06_0089 (2007), Vopak no longer seek consent to carry out the Vapour Return Unit project under the Section 75W Modification.

Vopak formally consulted with DP&E prior making the decision to remove the Vapour Return Unit project from the scope of the Section 75W.

The Vapour Return Unit operation and emission control capabilities will remain discussed in this RTS document, as the operation of the Vapour Return Unit is required at the site to comply with the obligations of the *Protection of the Environment Operations (Clean Air) Regulation 2010* and also remain pertinent given the additional throughput that will be handled by the Terminal.

The removal of the Vapour Return Unit project from the scope of the Section 75W does not negate the request under Section 5.2.8 Modifications to Conditions of Approval of the EA to remove Schedule 3, Condition 27 related to the operational efficiency of the Vapour Return Unit.

4.2. Clarification of The Modification

The changes to the Site B Facility therefore include the following:

- West Entry Northern Approach Roadways - requiring the need to lease an additional 2,870 m² of land from NSW Ports to the north and west of Site B plus the modification to the Simblist Road intersection with Friendship Road.
- Construction of Three New Road Tanker Loading Bays (Bays 7, 8 & 9).
- Installation of additional transfer pumps and product supply pipelines to existing RT Pump Manifolds.
- Construction of One Road Tanker Unloading Bay for Biofuels, Additives and other ancillary products together with RT unloading pumps.
- Construction of a New Drivers' Amenities Building at Fishburn Road entrance.
- Construction of a steel framed awning (19m. x 1.9m. wide) on the northern side of the existing Control Room Building to provide weather protection for Drivers entering/exiting the Customer Print cubicles.
- Ship Import debottlenecking of inlet manifolds, tank import pipelines and tank inlets, inclusive of tank-to-tank and tank recirculation piping and pump facilities as well as instrumentation for quantity and quality control to increase flowrates.
- Ship Export debottlenecking of tank outlets, tank export pipelines and transfer pumps as well as instrumentation for quantity and quality control to increase flowrates.
- Civil, Structural, Piping, Electrical and Instrumentation Works for the above.

- Increase in the size of the approved Warehouse (8m x 12m) near the Fire Pump House. The proposal is to extend the Warehouse to be 12m x 20m.
- Modification of several conditions of Project Approval (06_0089).

4.3. Clarification of Staging

As outlined in Section 3.1 of the RTS, the work would be staged in the following manner:

Stage 1

Stage 1 is scheduled to commence construction over a period of 6 months and is likely to involve the following activities:

- Construction of Road Tanker Loading Bay 7 and additional RT pumps and supply pipelines
- Maintain existing Road Tanker entry from Friendship Road
- Maintain existing Road Tanker exit to Friendship Road
- Construction of Road Tanker Unloading Bay and RT unloading pumps
- Construction of a steel framed awning (19m x 1.9m wide) on the northern side of the existing Control Room Building
- Progressive Ship Import debottlenecking of inlet manifolds, tank import pipelines and tank inlets, inclusive of tank-to-tank and tank recirculation piping and pump facilities as well as installation of tank mixers. Upgrades will be prioritised and subject to tank maintenance outages
- Progressive Ship Export debottlenecking of tank outlets, tank export pipelines and transfer pumps. Upgrades will be prioritised and subject to tank maintenance outages
- Civil, Structural, Piping, Electrical and Instrumentation Works for the above
- Increase the size of the warehouse.

Stage 2

Stage 2 is scheduled to commence construction over a period of 12 months and is likely to involve the following activities:

- Construction of Road Tanker Loading Bays 8 & 9 and additional RT pumps and supply pipelines
- Construction of a new Road Tanker entry from Fishburn Road via an easement adjacent to Elias (Elias Road) from Friendship Road and modification to the Symbolist Road/ Friendship Road intersection
- New Drivers' Amenities Building at Fishburn Road entrance
- Progressive Ship Import debottlenecking of inlet manifolds, tank import pipelines and tank inlets, inclusive of tank-to-tank and tank recirculation piping and pump facilities as well as installation of tank mixers. Upgrades will be prioritised and subject to tank maintenance outages

- Progressive Ship Export debottlenecking of tank outlets, tank export pipelines and transfer pumps. Upgrades will be prioritised and subject to tank maintenance outages
- Civil, Structural, Piping, Electrical and Instrumentation Works for the above.

Ongoing maintenance and enabling works will be undertaken, as required, throughout the life of the project for the entire site. This includes the construction, installation, and the ongoing maintenance, repair, replacement and / or removal of:

- fittings, fixtures and infrastructure
- truck parking areas (for full and empty trucks), car parking areas, and other paving works
- landscaping, lighting, utilities and service facilities, security cameras and devices
- temporary uses
- change of products within tanks, and other minor works such as installation of pipelines between tanks and loading / unloading facilities.

Works for the purposes of pollution control, work health and safety measures, and environmental protection will also be carried out to ensure the site operates in a safe and environmentally responsible manner.

5. Further Assessment

The following further assessment was undertaken in response to issues raised during the public exhibition period:

- DP&E questions were raised on the DGs transport risk assessment. A report was prepared by Systra Scott Lister in response to the questions. This report is provided in Appendix A.
- WSP Australia Pty Limited (WSP) was commissioned to provide a response to NSW EPA. This report is provided in Appendix B.
- An Air Quality Impact Assessment (AQIA) was prepared by AECOM Australia Pty Ltd (AECOM) to support the on behalf of Vopak Terminals Sydney Pty Ltd (Vopak) for the proposed capacity increase to the Vopak Site B Bulk Liquids Facility at Port Botany. This report is provided in Appendix C.

6. Revised Environmental Management

This chapter describes how the proposal will be managed, via environmental management plans and specific safeguards, to reduce the potential environmental impacts throughout detailed design, construction and operation.

Section 6.1 includes a comprehensive list of safeguards and mitigation measures including general measures commonly adopted for similar proposals and those specific to the impacts of this proposal as described in Chapter 6.

6.1. Revised Safeguards and mitigation measures

As a result of the submissions received no changes to the Statement of Commitments were considered necessary.

The following table provides a consolidated summary of the mitigation measures recommended in the EA for MP_0089 (i.e. the B3 development) and timing of mitigation measures. These measures form the proponent's Statement of Commitments for environmental mitigation, management and monitoring for this modification.

Table 6.1 Statement of Commitments

Statement of Commitments	Timing
General Management Plans	
■ A Construction Environmental Management Plan, incorporating: - Construction Soil and Water Management Plan; - Construction Traffic Management Plan; - Acid Sulphate Soil procedure; and - Mitigation and management measures identified in this EA and any subsequent approval conditions as issued by the Minister	Before construction
■ Development of a construction staging report (Stage 1 and Stage 2).	Before each stage of construction
■ Operational environment management plan incorporating: - An Air Quality Management Plan. - A waste management plan in accordance with the EPA Environmental Guideline: Assessment, Classification and Management of Liquid and Non-Liquid Waste (2004 edition). - Mitigation and management measures identified in this EA and any subsequent approval conditions as issued by the SPC.	Update existing Terminal OEMP
Traffic	
■ Appropriate signage / delineation and linemarking should be provided for the proposed central right-turn lane from simplest Road into Friendship Road, prior to Stage 2 operations. This is required to reinforce the	Before Stage 2 operations

Statement of Commitments	Timing
route / travel path for road tankers approaching the site, separate unrelated traffic movements (i.e., Vopak traffic from through traffic) and reduce lane changes. Provide a warning sign to be located on the bend at the southern end of Friendship Road to advise northbound vehicles travelling around the corner to be aware of cars reversing out of the proposed southern end parking spaces.	
It is recommended that a road safety audit be undertaken on any proposed road amendments and site access arrangements.	<u>Before and during construction. During operations</u>
Hazards & Risks	
The proposal will be reviewed via the HAZOP methodology	Before construction
Effective procedures be developed for adequate containment and disposal of ethanol spills in the unloading bay given that it is soluble in water and there exists the possibility of off-site impact via water / ethanol releases	Before operation
Review radiant heat protection for the new Amenities building, particularly if it serves critical functions during an emergency, due to the radiant heat received from a bund fire for Tank Tk 0726.	Before construction
The QRA is intended primarily as a risk profile comparing the current and proposed expansion cases against HIPAP 4 criteria. While the QRA identifies existing risk control measures and safeguards, it does not provide a detailed demonstration of the adequacy of the control measures in place to control risks to levels considered "As Low As Reasonably Practicable" (ALARP). This demonstration will be included as an update to the MHF Safety Report. Hence no specific recommendations have been made as part of the QRA.	Before construction
Air Quality	
Trenching and pipe laying would be undertaken progressively along the route to minimise the area that is disturbed at any single point in time	During construction
Disturbed surfaces would be stabilised as soon as practicable	During construction
Equipment to be well maintained and limit instances of fuel combustion processes	During construction
Where material stockpiles are necessary, the stockpile would be covered or watered down to prevent movement and disturbances from wind.	During construction
Noise	
All combustion engine plant, such as generators, compressors and welders will be checked to ensure they produce minimal noise with particular attention to	During construction and operation

Statement of Commitments	Timing
residential grade exhaust silencers	
Vehicles to be kept properly serviced and fitted with appropriate mufflers. The use of exhaust brakes should be eliminated, where practicable	During construction
Where practical, all vehicular movements to and from the construction site must be made only during normal working hours	During construction
Where practical, machines to be operated at low speed or power and should be switched off when not being used rather than left idling for prolonged periods	During construction
Machines found to produce excessive noise compared to industry best practice should be removed from the site or stood down until repairs or modifications can be made	If required
Where practical, impact wrenches should be used sparingly with hand tools or quiet hydraulic torque units preferred	During construction
Water Quality	
- Construction phase impacts managed by implementation of a Construction Phase Soil and Water Management Plan in accordance with Landcom Soil and Construction, Managing Urban Stormwater (Landcom, 2004). These would include: - General site practices and responsibilities; - Material management practices; - Stockpile practises; - Topsoil practices; and - Erosion control practices (earth sediment basins, straw bales, sediment fences, turbidity barriers, stabilised site accesses, diversions and catch drains).	Before construction
- Monitoring undertaken to ensure that stormwater management measures are working effectively. Monitoring would rely primarily on soil and groundwater bores, visual inspections and sampling. Visual inspections should be undertaken of bunded areas, pits, diversion and catch drains and all other stormwater conveyance structures. - Spill kits on new access roads	During construction and operation
Visual	
All worksites to be left clean and tidy and the contractor shall maintain the site in an orderly manner	During and after construction
Construction works would be completed within the shortest possible timeframe	During construction
All work equipment and materials would be contained within the designated boundaries of the work site	During construction
On completion of the works all equipment, materials and refuse relating to construction of the works would be removed from the work areas	During and after construction

Statement of Commitments	Timing
All waste generated during the course of the works would be removed from the work area as soon as practicable and disposed in accordance with DEC waste management guidelines (<i>Assessment, Classification and Management of Liquid and Non-Liquid Waste 1995</i>)	During construction
The detailed design of the proposal is to comply with the visual provisions of Molineux Point Masterplan (2002) as far as practicable.	Before construction
Topography, Geology and Soils	
Disturbed areas would be stabilised as soon as possible following completion of works	During and after construction
Stockpiles would be covered or stabilised to prevent transport of sediment from the work site	During construction
Sediment control devices such as silt fences would be installed on all drainage lines downstream in the vicinity of the work area	During construction
At the completion of construction and stabilisation of the land surface, all stormwater control devices would be removed	After construction
Outdoor construction works would not take place during or immediately after high intensity or prolonged rainfall	During construction
All roads and footpaths affected by construction would be kept free of all waste, loose sand, soil, aggregates and clay deposits	During construction
In the event that contaminated groundwater is discovered, a groundwater management plan would be developed by Vopak Environmental Consultants	If required
Appropriate disposal of any contaminated soil or water in accordance with DEC waste management guidelines as recommended by Vopak Environmental Consultants.	If required
- The proposal is located within GMZ A and GMZ B. Vopak will be required to submit to the NSW Ports details as required by the Groundwater Management Zone Deed, May 1994 including: - Proposed construction methods - The likely impact of the water table - The likely impact on the LPG storage development - A letter to the effect that the applicant agrees to submit any dispute regarding the submissions to arbitration in accordance with Clause 4.8 of the Deed. - During operations groundwater monitoring would continue to be undertaken in accordance with the conditions of the EPL.	Before construction

Statement of Commitments	Timing
Socio-economic	
The general community will have the opportunity to register interest, view the EA and write a submission through the Department of Planning and Environment 30-day submission period	Before EA determination
Nearby industries and NSW Ports will be provided with targeted information in relation to the construction timetable and identification of potential impacts	During construction
Waste minimisation and management	
A sufficient number of suitable receptacles for general waste and recyclable materials would be provided for waste disposal on site, including sufficient bins to allow separation of wastes for recycling and conform with EPA guidelines for construction waste	Before construction
All waste would be securely stored to ensure that any pollutants are prevented from escaping	During construction and operation
The work site would be left clean and free of any debris and other rubbish at the end of the works	During construction
All waste to managed in accordance with EPA Environmental Guideline: Assessment, Classification and Management of Liquid and Non-Liquid Waste (2004 edition)	During construction and operation
Utilities and Services	
Liaison with NSW Ports and relevant utility and service providers regarding timing of connections to the services, location of services and utilities on the site	During construction
Liaison with relevant petroleum distributors that could potentially be impacted in regard to timing of connections with the integrated bulk liquids pipe distribution network	During construction
Liaison with utility and service providers to confirm the location of services and utilities prior to construction commencing	Before construction

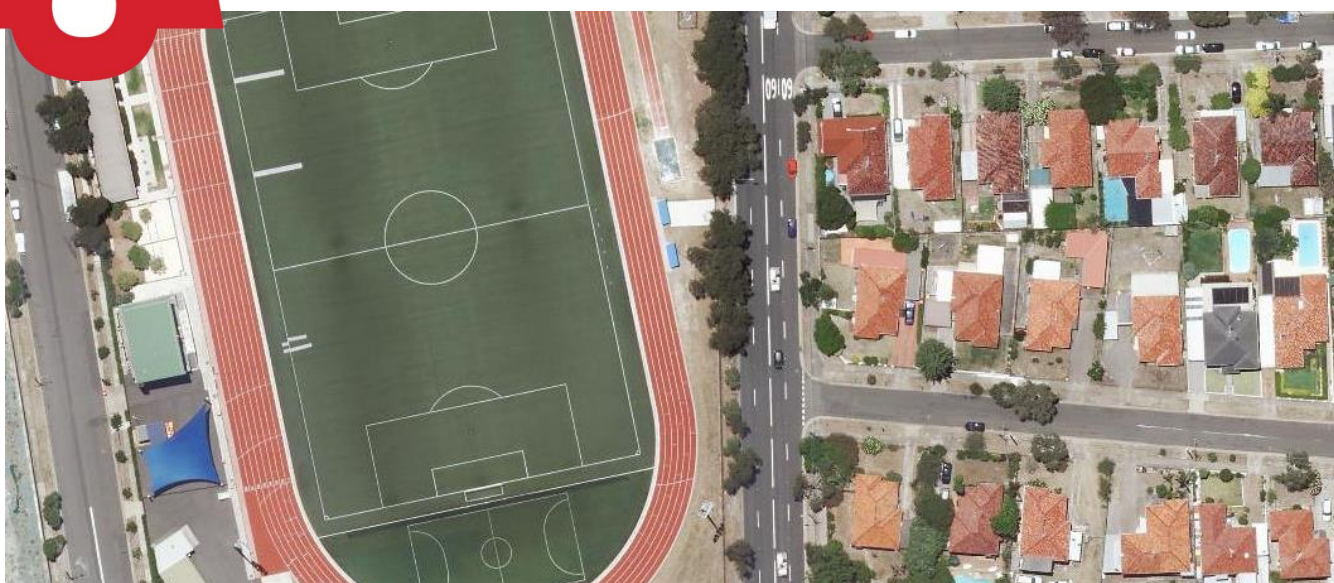


Appendix A

Vopak Port Botany Expansion – Denison St Transport QRA – Response to Questions, Systra Scott
Lister, 12 December 2017

12/12/2017

VOPAK PORT BOTANY EXPANSION – DENISON ST TRANSPORT QRA – RESPONSE TO QUESTIONS



VOPAK PORT BOTANY EXPANSION – TRANSPORT QRA

RESPONSE TO QUESTIONS

IDENTIFICATION TABLE

Client/Project owner	Vopak Terminals Sydney
Project	Vopak Port Botany Expansion
Study	Transport QRA -Response to Questions
Type of document	Report
Date	12/12/2017
Reference number	SM20171117

APPROVAL

Version	Name		Position	Date	Signature	Modifications
1	Simon Meiers		Author	26/05/2017		Initial Version
	Howard Lister		Approver	26/05/2017		
2	Simon Meiers		Author	14/06/2017		Respond to Vopak review comments
	Howard Lister		Approver	14/06/2017		
3	Simon Meiers		Author	17/11/2017		Respond to DPE comments
	Howard Lister		Approver	17/11/2017		
4	Simon Meiers		Author	29/11/2017		Respond to Vopak comments
	Howard Lister		Approver	29/11/2017		
5	Simon Meiers		Author	08/12/2017		Respond to Vopak comments
	Howard Lister		Approver	08/12/2017		

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1. INTRODUCTION AND SCOPE OF REPORT

1.1 Background

Vopak is proposing to expand exports from its Port Botany Terminal and as a result, an increase in Dangerous Goods (DG) traffic along Denison St can be expected. Systra Scott Lister has previously prepared a risk assessment on the risks of the forecast increase in DG traffic on Denison St, that has been used to support its Environmental Assessment for the expansion.

Following the public exhibition of the Environmental Assessment by the NSW Department of Planning and Environment (DPE) some questions have been raised on the DGs transport risk assessment. This report provides a response to such questions.

1.2 Vopak Expansion

Vopak operates the Sydney Site B petroleum fuel terminal within the Port Botany precinct. As part of a terminal expansion Vopak is to increase the petroleum fuels throughput from 3,950ML/year to 7,800ML/year. The associated total road tanker export capacity is to increase from 1,897ML/year in 2013 to 3,700ML in 2023. The remaining petroleum fuels are to be exported via ship or pipeline.

Systra Scott Lister has updated the previous studies undertaken for Denison St to assess the risk posed by the increase in petroleum fuels associated with the Vopak expansion. The QRA model has also been updated to account for incremental population growth in the vicinity since the 2015 Transport QRA was prepared.

This report should be read in conjunction with the Systra Scott Lister report for Vopak on the Transport of Dangerous Goods, July 2016 update.

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2. QUESTIONS

The questions DPE has asked for a response to are as follows:

6. The study is based on an assumption of 10% of tanker drivers using Denison St. As explained in Section 3 of the TRA, this is based on driver feedback and is dependent on the traffic conditions of the surrounding road network. As the traffic conditions and the preferences of road tanker drivers may vary over time, the chance of an increase in the usage on Denison St cannot be ruled out. A sensitivity analysis should be carried out based on 20% of usage on Denison St to assess the worst case scenario.

8. The Department notes the population presented in Table 1 of the TQRA does not reflect the latest population forecast, in particular, the area of the Orica 20 lot subdivision. The Department understands this area has been split into two areas. The area west of the Hensley Athletic Field is known as the “Masters Site” and the area south of the Hensley Athletic Field has been subdivided into 13 lots. Please clarify the following:

a. Whether the population forecast for the Masters Site has been included in the analysis. What is the assumed population?

b. It is noted that the population south of the Hensley Athletic Field has updated its population forecast to 200. Please update the analysis based on a population of 200 on-site.

9. Section 4.1 of TQRA states there would be no increase in individual risk at distances of more than approximately 30 m from the road. Please clarify whether the 30 m is measured from the curb side of the road, or from the centre of the road where the road tankers would be.

In order to answer question 6, the 2023 forecast Vopak traffic on Denison St was increased from 10% to 20% and the models re-run. Apart from the Lot 20 sub division populations changes, the remainder of the model was kept as it was for the July 2016 report.

The Safeti model used in the calculations has gone through a version update since the time the initial Denison St QRA was performed. Previously version 6.7 of the Safeti model was used, but for this study the model was upgraded to version 7.2 of the model. This change, is not observed to have any major impacts on the results.

The results of the sensitivity analysis performed to address question 6 are presented in the following sections of this report.

With regard to question 8 the analysis has increased the population south of the Hensley Athletic Field to the population forecast of 200. The “Masters Site” was assessed as a population of 200 with a very small increment of societal risk from DGs (as reported in the Scott Lister report provided for that development proposal). The “Masters Site” is now the subject of an alternative development, the details of which Systra Scott Lister has not been provided. The allowance of 200 is believed to be adequate considering the estimate used for Bunnings was 200 and the estimate for the population south of Corish Circle on Lot 20 is also 200.

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With regard to question 9, the distances are measured from the centreline of the road.

2.1 Tanker Movements

The number of Class 3 and Class 2.1 trucks estimated to use Denison St heading north from Port Botany was advised by Vopak to be those presented in Table 2 below. Further details are provided in Section 3 of Sherpa Consulting Pty Ltd, SITE B PROPOSED THROUGHPUT INCREASE S75W APPLICATION, DANGEROUS GOODS ROAD TRANSPORT RISK ASSESSMENT Rev 3, July 2016.

Table 1. Class 3 and Class 2.1 truck movements

CASE	OPERATOR	ROAD TANKERS HEADING NORTH UP DENISON ST (PER YEAR)	
		CLASS 3	CLASS 2.1
Base Case (2015 Addendum QRA results based on 2012 ROAR traffic count data)	Vopak	3,320	-
	Others	1,086	4,521
	Total	4,406	4,521
Vopak 2016 Case	Vopak	4,298	-
	Others	1,086	4,521
	Total	5,384	4,521
Vopak Future Case (2023)	Vopak	6,625	-
	Others	1,086	4,521
	Total	7,712	4,521
Increase in Vopak movements from Base Case (2015) to Future Case (2023)	Vopak	3,305	-
Increase in Vopak movements from 2016 Case (2016) to Future Case (2023)	Vopak	2,327	-

The Vopak Future case (2023) values were increased from 6625 where 10% were assumed to use Denison St to 13250 to explore the sensitivity that 20% of tankers used Denison St. Increasing the assumption of 10% of tankers using Denison St to 20% of tankers using Denison St doubles the number of Vopak tankers from 6,625 to 13,250.

Vopak Port Botany Expansion	
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3. RESULTS

3.1 Individual Risk Sensitivity

The Individual Fatality Risks (IFR) from the modelled scenarios are presented as Figure 1 for the 2023 case with 10% using Denison St and Figure 2 for the 2023 case with 20% using Denison St.

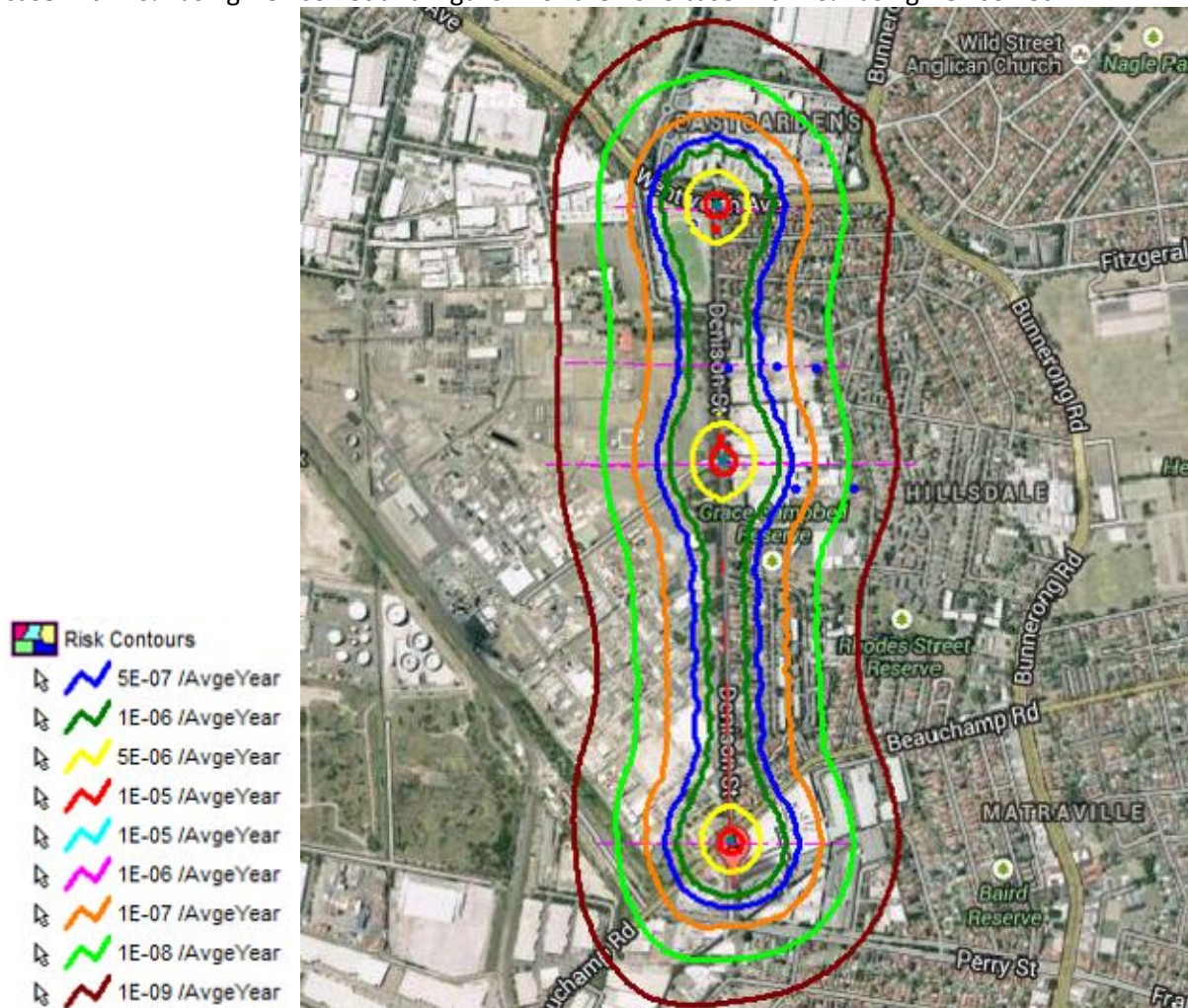


Figure 1. Individual Fatality Risk Results for the 2023 Case 10% using Denison St, from all DG movements

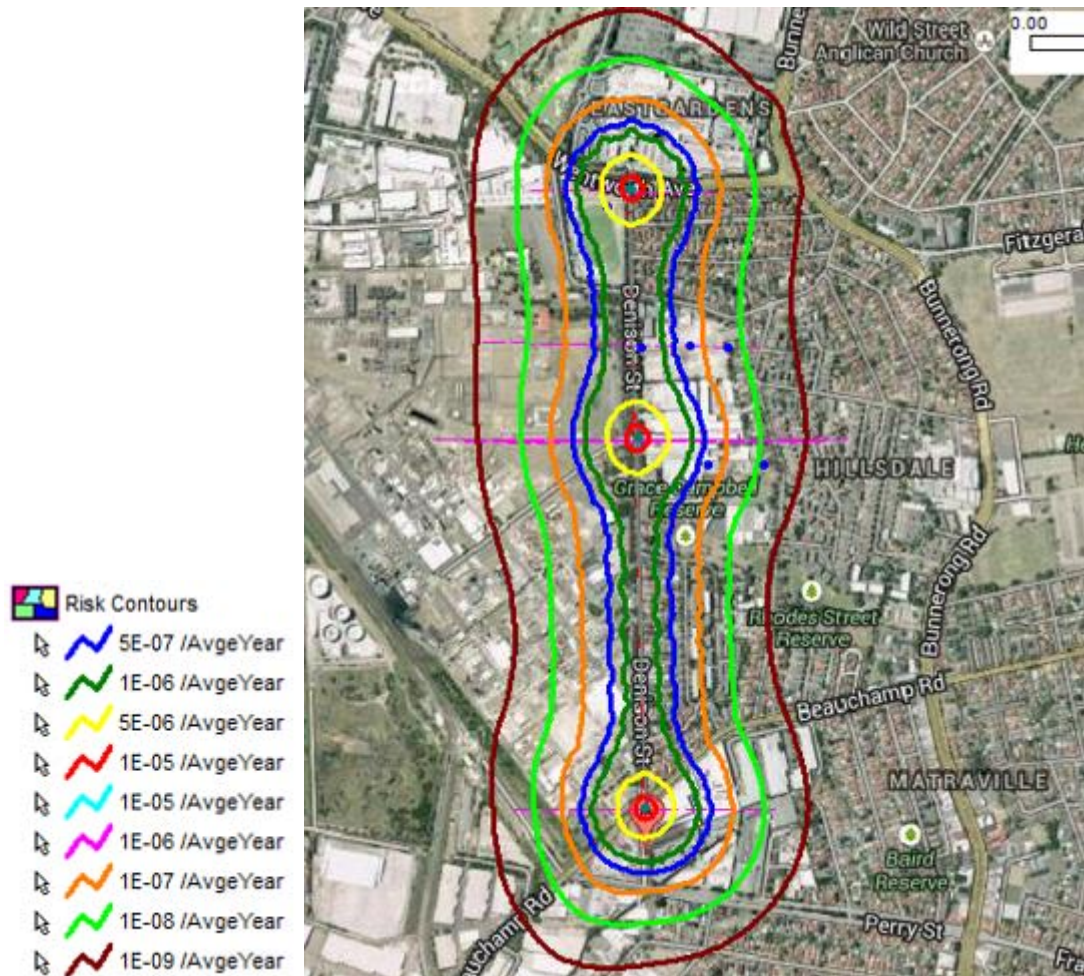


Figure 2. Individual Fatality Risk Results for the 2023 Case with 20% using Denison St, all DG movements

Comparing Figure 1 and Figure 2, there is no discernible difference between the two. In order to show the differences risk transects have been prepared. A risk transect is a graph of individual risk at distances along a line bisecting the risk contours. In this case the line is from the Gate 3 intersection on Denison St going west. It can be seen in pink on Figures 1 and 2.

Risk transects have been prepared for the base 2015 case, the 2016 case, the 2023 case with 10% using Denison St and the 2023 case with 20% using Denison St. This is presented as Figure 3.

Inspection of Figure 3 shows a very small difference between the results for all the cases considered.

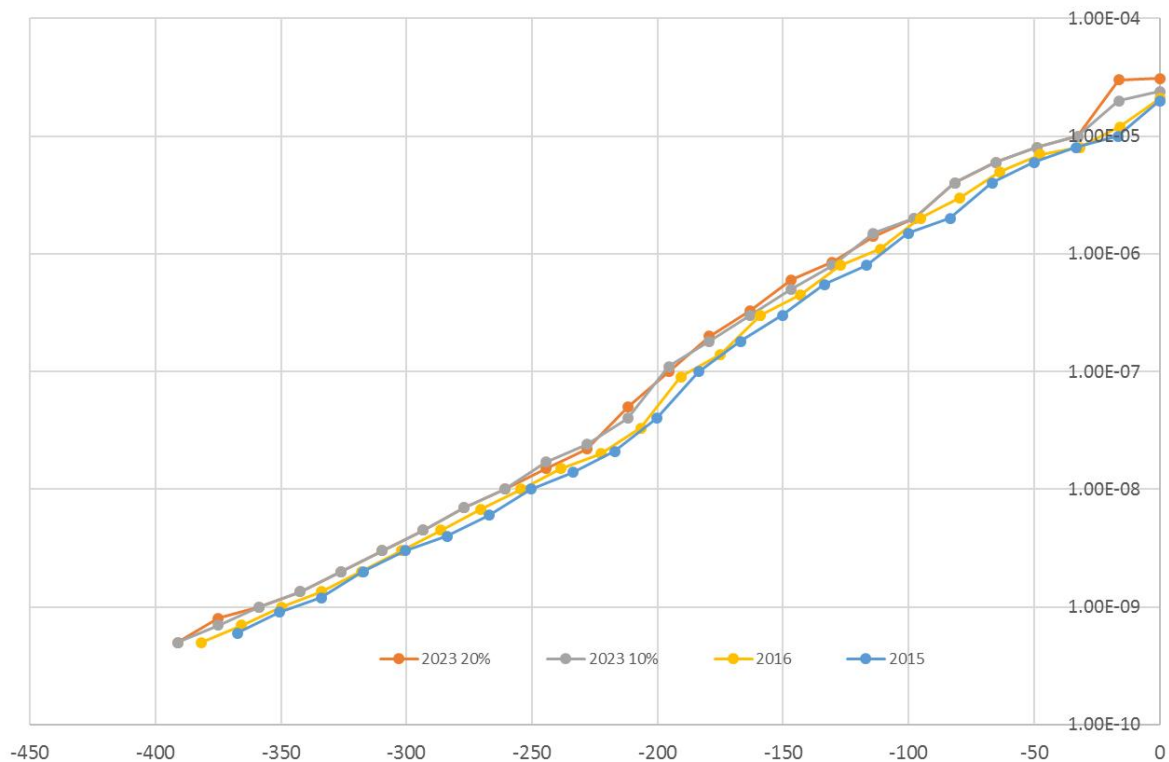


Figure 3 Individual Risk Transects from Gate 3 Intersection on Denison St, all Denison St DGs

To illustrate the differences further the individual risks from Vopak traffic only has been presented with Figure 4 as a series of risk transects west of Gate 3. As would be expected the results show the individual risk increases in proportion with the level of traffic. The level of individual risk drops rapidly from the centre of the intersection, to below levels of 1 in million at around 25m.

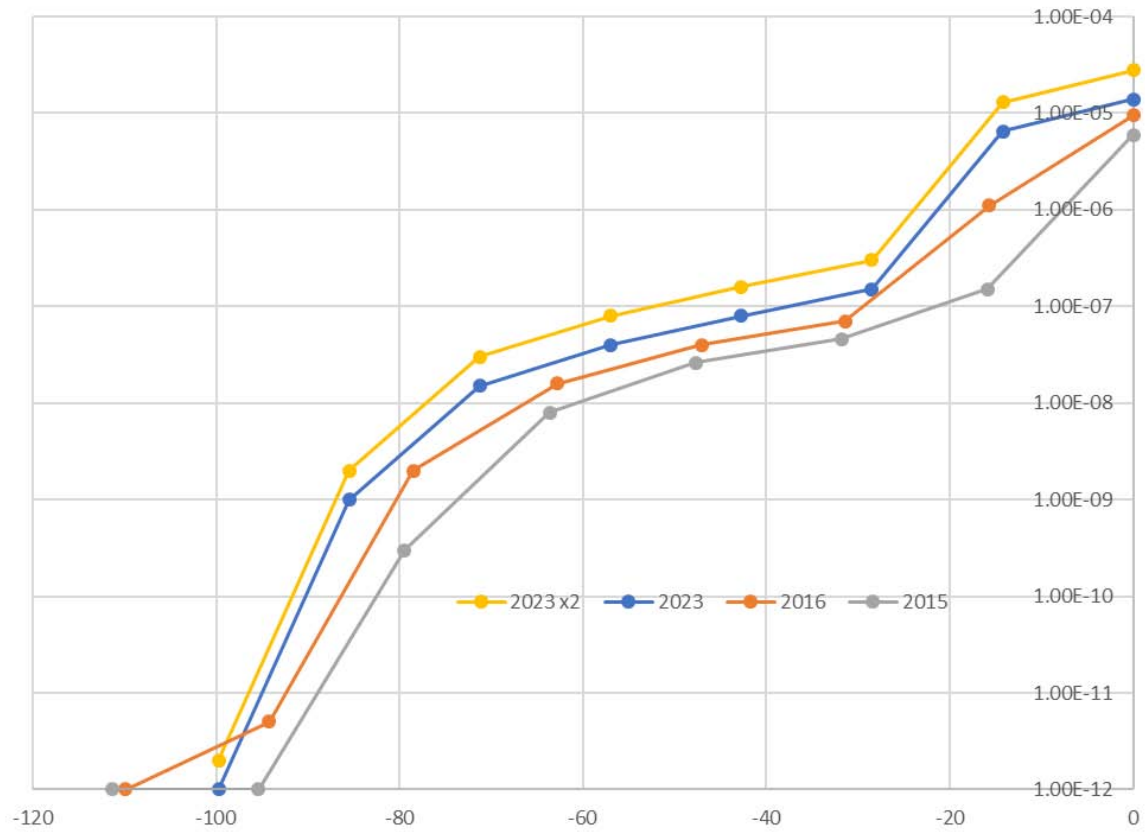


Figure 4 Individual Risk Transects from Gate 3 Intersection on Denison St, Vopak DGs only

3.2 Societal Risk

The sensitivity result for the 2023 future Vopak movements with 20% using Denison St compared to the original assumption of 10% is shown with Figure 5. Also shown are the 2016 result and the 2015 result, although the differences are very hard to discern.

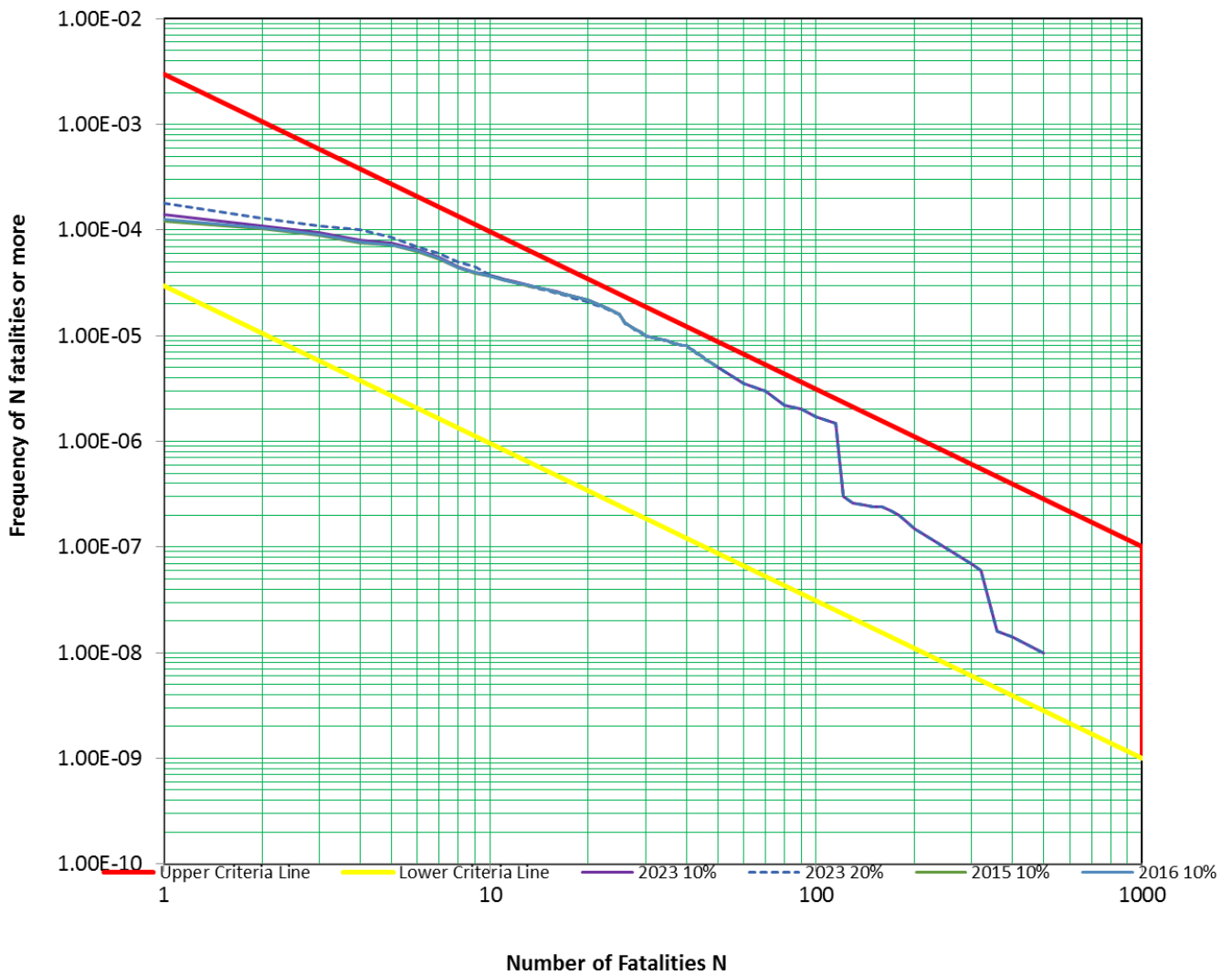


Figure 5. FN Curve for all DG movements on Denison St with Sensitivity of 2023 case with 20% using Denison St

To better illustrate the sensitivity of the assumption of the percentage of vehicles using Denison St, the risk contributions from Vopak traffic only has been presented, as Figure 6.

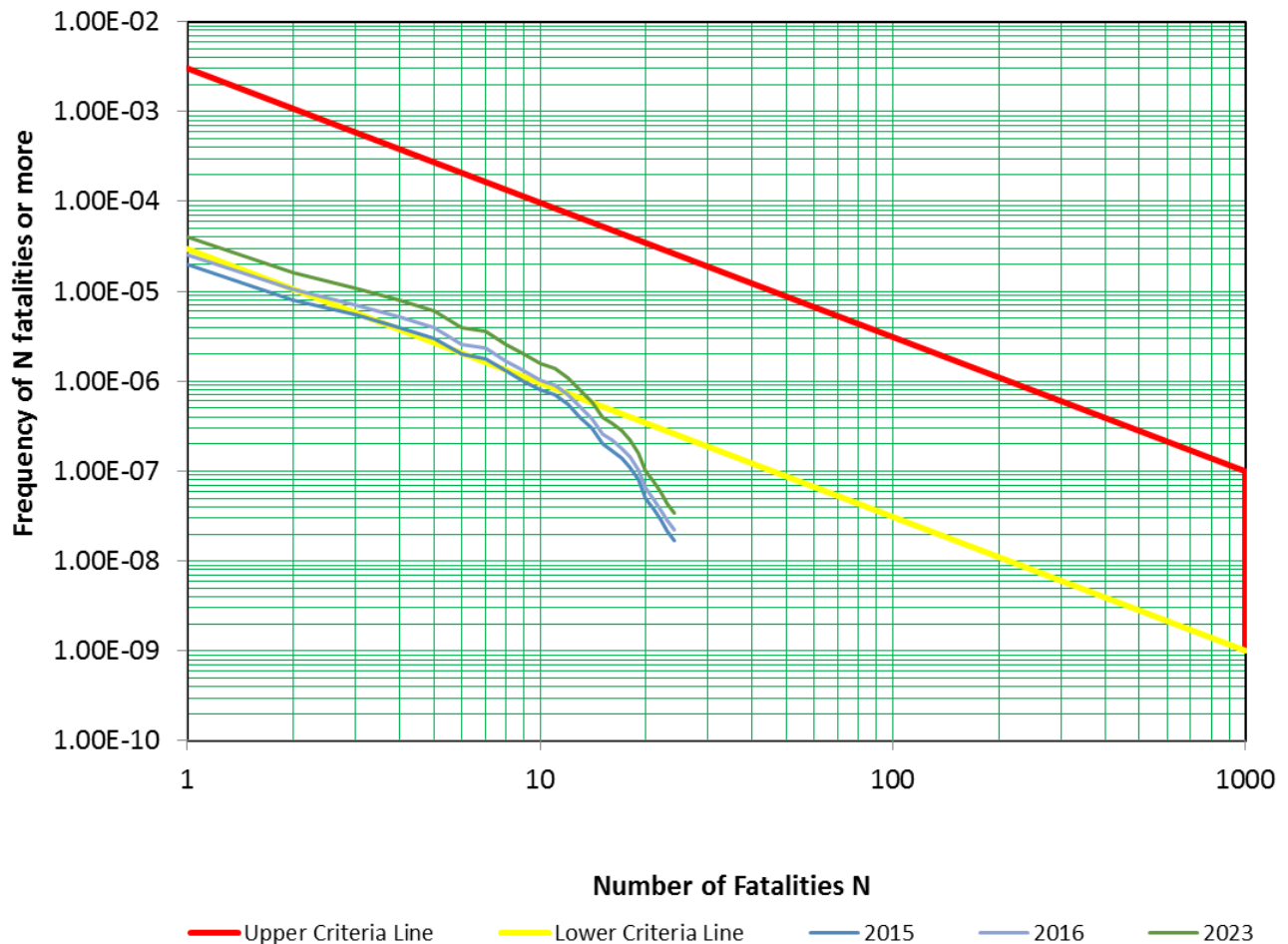


Figure 6. FN Curve for Vopak movements only on Denison St

The results in the Figure 6 FN Curve includes the population increase from 65 to 200 at Lot 20, DG point source (intersections) dangerous goods transport contributors and the contributors evenly spread along the road segment.

4. CONCLUSIONS

4.1 Individual Risk

The increased number of tanker movements results in an almost imperceptible increase in the overall individual risk. Hence this particular output of the model is not sensitive to this major increase in Vopak DGs traffic on Denison St (10% to 20%).

The reason the change in individual risk is not noticeable is that other contributors mask the individual risk increase associated with the Vopak tanker increase, as they present a much greater risk than that of petroleum. Such contributors are materials such as LPG, other class 2.1 materials and chlorine.

When the risks of the Vopak traffic is considered on its own, the increase is more apparent, with the risk rising in direct proportion to the traffic levels.

4.2 Societal Risk

The increase in societal risk when the sensitivity of increasing the proportion of DGs tankers using Denison St has been determined. It shows some increase in societal risk in the 1 to 10 fatalities range. This shows the societal risk model is more sensitive to this increase in Vopak DGs on Denison St than the individual risk result for the combined DGs traffic on Denison St.

The overall increase in societal risk is small when the assumption of the number of Vopak vehicles using Denison St is increased from 10% to 20%.

It should be noted that this is a sensitivity analysis, and not the risk assessment of the calculated risks against the risk criteria. The DPE criteria in HIPAP 4 requires risks from a major hazard in total needs to meet individual risk levels according to land use and an overall societal risk level. Such criteria has been adopted for DGs on Denison St, although not through any published policy or guidelines.

5. TERMS AND ABBREVIATIONS

The following defines the terms and abbreviations utilised throughout this document.

TERM	DESCRIPTION
ALARP	As Low As Reasonably Practicable
BIP	Botany Industrial Park
DPE	Department of Planning and Environment
DG	Dangerous Goods
IFR	Individual Fatality Risk
QRA	Quantitative Risk Assessment

6. REFERENCES

NUMBER	REFERENCE	DATE
1	Scott Lister; <i>Dangerous Goods Transport QRA, Denison St, Hillsdale</i>	12 February 2015
2	Scott Lister; <i>Addendum To Dangerous Goods Transport QRA, Denison St, Hillsdale</i>	18 May 2015
3	NSW Department of Planning and Environment; <i>Hazardous industry Planning Advisory Planning No 4 – Risk Criteria for Land Use Safety Planning</i>	January 2011
4	Sherpa Consulting; <i>Site B Proposed Throughput Increase – Dangerous Goods Road Transport Risk Assessment</i>	July 2016

Appendix B

Response to NSW EPA Requirements for Planning Approval of Terminal Extensions, Vopak Site B,
Port Botany, NSW, WSP Australia Pty Limited (WSP), 31 May 2017

Our ref: 2270732A_V3

31 May 2017

Mr Michael Martin
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Dear Michael

Response to NSW EPA Requirements for Planning Approval of Terminal Extensions, Vopak Site B, Port Botany, NSW

1. BACKGROUND AND INTRODUCTION

WSP Australia Pty Limited (WSP) was commissioned by Vopak Terminals Australia (Vopak) to provide a response to NSW EPA correspondence associated with a proposed expansion to the Site B facility located at Gate B47, 1-9 and 20 Friendship Road, Port Botany, NSW ("the Site"). The Site location and layout are illustrated in Figures 1 and 2, **Attachment A**.

The "Development Area" comprises part of Fishburn Road and the southern portion of the adjacent Elgas property. Property details forming the proposed western entry lease hold extension include Lot 21 DP 1126332 (Elgas) and Lot 52 DP 1182618 (Fishburn Road and the intersection of Simblist Road and Friendship Road).

Vopak has submitted a Section 75W modification to the Department of Planning (Planning) for the existing development consent for modification to infrastructure. The proposed modification of existing infrastructure includes changed truck access routes, additional loading bays, increasing the capacity of the vapour recovery unit and other ancillary modifications. As part of the approval process, the Department of Planning has written to the NSW EPA who has in turn requested that Vopak provide further information on a number of items. One of these relates to site contamination in a letter dated 21 February 2017, where it is requested that 'further information on any contamination on the premises and how unexpected finds will be managed' be provided.

2. OBJECTIVE

WSP has prepared this advice presenting current known soil and groundwater conditions at the Site and how unexpected finds can be managed.

3. SCOPE OF WORK

To achieve the above objective, WSP conducted a review of previous reports and publicly available information, targeting data from investigation locations either within or in the immediate vicinity of the proposed development area.

4. SITE DESCRIPTION

The majority of information pertaining to the Site that is presented in this section was obtained from the report entitled *Environmental Condition Report, Vopak Site B, Gate B47, 20 Friendship Road, Port Botany, NSW* which was prepared by WSP (September, 2015).

4.1 Site Location

The site is identified as Vopak Site B, Gate B47, 1-9 and 20 Friendship Road, Port Botany NSW 2036 as shown in Figures 1 and 2, **Attachment A**.

4.2 Site Description

The legal descriptors for the site are presented in Table 4.1.

Table 4.1: Site Description

ORGANISATION	CONTACT DETAILS
Street Address	Gate B47, 1-9 and 20 Friendship Road, Port Botany NSW 2036
Lot / DP (Site)	Lot 10 of DP1126332 and Lot 21 of DP1045324
Lot / DP (Development Area)	Lot 21 of DP1126332 and Lot 52 of DP118618
Local Government Area	Randwick City Council
Zoning	MD – SEPP (Major Development)
Current Landuse	Industrial
Approximate Site Area	8,800m ²
Lessor	Port Botany Operations Pty Limited

4.3 Site History, Layout and Activities

The Site (which includes the facilities generally referred to as B1, B2 and B3) comprises numerous fuel storage tanks, a truck filling station, a water treatment unit and interceptor for treating stormwater runoff prior to release to Botany Bay and a main office/administration building. The western side of the site is adjacent to Botany Bay. The Site layout and features are shown in Figures 2 and 3, **Attachment A**.

The Site is used for the bulk liquid storage and distribution of petroleum products. In accordance with the requirements of the Protection of the Environment Operations (POEO) Act 1997, Vopak hold an Environment Protection Licence (EPL) (6007) for petroleum and chemical storage, shipping in bulk and waste generation.

4.4 Surrounding Land Uses

The site is surrounded by industrial land uses common to the Port Botany area:

North: Elgas facility. The portion of the site adjacent to the northern boundary of the site comprises a large, open and unsealed grassed area with infrastructure for gas distribution.

East: Friendship Road with the Australian Container Freight Services facility and the former Orica Australia site.

South: Two large commercial/industrial properties which are dominated by large warehouse structures, hardstand truck and car parking areas and shipping container storage areas. Botany Bay lies beyond these properties.

West: Fishburn Road with Botany Bay beyond.

5. ENVIRONMENTAL SETTING

This section provides details pertaining to the Site's environmental setting which has been sourced from previous WSP reports.

5.1 Soils and Geology

The man-made peninsular was reclaimed with dredge estuary sand and mud. Based on a review of historical observations and borehole logs:

- Fill material at the Site typically extends from the surface to a depth of approximately 4m bgl and comprises brown sands with crushed sandstone or brown clayey sand. Fill material has been observed to contain inclusions of blue metal, brick, plastic and rubber.
- Natural sands are typically encountered from approximately 4m bgl and comprise fine to coarse grained dark brown or grey sands which are typical of the Botany Sands unit common to the area.

5.2 Hydrogeology and Hydrology

Precipitation falling on unsurfaced areas is expected to predominantly infiltrate site soils.

WSP|PB (2016a and 2016b) reported standing water levels (SWLs) in groundwater monitoring wells to be between approximately 3.2 - 4.2m below ground level (bgl). Table 5.1 presents SWLs for locations within or in the vicinity of the proposed work footprint.

Table 5.1: Depth to Groundwater

WELL	DEPTH TO GROUNDWATER (m BELOW TOC) (A)	WELL	DEPTH TO GROUNDWATER (m BELOW TOC) (A)
MW1	3.76	MW8	3.73
MW2	3.78	MW9	3.81
MW4S	3.81	MW10	3.81
MW4D	3.84	MW15	3.40
MW5S	3.23	MW18	3.40
MW5D	3.67	MW20	4.23
MW6	-	MW26	3.78

Although the groundwater flow at the site is tidally influenced, it has consistently been inferred to be in a westerly to south-westerly direction towards Botany Bay.

5.3 Sensitive Environments

The nearest sensitive environments are as follows:

- The nearest environmentally sensitive receptor is Botany Bay approximately 30m beyond the western boundary.
- The nearest residential properties are located approximately 2km to the north east, up gradient of the site.

6. DESCRIPTION OF PROPOSED WORK AREAS

Figure 3, **Attachment A** presents the development area. The proposed Site upgrade has been documented to comprise the following key items:

- Construction of a new access road and driveway (adjoining the western and northern Site boundaries) requiring the need to lease an additional 2,870 m² of land from NSW Ports.
- Construction of new road tanker bays (Bays 7-9), driver amenities and extension to existing warehouse.

- New unloading bay to the southeast of the primary transformer.
- Upgrade to the vapour recovery unit and other ancillary modifications.
- Installation of additional transfer pumps and pipelines and associated infrastructure.
- Additional car parking on Site to the south of tank 0624 and off Site adjacent Friendship Road.

As part of the above upgrade works, it is considered unlikely that groundwater will be encountered.

7. REVIEW OF PREVIOUS REPORTS

As part of the report entitled *Environmental Condition Report, Vopak Site B, Gate B47, 20 Friendship Road, Port Botany, NSW* which was prepared by WSP (September, 2015a), twenty reports were identified as being available and were subsequently reviewed. This has been utilised as the primary reference document for the compilation of this advice.

The following documents were also reviewed:

- Plancom (November 2016) Environmental Assessment, Site B Bulk Liquid Storage Terminal, 1-9 and 20 Friendship Rd Port Botany.
- RMS (2017) Vopak Bulk Liquids Storage Facility, port Botany (MP 06_0089 MOD 2) Notice of Exhibition.
- WSP|PB (2015b) Well Installation and Groundwater Monitoring Report, Vopak Site B, Gate B47, 20 Friendship Road, Port Botany, NSW.
- WSP|PB (2016a) Groundwater Monitoring Report – Environmental Protection Licence - Vopak Terminals Australia, Site B, 20 Friendship Road, Port Botany.
- WSP|PB (2016b) Groundwater Monitoring Report – Due Diligence Monitoring, Vopak Site B, Gate B47, 20 Friendship Road, Port Botany, NSW.

It is noted that the 1995 soil and groundwater baseline condition report for B1 completed by Groundwater Technology was unavailable for review as it has been reportedly lost by ERM during the 2012 NSW Treasury investigation for the Port Botany area. Consequently, baseline assessment data (particularly for MW1, MW2, MW4S, MW4D, MW5S and MW5D) for Site B is not available.

7.1 Elgas Facility

Some groundwater data is available from investigations conducted by WSP|PB since 2004/2005 on the Elgas site, however, no data for shallow soils was identified.

Construction details for the two groundwater monitoring wells nearest Vopak Site B (southwest portion of the Elgas site) have been provided in Table 7.1 for reference. The well locations are presented in Figure 2, **Attachment A**.

Table 7.1: Elgas Monitoring Well Details

WELL ID	SCREENED SECTION (MBGL)	SCREENED SECTION (MAHD)	DEPTH (MBTOC)	AQUIFER
RepBHC(U)	38.00 to 77.00	-32.42 to -71.42	83.00	Upper Hawkesbury Sandstone
RepBHG(L)	113.00 to 155.00	-109.07 to -151.07	160.20	Lower Hawkesbury Sandstone

It is considered unlikely that shallow groundwater will be encountered as part of the above upgrade works. Furthermore, the screened sections of the wells detailed in Table 7.1 facilitate sampling of deeper groundwater. Therefore the data obtained from these wells is not considered relevant in the context of this investigation given the proposed scope of work outlined in Section 6.

8. SUMMARY OF SITE CONTAMINATION STATUS

Available reports were reviewed by WSP and a summary of the Site's contamination status is summarised in this section.

8.1 Asbestos

WSP (June, 2014) prepared an Asbestos Register and Management Plan for aggregate material within Tank Bunds B1, B2 and B3A. The Asbestos Register and Management Plan was prepared following an asbestos assessment of the surface of aggregate material located within the B1, B2 and B3A bunds, internal roadways and maintenance shed surrounds in February 2014 and Asbestos Clearance Inspections undertaken in May 2014. The clearance was undertaken following a program to remove surface fibre cement fragments containing asbestos during the February 2014 investigation.

The presence of asbestos is managed by the asbestos register and management plan. Following review of the asbestos register and the proposed development plan, it is considered that bonded fibrous cement debris will likely be encountered in sub-surface soils in the immediate vicinity of:

- The access road and warehouse adjacent the northern Site boundary.
- Beneath passion Ave.
- Beneath the roadway between tank bunds B1 and B2.

The above areas are shown in Figure 4, **Attachment A**. The potential presence of these materials need to be incorporated into the project management plans.

8.2 Hydrocarbon Plume

WSP (2012) documented that a source of impact to wells in the central western portion of the site was potentially a historical fuel spill in a bunded above-ground tank farm or leaks / overflow from a 20,000 litre underground 'oily water' storage tank, which collected liquid wastes from spillages/runoff in the gantry area.

The following key findings were reported following the most recent groundwater monitoring events conducted in 2016:

- Phase separated hydrocarbons (PSH) were not observed in any well.
- MW7, MW11, MW12, MW13 and MW14 are clustered in the central western portion of the site in the vicinity of a water treatment unit and a decommissioned underground oily water tank (TK 2801). The oily water tank was decommissioned during the latter half of 2015. While no longer PSH impacted, groundwater in the vicinity of these locations continues to be impacted with total recoverable hydrocarbons (TRH) (C₁₀-C₄₀), TRH (F1), benzene, xylene and naphthalene. Figure 4, **Attachment A** shows the groundwater contamination status of the Site at the time of the 2016 monitoring events.
- Residual hydrocarbon contamination in groundwater exceeded the vapour intrusion risk criteria for human health for commercial / industrial land use in the vicinity of MW14. This risk is considered to be limited by the presence of hardstand across the site, the clay liners in the bounded area and being located within the bulk storage tank area where human health risk is minimal.
- The lateral extent of the dissolved phase petroleum hydrocarbon plume appears consistent with previous monitoring events and results indicate a general decreasing trend from the previous sampling rounds.

It is understood that no excavation works are proposed for areas in the vicinity of MW14 and other hydrocarbon impacted wells comprising MW7, MW11, MW12 and MW13. The impacted area is presented in Figure 4, **Attachment A**.

8.3 PFAS in Groundwater

Prior to the WSP|PB (2016b) due diligence groundwater investigation it was understood that some portions of the Site may be impacted with per- and poly-fluorinated alkyl substances (PFAS). Testing for the presence of chemical compounds contained in Aqueous Film-Forming Foam (AFFF) was recommended by WSP|PB (2015).

PFAS compounds were detected in all 6 targeted monitoring wells (MW3, MW5S, MW5D, MW19, MW20 and MW26). It is considered unlikely that groundwater will be encountered as part of the proposed upgrade works.

9. SOIL AND GROUNDWATER CONDITIONS WITHIN PROPOSED DEVELOPMENT AREAS

Fifteen investigation locations (MW1, MW2, MW4S&D, MW5S&D, MW6, MW8, MW9, MW10, MW14, MW18, MW19, MW20 and MW26) have been identified to be within or in the immediate vicinity of the proposed development area. TRH, benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs) and PFAS are the primary contaminants of concern.

Key findings from the reviewed reports are detailed for each investigation location. Figures 2, 3 and 4 in **Attachment A** respectively present the investigation locations, proposed development areas and contamination status summary.

9.1 Soil

Based on WSP's review of available reports, all analysed soil samples have met the adopted guidelines for TRH, BTEX and PAHs. Some metals were encountered at concentrations below applicable criteria. There have been no visual indicators of contamination observed during soil sampling.

However, it is noted that some extraneous materials (such as brick and crushed concrete) are present within the soil profile at some locations that will require removal during the planned works. Available borehole logs were reviewed for boreholes drilled within or in the immediate vicinity of the proposed development area. Copies of available borehole logs are included in **Attachment B** and the encountered soil profiles encountered for these locations at the time of drilling are summarised in this section.

Testing of the soils will be required for waste classification purposes.

9.1.1 MW6

Fill material extended from the surface to a depth of approximately 3.5m below ground level (bgl) and comprised a 0.1m asphalt surface slab underlain by coarse sands with inclusions of gravel and brick rubble.

Groundwater was encountered at 3.7m bgl during drilling.

9.1.2 MW8

Fill material extended from the surface to a depth of approximately 4m bgl and comprised a 0.1m asphalt surface slab underlain by sandy clay with inclusions of gravel, crushed concrete and brick rubble.

Groundwater was encountered at 4.0m bgl during drilling.

9.1.3 MW9

Fill material extended from the surface to a depth of approximately 3m bgl and comprised a 0.2m concrete surface slab underlain by sandy clay.

Groundwater was encountered at 3.6m bgl during drilling.

9.1.4 MW10

Fill material extended from the surface to a depth of approximately 4m bgl and comprised:

- 0.1m asphalt surface slab underlain by coarse gravelly sands with inclusions of brick and concrete rubble to a depth of 1.0m bgl.
- Course grained sand from 1.0 to 3.0m bgl.
- Sandy clay from 3.0 to 4.0 m bgl.

Groundwater was encountered at 3.8m bgl during drilling.

9.1.5 MW18

Fill material extended from the surface to a depth of approximately 0.5m bgl and comprised a 0.05m asphalt surface slab underlain by clayey sand with road base inclusions.

Groundwater was encountered at 3.5m bgl during drilling.

9.1.6 MW19

Fill material extended from the surface to a depth of approximately 3.8m bgl and comprised:

- Asphalt from surface to 0.2m bgl
- Road base with crushed brick and blue metal inclusions to from 0.2m to 0.5m.
- Sandstone boulders with some clay from 0.5m to 3.8m.

Groundwater was encountered at 3.6m bgl during drilling.

9.1.7 MW20

Fill material extended from the surface to a depth of approximately 4.2m bgl and comprised:

- Sand with sandstone inclusions to 0.25m.
- Sand with sandstone and blue metal inclusions to from 0.25m to 1.3m.
- Crushed sandstone from 1.3m to 4.2m.

Groundwater was encountered at 4.0m bgl during drilling.

9.1.8 MW26

Fill material extended from the surface to a depth of approximately 5m bgl and comprised a 0.05m asphalt surface slab underlain by sandy gravelly clay with inclusions of gravel.

Groundwater was encountered at 3.0m bgl during drilling.

9.2 Groundwater

Although it is considered that groundwater is unlikely to be encountered during the course of this Site upgrade program, any volatile hydrocarbons present in groundwater may cause a vapour risk to on-Site workers. Groundwater conditions encountered during the most recent 2016 monitoring events within the proposed development area are summarised in this section. The presence of any volatile organic compounds need to be considered when preparing project management plans.

10. MANAGEMENT PROTOCOLS FOR SITE CONTAMINATION ISSUES

Based on WSP's review of available reports, all analysed soil samples have met the adopted guidelines for TPH, TRH, BTEX and PAH and there have been no visual indicators of contamination observed during soil sampling. However, unexpected finds may potentially be encountered. This section provides management protocols, should any unexpected finds be encountered. The protocols must be incorporated in the construction environmental management plan for the proposed upgrade works.

10.1 Unexpected Material Encountered

During excavation works, potentially contaminated soil materials that have not been identified during previous investigations at the site may be encountered, including:

- Soil or fill that differs from previously identified materials onsite.
- Asbestos or suspected asbestos containing materials.
- Man-made fibrous material.
- Materials with obvious unnatural odours or man-made inclusions throughout.
- Materials exhibiting staining or unusual colouring.

In the event that unexpected material is encountered during redevelopment works at the site, the following control and management actions shall be implemented:

- Works in the 'unexpected finds' area are to temporarily cease.
- Qualified Environmental Scientist to be notified with details of the material description (see above characteristics) and suspected extent.
- Where asbestos materials are suspected, a licensed contractor will be required to coordinate the works and specify appropriate environmental control measures in accordance with existing legislation and guidance.
- Where chemical contamination is suspected, the Environmental Scientist will assess the material (visual, olfactory, PID) and specify appropriate environmental control measures in consultation in accordance with existing legislation and guidance.

Once the unexpected find has been safely relocated and contained within a secure temporary storage area, the Environmental Scientist shall conduct laboratory analysis to validate residual soils and to ensure that excavated materials are appropriately classified for re-use or disposal at a suitably licensed waste disposal facility.

11. CONCLUSIONS

Based on the review of the available reports and the proposed upgrade documentation for the Vopak Site B facility, WSP concludes the following:

- All analysed soil samples have met the adopted guidelines for petroleum hydrocarbons, BTEX and PAH.
- There have been no reported visual indicators of contamination observed during soil sampling. However, some extraneous materials such as concrete and brick rubble are present within the fill at some locations.
- It is considered that bonded fibrous cement debris will likely be encountered in sub-surface soils in some areas, particularly adjacent the northern Site boundary.
- As part of the above upgrade works, it is considered unlikely that groundwater will be encountered.
- MW7, MW8, MW11, MW12, MW13 and MW14 are clustered in the central western portion of the site in the vicinity of an underground oily water tank and water treatment unit. Groundwater in the vicinity

of these locations is impacted by petroleum hydrocarbons. It is understood that no excavation is proposed within these areas.

- Based on NEPM (2013) assessment criteria, residual hydrocarbon contamination in groundwater exceeds the vapour intrusion risk criteria for human health for commercial / industrial land use in the vicinity of MW14. This risk must be considered if excavation works are proposed for areas in the vicinity of MW14.
- Unexpected finds can be managed according to the protocol provided in Section 10.

We trust this report is satisfactory for your current requirements. Please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely



Aaron Young
Environmental Scientist



Peter Moore
Principal Engineer

A Figures

B Borehole Logs

12. LIMITATIONS

12.1 Scope of Services

This report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and WSP (scope of services). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

12.2 Reliance on Data

In preparing the report, WSP has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, WSP has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WSP will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

12.3 Environmental Conclusions

In accordance with the scope of services, WSP has relied upon the data and has not conducted any environmental field monitoring or testing in the preparation of the report. The conclusions are based upon the data and visual observations and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Within the limitations imposed by the scope of services, the assessment of the site and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally

accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

12.4 Report for Benefit of Client

The report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party in relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

12.5 Other Limitations

WSP will not be liable to update or revise the report to take into account any events, emergent circumstances or facts occurring or becoming apparent after the date of the report.

The scope of services did not include any assessment of the title to nor ownership of the properties, buildings and structures referred to in the report, nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

The findings of this report are based on the scope of work outlined in Section 3. WSP performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties, express or implied, are made.

Subject to the scope of work, WSP's assessment was limited strictly to identifying environmental conditions within soil and groundwater and does not include evaluation of any other issues. This report does not comment on any regulatory obligations based on the findings. This report relates only to the objectives stated and does not relate to any other work undertaken for the Client. It is a report based on the conditions and concentrations observed in groundwater at the time of the sample collection. These conditions may change with time and space.

The absence of any identified hazardous or toxic materials on the subject property should not be interpreted as a guarantee that such materials do not exist on the site.

All conclusions regarding the site are the professional opinions of the WSP|PB personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, WSP assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of WSP, or developments resulting from situations outside the scope of this project.

WSP is not engaged in environmental assessment and reporting for the purpose of advertising, sales promoting, or endorsement of any Client interests, including raising investment capital, recommending investment decisions, or other publicity purposes.

The Client acknowledges that this report is for their exclusive use. Other parties may only gain reliance on this report following receipt of written approval from WSP.

13. REFERENCES

NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure, Schedule A and Schedules B(1)-B(10). National Environment Protection Council, Adelaide

NSW DEC (2006) Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd edition). NSW DEC, Sydney

NSW DEC (2007) Guidelines for Assessment and Management of Groundwater Contamination. NSW DEC Sydney

NSW DECC (2009) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 2009. NSW DECC, Sydney

NSW EPA (2011) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites. NSW EPA, Sydney

NSW EPA (February 2017) Notice of Exhibition – Section 75W Modification, Vopak Bulk Liquids Storage Facility, port Botany (MP 06-0089 MOD2)

Plancom (November 2016) Environmental Assessment, Site B Bulk Liquid Storage Terminal, 1-9 and 20 Friendship Rd Port Botany

RMS (2017) Vopak Bulk Liquids Storage Facility, port Botany (MP 06_0089 MOD 2) Notice of Exhibition

WSP|PB (2015a) Environmental Condition Report, Vopak Site B, Gate B47, 20 Friendship Road, Port Botany, NSW

WSP|PB (2015b) Well Installation and Groundwater Monitoring Report, Vopak Site B, Gate B47, 20 Friendship Road, Port Botany, NSW

WSP|PB (2016a) Groundwater Monitoring Report – Environmental Protection Licence - Vopak Terminals Australia, Site B, 20 Friendship Road, Port Botany.

WSP|PB (2016b) Groundwater Monitoring Report – Due Diligence Monitoring, Vopak Site B, Gate B47, 20 Friendship Road, Port Botany, NSW

ATTACHMENT A

FIGURES

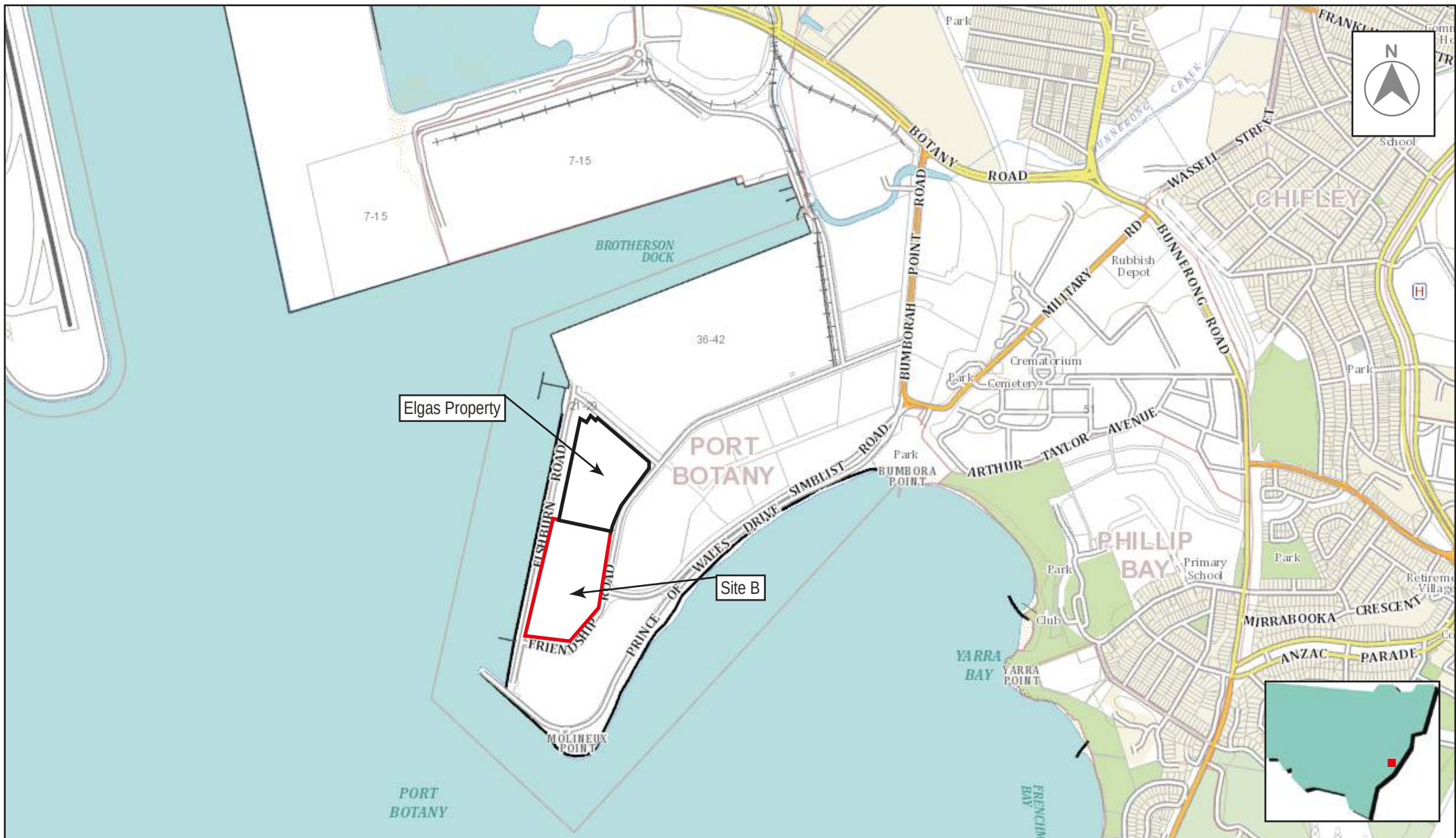


Image Courtesy of LPI SIXViewer (2014)

 Approximate Site Boundary

0 Approximate Scale 800
Metres

Site Location

Vopak Site B, Gate B47, 1-9 and 20 Friendship Road, Port Botany, NSW
2270732A (May 2017)

FIGURE 1

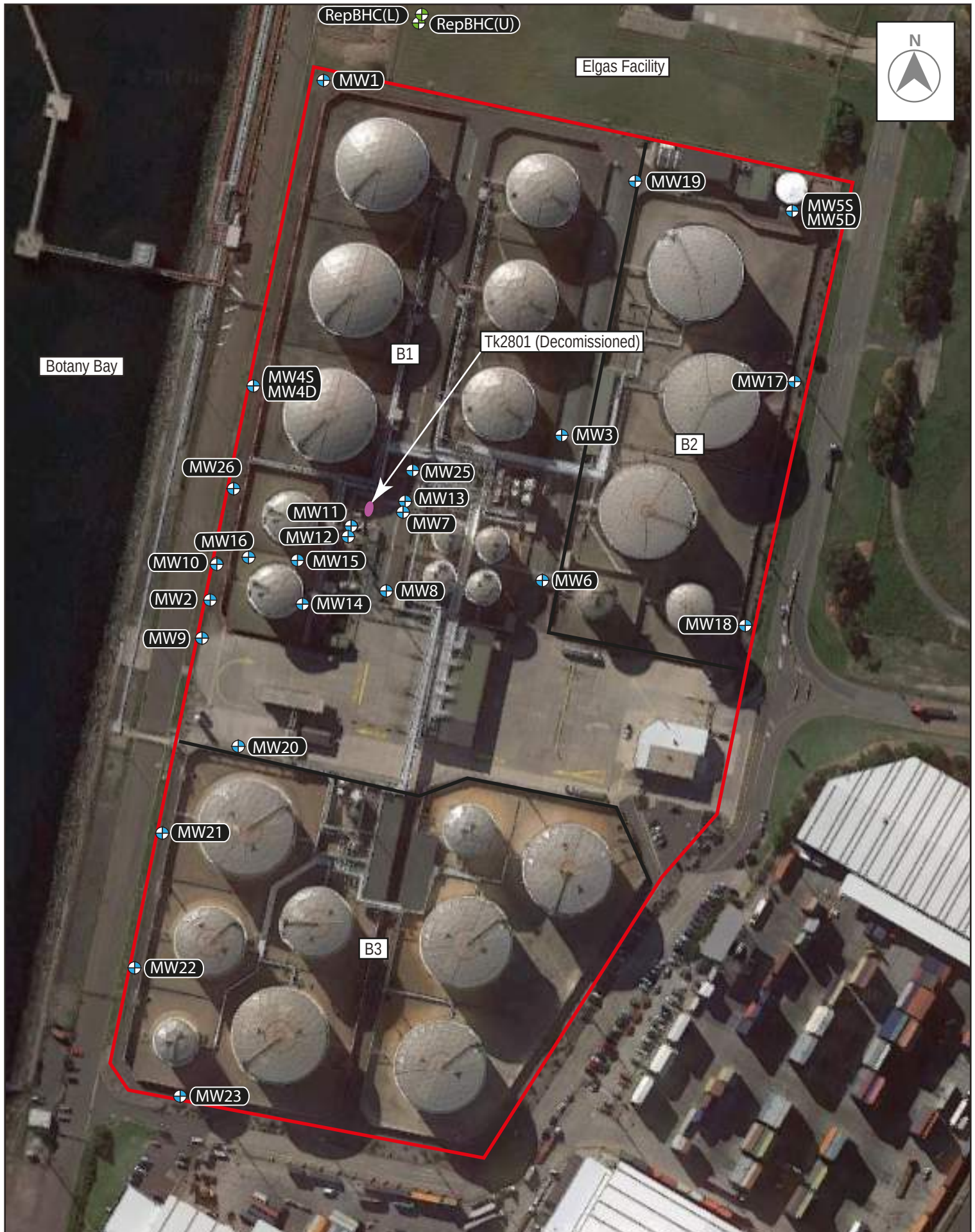


Photo Courtesy of Google Maps (2017)

Site Layout and Monitoring Well Locations

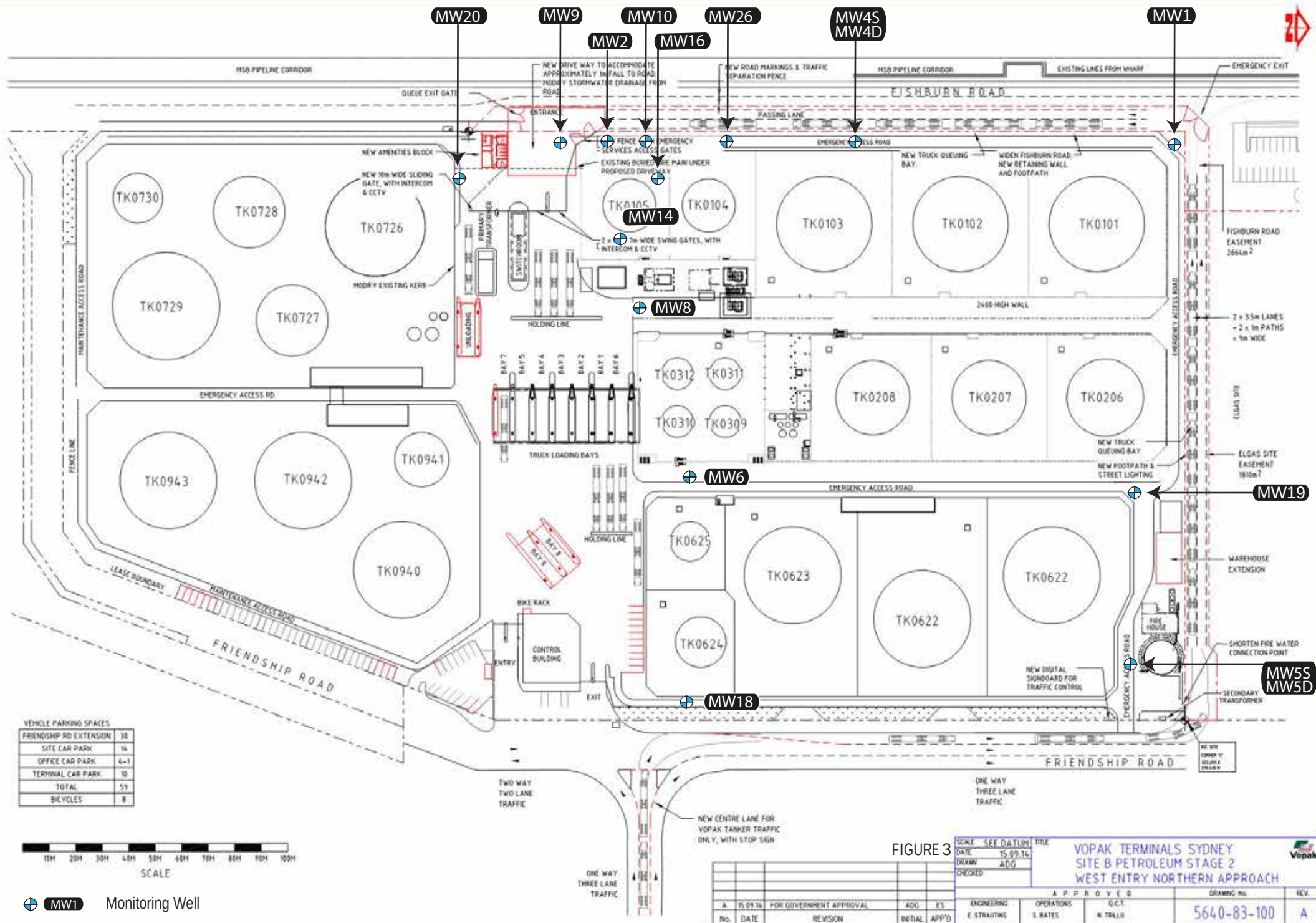
Vopak Site B, Gate B47, 1-9 and 20 Friendship Road, Port Botany, NSW
2270732A (May 2017)

FIGURE 2

KEY

- Site Boundary
- + MW1 Monitoring Well
- + RepBHC(L) Monitoring Well (Elgas Facility)





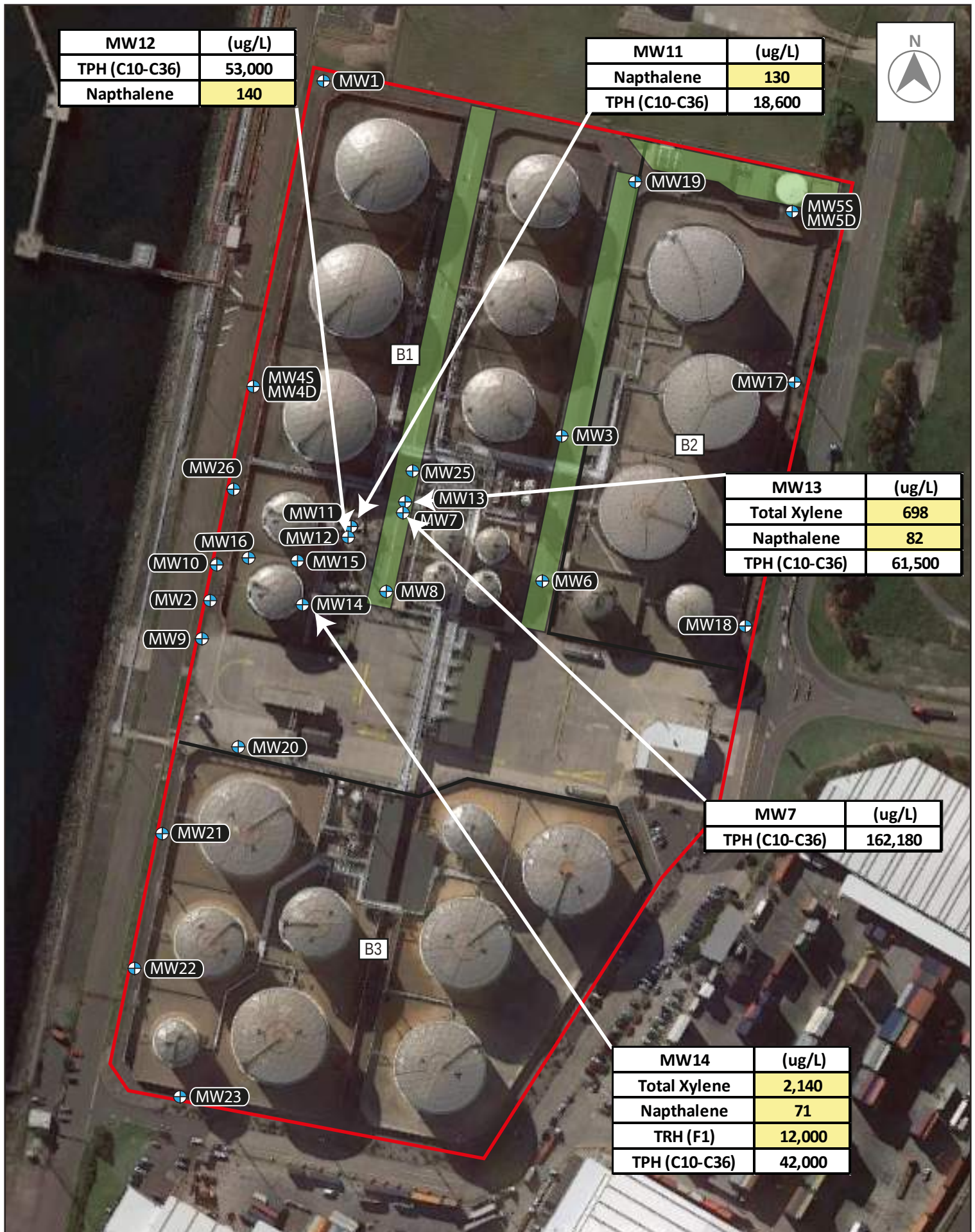


Photo Courtesy of Google Maps (2017)

Contamination Status (June 2016)

Vopak Site B, Gate B47, 1-9 and 20 Friendship Road, Port Botany, NSW
2270732A (May 2017)

FIGURE 4

ATTACHMENT B

Borehole Logs

Responsive Environmental Solutions Pty Ltd

Borehole No. MW6		BOREHOLE LOG			
Sheet 1 of 1					
Project No. 3021 Project: VOPAK Site: PORT BOTANY Date: 16/09/03		Contractor: MACQUARIE DRILLING Method: HOLLOW STEM Depth: 6m Logged by: RR Checked by:			

Depth (m)	GW level (m)	Sample		Graphic Log	Soil Description (type, colour, moisture, grain size, plasticity)	Observations / Comments
		PID	ID No.			
0.1m					ASPHALT	
0.5m					FILL Coarse Gravel, Brick Rubble and Sand, hard, compacted, dry	
1.0m		0.0				
1.5m						
2.0m		0.0				
2.5m						
3.0m						
3.5m	▼ 3.72m	0.0			SAND, black, soft, Peat and Sand, minor Clay	Final Groundwater at 3.72m.
4.0m					SAND, uniform, white, moist, medium grained, quartz rich, angular sand	
4.5m		23ppm	✱		SAND, uniform, grey, moist, medium grained, quartz rich, angular sand	Sample taken at 4.5m. Groundwater at 4.5m.
5.0m						
5.5m						
6.0m					EOH at 6.0m	
6.5m						
7.0m						
7.5m						
8.0m						
8.5m						
9.0m						
9.5m						
10.0m						

✱ = Laboratory sample taken

Responsive Environmental Solutions Pty Ltd

Borehole No. MW8		BOREHOLE LOG				
Sheet 1 of 1						
Project No. 3021		Contractor: MACQUARIE DRILLING				
Project: VOPAK		Method: HOLLOW STEM				
Site: PORT BOTANY		Depth: 8m				
Date: 16/09/03		Logged by: RR				
		Checked by: _____				

Depth (m)	GW level (m)	Sample		Graphic Log	Soil Description (type, colour, moisture, grain size, plasticity)	Observations / Comments
		PID	ID No.			
0.1m					ASPHALT	
1.0		0.0			FILL Crushed Concrete and Brick rubble with Sand, yellow/white/light brown, fine to medium grained, and Clayey fill	
2.0		0.0				
3.0		0.0				
4.0	3.74m	42.9ppm	✱			Final Groundwater at 3.74m. Groundwater at 4.0m.
4.2m					SAND, silty, black, moist, cohesive, uniform, organic rich, fine grained, becoming saturated.	Sample taken at 4.0m.
5.0					SAND, white, saturated, uniform, medium grained	
6.0						
7.0						
8.0					EOH at 8.0m	
9.0						
10.0						

✱ = Laboratory sample taken

Responsive Environmental Solutions Pty Ltd

Borehole No.
Sheet 1 of 1

Project No.
Project:
Site:
Date:

MW9
3021
VOPAK
PORT BOTANY
16/09/03

Contractor:
Method:
Depth:
Logged by:
Checked by:

MACQUARIE DRILLING
HOLLOW STEM
7.5m
RR

Depth (m)	GW level (m)	Sample		Graphic Log	Soil Description	Observations / Comments
		PID	ID No.		(type, colour, moisture, grain size, plasticity)	
0.2m					CONCRETE	
1.0		0.0			FILL Clay, brown, compacted, dry, Sand, yellow, coarse, and Gravel	
2.0		0.0				
3.0		0.0				
3.6m					SAND, pale brown, uniform, fine grained, minor Clay, saturated at 4.0m	Final Groundwater at 3.6m.
4.0		60ppm				Sample taken at 4.0m.
8.0					EOH at 7.5m	

 = Laboratory sample taken

Responsive Environmental Solutions Pty Ltd

Borehole No. MW10		BOREHOLE LOG			
Sheet 1 of 1					
Project No. 3021		Contractor: MACQUARIE DRILLING			
Project: VOPAK		Method: HOLLOW STEM			
Site: PORT BOTANY		Depth: 8.5m			
Date: 16/09/03		Logged by: RR			
		Checked by:			

Depth (m)	GW level (m)	Sample		Graphic Log	Soil Description (type, colour, moisture, grain size, plasticity)	Observations / Comments
		PID	ID No.			
0.1m					ASPHALT	
1.0		0.0			FILL Coarse Gravel, Brick and Concrete rubble, coarse Sand, grey-brown, dry	
2.0		0.0			1.3m FILL Sandy fill, brown-grey, medium to coarse grained, dry	
3.0		0.0			2.0m 2.5m	
4.0	3.75m	1.8ppm			FILL Sand and Clay, brown, compacted, dry, minor Gravel. No odour, becoming moist	Final Groundwater at 3.75m.
4.5m		24.2ppm	✱		Sand, brown, fine to medium grained, uniform, quartz rich, saturated.	Sample taken at 4.5m. Groundwater at 4.5m.
5.0						
6.0						
7.0						
8.0						
9.0					EOH at 8.5m	
10.0						

✱ = Laboratory sample taken



WSP ENVIRONMENTAL

Monitoring Well No.

BH18

MONITORING WELL LOG

Sheet 1 of 1

Project Name: **VOPAK**
Project Number: **1-07-050**
Location / Site: **PORT BOTANY**
Client: **VOPAK TERMINALS AUSTRALIA**

Contractor: **TERRATEST**
Date Started: **17/05/2007** Date Completed: **17/05/2007**
Hole Depth: **6.3 m** Ground Level: **RL m**
Logged By: **LEE DOUGLASS**

Method	Depth (m)	RL (m)	Water Level	Classification Symbol	Graphic Log	Material Type	Material Description	Sample		Well Detail	Observations / Comments
								PID ppm	ID No.		
HFA	1					Fill	ASPHALT	0	BH18 / 0.5		
						Natural	CLAYEY SAND, dark brown to black, fine grained, dry, poorly sorted, roadbase	0	BH18 / 1.2		
							CLAYEY SAND, brown, fine grained to medium grained, well sorted, large stones				
							SAND, brown, fine grained, moist, poorly sorted				
							SAND, light brown / yellow, fine grained, moist, poorly sorted. Bands of Clay, Peat, grey, moist				
	2										
	3							0.3	BH18 / 2.8		
	4							0	BH18 / 3.8		
	5										
	6										
	7						Hole terminated at 6.3 m				
	8										

WSP MW LOG 1-07-050 VOPAK GPJ WSP MW LOG.GDT 22/06/07 10:39:56 AM



Log Drawn By: Laurie White
Contact: reumad@reumad.com.au

Checked By: R.HALL Date: 20/06/2007



WSP ENVIRONMENTAL

Monitoring Well No.

BH19

MONITORING WELL LOG

Sheet 1 of 1

Project Name: **VOPAK**
Project Number: **1-07-050**
Location / Site: **PORT BOTANY**
Client: **VOPAK TERMINALS AUSTRALIA**

Contractor: **TERRATEST**
Date Started: **31/05/2007** Date Completed: **31/05/2007**
Hole Depth: **6.5 m** Ground Level: **RL m**
Logged By: **DEAN STAFFORD**

Method	Depth (m)	RL (m)	Water Level	Classification Symbol	Graphic Log	Material Type	Material Description	Sample		Well Detail	Observations / Comments
								PID ppm	ID No.		
HFA	1					Fill	ASPHALT ROADBASE, gravelly, Crushed red bricks and blue metal Sandstone Boulders, hard, with some tight clayey sand, light brown, slightly moist	0	BH19 / 0.5		
	2							0	BH19 / 1.0		
	3							0	BH19 / 2.0		
	4		SWL 3.56 m								
	5		EWL 4.2 m			Natural	SAND, grey, medium to fine grained, moist, uniform, subangular	0	BH19 / 4.2		becoming very hard
	6										
	7						Hole terminated at 6.5 m				
	8										

WSP MW LOG 1-07-050 VOPAK GPJ WSP MW LOG.GDT 22/06/07 10:40:04 AM

REUMAD

Log Drawn By: Laurie White
Contact: reumad@reumad.com.au

Checked By: **R.HALL** Date: **20/06/2007**

MONITOR WELL LOG

Hole ID.

MW20



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Project Name: **BASELINE GROUNDWATER INSTALLATION**
Project Number: **1-08-102**
Location / Site: **VOPAK, SITE B3A**
Client: **VOPAK**
Drilling Company: **Terratest**
Drill Method: **Pushtube / Hollow Flight Auger**
Logged By: **David Jackson**

Date Started: **10/09/2008**
Date Completed: **10/09/2008**
Hole Depth: **6.00 m**
Ground Level: _____
Easting: _____
Northing: _____
Sheet: **1 of 1**

Method	Depth (m)	RL (m)	Water Level	Classification Symbol	Graphic Log	Material Type	Material Description	Moisture	Sample				Observations / Comments	Well Detail	Construction
									PID ppm	ID No.	DUP	TRIP			
							Surface: White Sand / Crushed Concrete / Blue Metal								
	0.5						FILL Sand, brown, loose, sandstone inclusions	D	0.0	MW20/0.5					
	1.0						FILL Sand, brown, loose, sandstone inclusions, some blue metal	M							
	1.5						FILL Sandy Clay	M							
	2.0						FILL Crushed Sandstone, white	D							
	2.5						FILL Blue Metal aggregate	M	0.0	MW20/1.5					
	3.0						FILL Crushed Sandstone, yellow / white								
	3.5														
	4.0														
	4.5														
	5.0														
	5.5														
	6.0														
	6.5														

Additional Comments

Abbreviations

D = Dry Dp = Damp SM = Slightly Moist M = Moist VM = Very Moist W = Wet Sd = Saturated

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Checked By: **Lee Douglass** Date: **14/10/2008**


**PARSONS
BRINCKERHOFF**

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Monitoring Well Log
MW26

 Project Name: **Vopak Drilling and GME**

 Hole Depth: **5.00 m**

 Project Number: **2201757A**

 GW Encountered: **Yes**

 Location / Site: **Vopak Site B**

 GW Inflow: **3.0 mBGL**

 Client: **Vopak**

 Drill Company: **Terratest Pty Ltd**

 Drill Method: **Dual Tube to EOH**

 Easting: **334759**

 Date Started: **21/09/2015**

 Northing: **6238730**

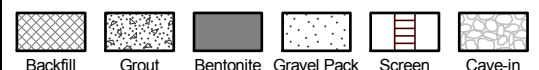
 Date Completed: **21/09/2015**

 Zone: **56H**

Water Inflow	Depth (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests		Observations / Comments	Well Details	Well Construction
							PID ppm	ID No.			
	0.05				ASPHALT.						
					FILL - Sandy Gravelly CLAY, brown and grey.	moist	13.8	MW26_0.2	No visual or olfactory signs of contamination.	0.20	Bentonite Grout
	0.70				FILL - Sandy Gravelly CLAY, dark brown.	moist	0.6	MW26_0.8	No visual or olfactory signs of contamination.	0.50	
	1.0				Becoming wet at 1.1m, some sandstone inclusions.	wet				1.00	Gravel Pack
	2.0						0.9	MW26_2.0			
	3.0						0.7	MW26_3.0			Screen
	3.20				FILL - Sandy Silty CLAY, grey.	wet			No visual or olfactory signs of contamination.		
	4.0						0.8	MW26_4.5			
	5.00				End of Hole at 5.00m in Fill. Target depth.						
	6.0										

Observations

Asbestos | No visual evidence of asbestos noted during drilling.
 Staining | No visual evidence of contamination (e.g. staining / precipitate) noted during drilling.
 Odour | No olfactory (e.g. odour) evidence of contamination noted during drilling.
 Groundwater | Groundwater encountered during drilling.

Notes

 Log Drawn By: Laurie White
 Contact: laurie.white@reumad.com.au

 Logged By: **Aaron Young**
 Checked By: **Aaron Young**

 Date: **21/09/2015**
 Date: **27/10/2015**

Appendix C

Air Quality Impact Assessment Section 75 W Modification, MP 06_0089 - Modification 2,
AECOM Australia Pty Ltd (AECOM), 22 December 2017

Air Quality Impact Assessment

Section 75 W Modification, MP 06_0089 - Modification 2

Air Quality Impact Assessment

Section 75 W Modification, MP 06_0089 - Modification 2

Client: Vopak Terminals Sydney Pty Ltd

ABN: 67 004 754 750

Prepared by

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Quality Information

Document Air Quality Impact Assessment

Ref 60544991

Date 22-Dec-2017

Prepared by Colin Clarke, Kristen Clarke

Reviewed by David Rollings

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
0	20-Dec-2017	Draft Report	David Rollings Associate Director - Compliance Services	
1	22-Dec-2017	Final Report	David Rollings Associate Director - Compliance Services	

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intentionally.

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1.0 Introduction

1.1 Project Overview

This Air Quality Impact Assessment (AQIA) was prepared by AECOM Australia Pty Ltd (AECOM) on behalf of Vopak Terminals Sydney Pty Ltd (Vopak) for the proposed capacity increase to the Vopak Site B Bulk Liquids Facility at Port Botany, NSW. The AQIA supports the Project Environmental Impact Statement (EIS) prepared by PlanCom Consulting Pty Ltd as part of the Section 75W Modification Request (06_0089 MOD 2) to Project Approval 06_0089 under *Environmental Planning and Assessment Act 1979 (NSW)* (EP&A Act). The proposed modification includes:

- Construction of a new access road and driveway;
- Construction of four new road tanker bays, driver amenities building and extension to existing warehouse; and
- Upgrade of Vapour Recovery Unit (VRU).

The main potential sources of air emissions associated with the proposed development are vapour emissions (volatile organic compounds, or VOCs) from the storage and transfer of fuels. The purpose of this assessment was to estimate the emissions of VOCs from the facility and the resultant concentrations of these pollutants at sensitive receptor locations. This report provides details of the methodology and results of the dispersion modelling of VOC emissions.

The assessment has been undertaken with consideration of the cumulative impacts of other Vopak operated facilities in Port Botany, and also addresses the emissions and impacts from the Stage B4 Expansion Project; a State Significant Development (SSD) (SSD 7000), approved by the NSW Department of Planning and Environment (DP&E) in November 2016.

Additionally, in November 2016 the NSW Environment Protection Authority (NSW EPA) requested that Vopak conduct a Benzene Reduction Study to investigate the potential to reduce overall site benzene emissions. Responses to comments from the NSW EPA in relation to the calculation methodology for the pollutant emission rates from the VRU have been incorporated into this assessment to show compliance with relevant ground level concentration criteria at the proposed operational parameters.

Additional benzene reduction measures were considered in the study, however they were not representative of the proposed theoretical maximum operational conditions to be assessed in this AQIA. The additional measures were investigated in the study as options for potential operational “best case” benzene reductions, however they are not indicative of the current plans for the Site B modification.

The measures examined in the Benzene Reduction Study, but not included in this AQIA, to ensure the “worse-case” theoretical maximum operations were assessed in the AQIA were:

- Potential update of Tank seals on Site B & B4 to dual sealed tanks, including modification of roof fittings where practical to minimise benzene (and other VOC's) loss.
- Potential update of pipeline fittings (including pumps, seals, flanges, etc) to ‘no-leak’ options where practical to minimise benzene (and other VOC's) loss.
- Potential update of the adopted liquid speciation profiles for flammable & combustible fuels from the NPI default percentages used in the TANKS Model, to site specific values based on analytical data.

1.2 Scope of Work

The assessment was undertaken in accordance with the NSW EPA *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (The Approved Methods) (EPA 2017). Impacts from the operation of the proposed modification, and existing project approvals under (MP 06_0089) to Site B have been included in the dispersion model CALPUFF. The model also included emissions from the adjacent Vopak Site B4 (inclusive of the approved tank farm expansion under SSD 7000), Bulk Liquid Berths and the nearby Vopak Bitumen facility. These sites have been included in the one air dispersion model as they are all integral to the operation of Vopak Site B. Emissions from other nearby facilities, such as the Terminals liquid storage facility, have been included as background values and not specifically modelled.

The assessment considered the following pertinent information from the stated facilities:

Vopak Site B:

- An increase in storage tank emissions due to an increase in throughput from 3,950Mlpa to 7,800Mlpa, with a mixture of petroleum, diesel, biodiesel, ethanol and jet fuel stored on-site.
- The new operations of the vapour recovery system on the truck loading gantry, accommodating for the proposed increase in throughput. The VRU would operate at a stack concentration not exceeding 4 milligrams per litre of total unrecovered vapours, which is less than half of the 10 mg/L limit proposed by the NSW EPA, and in compliance with *cl. 64.d ii) of the Protection of the Environment (Clean Air) Regulation 2010* (NSW) (Clean Air Regulation 2010) requirements which state that:

"the total concentration of unrecovered vapour emitted to the atmosphere during any period of 4 hours does not exceed 110 milligrams per litre of volatile organic liquid pass out of the plant during that period".

- Emissions from the Site B operations due to fugitive emissions from pipework, flanges and other fittings.

Vopak Site B4:

- Storage tank emissions from working and standing losses due to operation of seven new storage tanks (nominally three combustible and four flammable).
- Emissions from the approved Site B4 operations due to fugitive emissions from pipework, flanges and other fittings.

Bulk Liquid Berths:

- Emissions from the Bulk Liquid Berths due to fugitive emissions from pipework, flanges and other fittings.

Vopak Bitumen:

- Operation of the vapour combustion unit.
- Bitumen storage tank breathing losses.

1.3 Secretary's Environmental Assessment Requirements

In preparing this AQIA, consideration has been given to the NSW Planning and Environment (P&E) Secretary's Environmental Assessment Requirements (SEARs) issued for the proposed modification (MP 06_0089 MOD 2) on 7 November 2014. The key matters raised by the Secretary, and where this report addresses them, are outlined in **Table 1**.

Table 1 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirement	Section Addressed
A detailed air quality impact assessment including details of any air quality control and management measures for the modification.	Section 7.0 and Section 9.0

1.4 Structure of Report

The structure of the remainder of the report is provided in **Table 2**.

Table 2 Structure of Report

Section	Brief
Section 1	Assessment overview
Section 2	Provides a description of the Project
Section 3	Describes the existing environment, including a review of existing air quality and local climate conditions
Section 4	Outlines the impact assessment criteria used in this assessment
Section 5	Detailed description of the air quality assessment methodology, specifically emissions and dispersion models applied
Section 6	Identifies the inputs required for the dispersion model and includes meteorology, terrain, source characteristics and emission rate
Section 7	Assessment of the potential air quality impacts of the Project on the local air shed and provides assessment of relevant criteria against identified sensitive receptors
Section 8	Assessment of the ozone generation and potential impacts as a result of the Project
Section 9	Describes the mitigation measures that are currently used at the Facility or that are recommended to be implemented as part of the Project
Section 10	Provides the study conclusions

2.0 Project Description

The following sections provide a brief background to the primary facility being assessed, Vopak Site B, and secondly those facilities that have been included in the air dispersion model.

2.1 Project Location

The Vopak Site B Terminal is located at 1-9 and 20 Friendship Road, Port Botany NSW. The site is located approximately 12km south of the Sydney Central Business District (CBD) and is surrounded by industrial properties, including operations handling containers, bulk liquids and petrochemicals. Closest residential areas are located approximately 1.4 km to the east of the site, across Yarra Bay.

In addition to the Vopak Site B Terminal other operations conducted by Vopak relevant to this assessment include the:

- Approved Vopak Site B4 liquid fuels storage depot located on part of the former Qenos Hydrocarbon Terminal at 39 Friendship Road, Port Botany, NSW;
- Vopak Bitumen storage and distribution terminal located on part of the former Vopak Site A Terminal at 49 Friendship Road, Port Botany, NSW; and;
- The bulk liquid births (No.1 and No. 2) located adjacent to Site B Terminal.

A description of the existing and proposed operations of the Site B terminal are described in **Section 2.2**. A description of ongoing (or currently approved) operations at Vopak Site B4, Vopak Bitumen and the bulk liquid births are discussed in **Section 2.3** to **Section 2.5**. The location of Vopak Site B, Site B4 and the Vopak Bitumen Facility (Site B5) are shown in **Figure 1**:

2.2 Vopak Site B

2.2.1 Existing Operations

Currently the Vopak Site B Terminal imports, stores and distributes bulk ground and aviation fuels from ship tankers via Site B storage Tanks. Site B Terminal operates continuously with shipping import and exports and road tanker and pipeline exports occurring 24 hours per day seven days per week. Currently Site B is serviced by two Bulk Liquid Cargo Berths (Berth No. 1 and Berth No.2) which are operated by NSW Ports. Vopak operate pipelines and other associated infrastructure between berths and Site B Storage Tanks to facilitate the transport of fuels between ships and the storage facility.

Fuel is unloaded via pumps on board the ships docked at the bulk liquid berths at a flowrate of 1200m³/h to 1750m³/h and transported via a Marine Loading Arm (MLA) by pipeline to one of two inlet manifolds in the Terminal. The product is then directed from the inlet manifolds to nominated storage tanks. Inlet manifolds and associated transfer manifolds are also able to transfer product from Site B storage tanks to the Road Tanker Loading Gantry, pipeline export systems, to other storage tanks and export to ships via the Bulk Liquid Cargo Berths.

Road tankers currently enter and exit the site from the intersection of Simblist and Friendship Roads. Road tankers load product at one of six bays within the Loading Gantry. Tanker headspace emissions are captured during loading, and processed through a vapour recovery unit (VRU), with operational emissions from the VRU below the regulatory limit provided in clause 64.d ii) of the *Protection of the Environment (Clean Air) Regulation 2010* (NSW) (Clean Air Regulation 2010) requirements which state that:

“the total concentration of unrecovered vapour emitted to the atmosphere during any period of 4 hours does not exceed 110 milligrams per litre of volatile organic liquid pass out of the plant during that period”.

Road tanker operations are intermittent with peak operations generally occurring between 3am and 7am. Currently when all six bays are occupied the site can accommodate an additional 18 queued road tankers onsite.

2.2.2 Proposed Operations

Vopak are proposing to increase the throughput of petroleum products through their existing Site B facility to meet existing market demands. Currently the site has a total product throughput of approximately 4,000,000m³ which is estimated to increase to 7,800,000m³ per year by 2023. Estimated product output by delivery method is shown in **Table 3**.

Table 3 2023 Proposed Site B Output by Delivery Mode

	Road Tanker	Pipeline	Sea	Total Throughput
Annual Site B Output (m³)	3,700,000	2,100,000	2,000,000	7,800,000
Percentage of Total Annual Throughput (%)	47	27	26	100

A number of changes are required to the Site B Facility to accommodate the increase in product throughput. These include:

- West Entry Northern Approach Roadways - requiring the need to lease an additional 2,870 m² of land to the north and west of Site B plus the modification to the Simblist Road intersection with Friendship Road.
- Construction of Three New Road Tanker Loading Bays (Bays 7, 8 & 9).
- Installation of additional transfer pumps and product supply pipelines to existing RT Pump Manifolds.
- Construction of One Road Tanker Unloading Bay for Biofuels, Additives and other ancillary products together with RT unloading pumps.
- Construction of a New Drivers' Amenities Building at Fishburn Road entrance.
- Construction of a steel framed awning on the northern side of the existing Control Room Building.

- Upgrade or replacement of the existing VRU to accommodate for increased throughput from the gantry. Ship Import debottlenecking of inlet manifolds, tank import pipelines and tank inlets inclusive of tank-to-tank and tank recirculation piping and pump facilities as well as instrumentation for quantity and quality control to increase flowrates.
- Ship Export debottlenecking of tank outlets, tank export pipelines and transfer pumps as well as instrumentation for quantity and quality control to increase flowrates.
- Civil, Structural, Piping, Electrical and Instrumentation Works for the above.
- Increase in the size of the approved Warehouse near the Fire Pump House; and
- Modification of several conditions of Project Approval (06_0089).

A more detailed description of the proposed changes required to the Site B Facility is included in Section 5 of the *Section 75 W Modification MP06_0089 – Modification 2 Environmental Assessment* (PlanCom 2016)

2.2.3 Project Staging and Construction

The proposed construction work would be undertaken in two stages as described in **Table 4**. Construction works would be undertaken over a period of approximately 18 months with Stage 1 and Stage 2 occurring over a period of six and twelve months respectively. Additional information on project staging and construction can be found in the EA (PlanCom 2016).

Table 4 Proposed Construction Work Activities

Stage	Activities
Stage 1	· Construction of Road Tanker Loading Bay 7 and additional pumps and supply pipelines · Vapour Recovery Unit Project · Maintain both existing road tanker entry and exit from Friendship Road · Construction of steel framed awning on existing Control Room Building · Progressive ship import debottlenecking of inlet manifolds, tank import pipelines and tank inlets, inclusive of tank-to-tank and tank recirculation piping and pump facilities as well as installation of tank mixers; · Progressive ship export debottlenecking of tank outlets, tank export pipelines and transfer pumps; · Civil, structural piping and electrical instrumentation works for the above; and · Increase in the size of the warehouse
Stage 2	· Construction of Road Tanker Loading Bay 8 and 9 including additional pumps and supply pipelines · Construction of a new road tanker entry from Fishburn Road via an easement adjacent to Elgas Road from Friendship Road and modification to the Simblist Road/Friendship Road intersection; · Construction of a drivers amenity building at Fishburn Road entrance; · Progressive ship import debottlenecking of inlet manifolds, tank import pipelines and tank inlets, inclusive of tank-to-tank and tank recirculation piping and pump facilities as well as installation of tank mixers; · Progressive ship export debottlenecking of tank outlets, tank export pipelines and transfer pumps;

Activities that have the potential to result in airborne pollutants during the construction phase include earthmoving during site preparation and handling of any excavated material. Prior to construction activities taking place, a Construction Environmental Management Plan (CEMP) would be prepared to address the management of potential environmental impacts associated with construction activities. The CEMP would include measures to manage and mitigate air quality and odour emissions. As the works would be intermittent in nature, the implementation of an appropriate CEMP is expected to adequately mitigate any construction emissions from the Site as discussed in **Section 9.1**. As such, Construction emissions were not assessed quantitatively in the AQIA.

2.3 Vopak Site B4

On 23 November 2016 Vopak was granted development by the Minister for Planning (SSD 7000) for the construction and operation of a bulk liquids fuels (finished or refined petroleum) storage facility with a maximum nominal capacity of 200 ML and associated infrastructure.

The proposed storage at Site B4 would be comprised of seven storage tanks and would facilitate the following operations:

- Ship unloading to Site B4 directly from Bulk Liquid Berth 1 and 2 via Site B;
- Tank to tank transfers with Site B; and
- Tank recirculation.

Construction of the project would be undertaken in two stages as outlined in **Table 5**.

Table 5 Construction Work Activities for Site B4

Stage	Activities
Stage 1 (B4A)	· Construction of three storage tanks and bunding dedicated to ADO (diesel fuel with a nominal total capacity of 105,000m³); and · Construction of new pipelines/culverts to inter-connect with the Site B (B1) manifold; · Installation of manifold/transfer pumps and connections to utilities.
Stage 2 (B4B)	· Construction of four storage tanks (nominal combined total capacity of 95,000m³) capable of storing any Class 3 flammable product; · Construction of additional transfer pipelines to Site B manifold systems; and · New fire protection system complying with AS 1940 requirements.

Diesel fuel tanks in area B4A would be made from carbon steel and have an aluminium geodesic dome roof (no internal floating roof). Class 3 combustible product storage tanks in area B4B would be carbon steel floating roof tanks with aluminium geodesic dome roofs. All tanks would be painted white. The dimensions of the proposed Site B4 tanks are summarised in **Table 6**.

Table 6 Proposed Tanks

Area	Tank No.	Diameter (m)	Height (m)	Shell Volume (m ³)	Safe Fill Volume (m ³)	Operating Volume (m ³)	Product
B4A	110-01	43.5	24.7	36,700	35,200	33,700	Combustible
	110-02	43.5	24.7	36,700	35,200	33,700	
	110-03	43.5	24.7	36,700	35,200	33,700	
B4B	110-04	41	24	31,600	30,300	29,000	Flammable
	110-05	41	24	31,600	30,300	29,000	
	110-06	29	24	15,800	15,000	14,500	
	110-07	29	24	15,800	15,000	14,500	

2.4 Bulk Liquid Berths

The below provides a brief description of the Bulk Liquids Berths, with full details provided in the following report:

- SKM (2007) *Bulk Liquids Berth No. 2 – Port Botany – Air Quality Impact Assessment*.

Two Bulk Liquids Berths (BLB) at Port Botany, No's 1 and 2 (BLB 1 and BLB 2), service the discharge and load requirements of the petrochemical industry in New South Wales. The BLB is a shared common user facility operated by NSW Ports. Hazardous and non-hazardous bulk liquids, petrochemicals and gases are transferred by pipeline to nearby industry storage facilities which are operated by private companies, including Vopak. Bulk liquids (which include VOC containing liquids such as petroleum) are discharged from the BLBs to the liquid storage terminals via MLA connected to the Ship Manifold pipework.

2.5 Vopak Bitumen

The below provides a brief description of the Vopak Bitumen facility, with full details provided in the following report:

- Pacific Environment Limited (2015) *Vopak Terminals Sydney Pty Ltd – Air Quality Assessment For Vopak Bitumen Storage Facility - Vopak Terminals Sydney Pty Ltd.*

The Vopak bitumen facility includes three 7,300 m³ tanks for the storage of bitumen products, gantry facilities for loading bitumen road tankers, a thermal oil and heating system and furnace and a dedicated pipeline for bitumen unloading from ships. A vapour combustion unit treats large tank vapours during ship unloading operations and truck venting during filling.

The source characteristics, emission rates and other details of the Vopak Bitumen facility have been sourced directly from the PEL (2015) report. The source details have not been reproduced in this B4 report.

2.6 Potential Air Quality Impacts

Potential air quality impacts from both the Proposal at Site B and existing and approved operations at Site B4, Vopak Bitumen and the Bulk Liquid Berths have been assessed in this report. The main emissions of interest for fuel storage and distribution activities are VOCs. VOCs are organic compounds with a vapour pressure exceeding 0.13 kPa at a temperature of 20°C. VOCs have been implicated as a precursor in the production of photochemical smog, which causes atmospheric haze, eye irritation and respiratory problems. Potential sources of VOC emissions include:

- Transfer of Fuel from Bulk Liquid Berths to and from product storage tanks at Site B and Site B4;
- Storage tanks at Site B and Site B4;
- Gantry vapour emissions which are redirected through the VRU;
- Vopak Bitumen vapour combustor unit; and
- Fugitive emissions from pipe networks and process equipment leaks.

Potential VOC emissions from the above mentioned sources are discussed in detail in **Section 5.2** and **Section 6.4**.

3.0 Existing Environment

3.1 Air Quality

The pollutants of prime interest in NSW are ozone and particulates, with levels of these pollutants approaching or exceeding the national standards prescribed in the National Environment Protection Measure for Ambient Air Quality (NEPM) on occasion. The Vopak facility is not expected to generate significant levels of ozone or particulates.

Port Botany is the major NSW port for the handling of containers, bulk liquids and petrochemicals. The international and domestic airport terminals are located nearby, as are major arterial roads and the botany Freight Rail line. Industrial uses dominate the surrounding area, including the sections of Banksmeadow and Matraville abutting Port Botany.

No local monitoring of VOCs was identified at the time of preparation of this report. Despite this lack of relevant monitoring data, a cumulative assessment utilising predicted local VOC concentrations (including adjacent VOC sources) has been undertaken (refer to **Section 5.1**).

3.2 Regional Meteorology

The Bureau of Meteorology (BOM) records long-term meteorological data at a number of automatic weather stations around the country. The station that best represents the site is located at Sydney Airport, approximately 4.5 kilometres northwest of the Vopak B site, across Botany Bay. A summary of the long-term data recorded at this station is provided below; more data are provided in **Appendix B**.

The warmest temperatures occur between November and March, with the warmest average maximum temperatures occurring in January (26.5°C). The coldest temperatures are recorded in the winter months, with the lowest average minimum temperature occurring in July (7.2°C).

The highest average rainfall is recorded in June (122.8 mm), while September is the driest month (60.2 mm). Humidity in the area is typically between 50 and 74 %. Average wind speeds range from 12.6 – 25.3 kilometres per hour, and are typically higher at 3 pm compared to 9 am. Winds are predominantly from the northwest at 9 am, with also frequent winds from the western direction. At 3 pm, the winds swing around to predominantly blow from the northeast and southeast. Southerly winds are common both in the morning and afternoon.

4.0 Assessment Criteria

The EPA specifies impact assessment criteria for a range of pollutants (EPA, 2017). The criteria and associated averaging periods for the pollutants considered in this assessment are shown in **Table 7**. The pollutants represent those included in the National Pollutant Inventory (NPI) TANKS database as being constituents of diesel and gasoline fuel for which the EPA has impact assessment criteria.

Table 7 NSW EPA Assessment Criteria

Pollutant	Criteria (ng/m ³)	Averaging Period	Percentile	Applicable location
Benzene	29	1 hour	99.9 th	At and beyond the boundary of the facility
Cumene	21	1 hour	99.9 th	At the nearest existing or likely off-site sensitive receptor
Cyclohexane	19,000	1 hour	99.9 th	At and beyond the boundary of the facility
Ethylbenzene	8,000	1 hour	99.9 th	At and beyond the boundary of the facility
n-Hexane	3,200	1 hour	99.9 th	At and beyond the boundary of the facility
Toluene	360	1 hour	99.9 th	At the nearest existing or likely off-site sensitive receptor
Xylenes	190	1 hour	99.9 th	At the nearest existing or likely off-site sensitive receptor

Due to the proximity of local industrial receptors, all pollutant concentrations were assessed at the site boundary of Site B and B4 and beyond (with the exclusion of areas over water).

A Level 2 assessment has been applied. The tank fuel throughputs and tank design data are site specific and the meteorological data was created specific for the project site. The meteorological data used included a combination of prognostic TAPM data and surface station data from the local area in accordance with the guidance document "*Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*" Barclay & Scire (2011). The data included surface information from Sydney Airport BoM station approximately 5km to the northwest of the site and is considered appropriate for use in the assessment.

The VOC speciation data used were based on the Australian Government provided NPI default values. It is AECOMs experience that these values are considered to be conservative and would likely result in an overestimation of actual emissions.

Recent work on a similar tank farm showed a diesel liquid benzene percentage composition of closer to 0.004% and confirmed by recent product analysis conducted by Vopak in 2017 showing a benzene composition percentage of 0.003% when compared to the default NPI value of 0.03%. Additionally, the sampling from the similar tank farm also showed a diesel cumene percentage composition of 0.02% compared to the NPI default 0.96%.

Given the above information, the application of a Level 2 assessment for the Project is considered a reasonable approach.

5.0 Assessment Methodology

5.1 Cumulative Assessment Methodology

In areas where significant pollutant levels may be expected due to emissions beyond that contributed by the project seeking approval, a cumulative assessment may be required. The primary pollutants of concern in relation to the Project are VOCs. A review of operations in Port Botany identified that Vopak is likely to be a primary contributor of VOCs in the immediate area. The operators in the adjacent area are identified in **Figure 1**.

To assess the cumulative impact of Vopak's proposed operations at Port Botany, emissions from the BLB pipe loses, storage tanks (from Site B and Site B4), the tanker loading gantry emissions (based on a stack concentration not exceeding 4 mg/L Total Unrecovered Vapours) and Vopak Bitumen emissions, have been included in the dispersion model.

In addition to the modelled sources provided above, the assessment has also taken into consideration the potential impacts from the following nearby notable emitters of VOCs¹, with a brief summary of each facility provided below:

- Terminals Pty Ltd Bulk Liquid Services; and
- Terminals Pty Ltd Bitumen Facility.

The identified facilities have undertaken air quality impact assessments in order to gain planning approval or in response to EPA directives for their current operational designs. The most recent reports prepared for the sites, and those that were used to estimate the background values for this Vopak assessment, are as follows with a brief summary of each facility provided below:

- Terminals Pty Ltd – Botany Stage 5B Expansion - Air Quality Impact Assessment, August 2013 GHD;
- Terminals Pty Ltd – Report for Port Botany Terminal Upgrade – Air Assessment, July 2008, GHD; and
- Terminals Pty Ltd – Report for Bitumen Import and Dispatch Facility, Port Botany – Air Assessment, April 2011, GHD.

Terminals have owned and operated 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 three subsequent expansions, each involving the construction of additional storage capacity. Terminals Pty Ltd provides bulk liquid storage, handling and repackaging services, import shipping of hazardous and non-hazardous liquid chemicals. The facility is located at 45 Friendship Road Port Botany, and is adjacent to the B4 site to the north east. The site includes 65 tanks ranging in size from 200m³ to 8,000m³, with a total capacity of 53,000m³.

Terminals Bitumen is located on Simblist Road, Port Botany, and is adjacent to the Terminals liquid facility. It covers approximately 6,000m² leased from NSW Ports. The site has a storage capacity of 24,000m³ including nine storage tanks and associated infrastructure, as well as a two bay truck loading gantry.

Each of the above facilities air assessments predicted VOC impacts in the area adjacent to their site, although the data is often very limited. The data provided in the reports has been modified in order to be applicable to the Site B assessment in the following ways.

Terminals Liquid Storage:

- The most recent air modelling for the Terminals Liquid Storage site was reported in GHD 2008 and assessed a total capacity of 72,780m³. Benzene emissions and impacts were reported primarily at four residential receptors, as well as reporting one ground level concentration (GLC) at or beyond the boundary. The maximum benzene emissions figure reported against the GLC was 15 ug/m³, however the provided contours show this to be over water. The approximate Terminals Liquid Storage GLC reported at the boundary of Site B (in the same location as the

¹ At the time of this assessment, Vopak were aware of a Terminals Site C Development Application (DA-952/2016) with the Randwick City Council, however there was no publically available Air Quality Impact Assessment, and the DA could not be located on RCC's website. As such potential VOC emissions from this proposed site have not been included in this assessment.

maximum 99.9th % GLC predicted in this Vopak Site B AQIA, on the western boundary, as shown in **Figure 4**) is shown as 1.3 µg/m³;

- In 2013 a qualitative assessment was undertaken to assess the increase in VOC emissions from the addition of 12 new tanks on the site. The assessment reported an increase in VOC emissions from the site of 0.7%. The GLC at the B3 western boundary (in the same location as the maximum 99.9th % benzene GLC from this Vopak Site B AQIA) reported in GHD 2008 has therefore been factored up by 0.7% to gain a final background benzene value for the Terminals liquid storage facility of 1.31 µg/m³; and
- Neither report provided speciated VOC impacts. The estimation of pollutants other than benzene has been undertaken in accordance with the speciation profile provided in **Section 6.4.3**.

Terminals Bitumen Facility:

- The air modelling for the Terminals Bitumen Facility was reported in GHD 2011 and assessed the current approved operations. GLCs were estimated for several VOCs at the residential receptors and reported a maximum benzene value of 0.0077 µg/m³ at a residential receptor. GLC contours were provided for benzene in the area adjacent to the site and showed a maximum value (in the same location as the maximum 99.9th % benzene GLC predicted in this Vopak Site B AQIA) of less than 0.001 µg/m³; and
- GLC contours were not provided for VOCs other than benzene. The ratio of each VOC to benzene from the reported residential GLCs were calculated and applied to the benzene GLC at the Site B western boundary to gain the speciated VOC concentrations. The estimation of pollutants other than benzene has been undertaken in accordance with the speciation profile provided in **Section 6.4.3**.

5.1.1 Background Summary

A summary of the background values at the Site B western boundary (in the same location as the maximum 99.9th % GLC's predicted in this Vopak Site B AQIA as shown in) to be applied in this cumulative assessment are provided in **Table 8**.

Table 8 Background Data Summary

Pollutant	Criteria (µg/m ³)	Predicted Maximum Background Ground Level Concentrations (µg/m ³) at the Vopak Site B maximum 99.9 th % location*		
		Terminals Liquid Storage	Terminals Bitumen	Total Background
Benzene	29	1.31	0.00100	1.31
Cumene*	21	0.12	0.00005	0.12
Cyclohexane	19,000	0.48	0.00036	0.48
Ethylbenzene	8,000	0.34	0.00026	0.34
n-Hexane	3,200	4.24	0.00324	4.25
Toluene	360	3.28	0.00250	3.28
Xylenes	190	1.41	0.00108	1.41

* The Cumene background concentration has been estimated using the same methodology of speciating the benzene GLC from the GHD 2008 & GHD 2011 reports at the same location of the max 99.9th % cumene GLC determined in this AQIA (Site B4 eastern boundary) as shown in **Figure 5**.

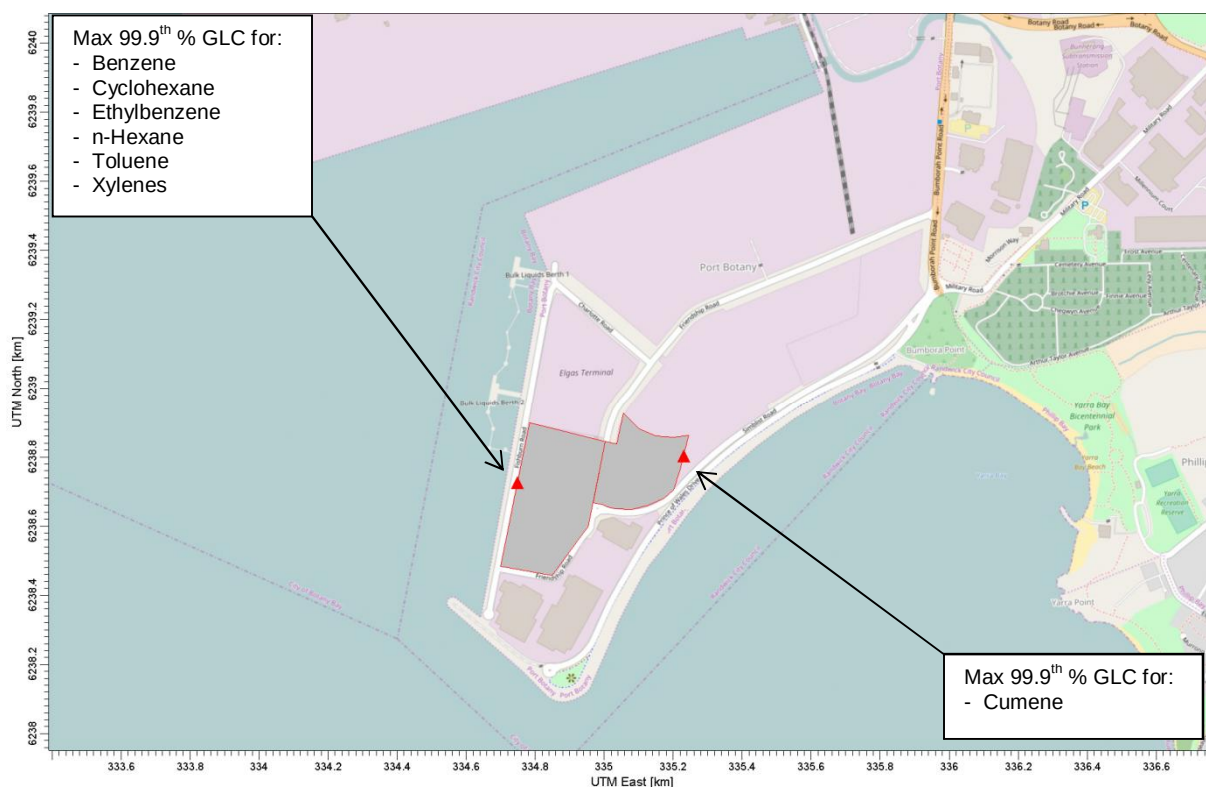


Figure 2 Approximate Maximum 99.9th Percentile GLC Locations – Vopak Site B AQIA, Dec 2017

Where benzene values were estimated at several sensitive receptors in the Terminals Liquid Storage Facility AQIA, the results have been applied as the background for each. Where a sensitive receptor identified in this Site B assessment was not modelled in the Terminals Liquid Storage Facility AQIA, the value at the nearest sensitive receptor was applied.

The Terminals Bitumen Facility only reported one maximum residential GLC. This GLC has been applied to all residential receptors. A summary of benzene background values for each residential receptor identified is provided in **Table 9**; details of the receptors are provided in **Section 5.6**.

Table 9 Benzene Residential Receptor Background Data

Receptor ID	Receptor Description	Ground Level Concentration (mg/m ³)		
		Terminals Liquid Storage	Terminals Bitumen	Total Background
1	Matraville Public School, Matraville	2.62	0.0077	2.63
2	St Agnes Primary School, Matraville	2.62	0.0077	2.63
3	Matraville High School, Chifley	2.62	0.0077	2.63
4	St Andrews Primary School, Malabar	2.62	0.0077	2.63
5	Malabar Public School, Malabar	2.62	0.0077	2.63
6	23 Adina Avenue, Phillip Bay	4.63	0.0077	4.64
7	61 Yarra Road, Phillip Bay	4.63	0.0077	4.64
8	52 Eyre Street, Chifley	2.62	0.0077	2.63
9	26 Moorina Avenue, Matraville	2.62	0.0077	2.63
10	5 Clonard Way, Little Bay	4.63	0.0077	4.64
11	Botany Golf Club, Banksmeadow	1.91	0.0077	1.92
12	Elaroo Avenue, Yarra Point	4.63	0.0077	4.64
13	La Perouse Point, ANZAC Parade	3.83	0.0077	3.83

5.2 Sources Assessed in the Dispersion Model

In order to look at the cumulative impact of the entire Vopak facility and directly associated infrastructure, the following operations were included in the air dispersion model:

- Proposed Site B4 storage tank emissions;
- Bulk Liquids Berth 1 and 2 fugitive emissions;
- Existing Site B storage tank emissions (inclusive of B1, B2 & B3) and the proposed 75W modification design and throughput of 7,800ML per year;
- Existing Site B tanker loading gantry emissions with the modifications as proposed in the 75W modification, specifically the operation of 9 loading bays with the VRU operating at a stack concentration not exceeding 4 mg/L Total Unrecovered Vapours;
- Vopak Bitumen vapour combustor unit; and
- Vopak Bitumen storage tank breathing losses.

The source characteristics, emission rates and other details of the Vopak Bitumen facility have been sourced directly from the PEL (2015) report. Scenario 6 was chosen as it best represents typical operations; operating the Vapour Control Unit (VCU) only during transfers from a ship, the emissions from two road tanker loading activities via the VCU and fugitive emissions. It was assumed that bypass of the VCU would not occur under typical operations. The source details have not been reproduced in this report. The 2015 report was prepared for the EPA and have therefore been assumed to be valid and fit for purpose. As such, no efforts have been made to review or validate the information provided in the report.

5.3 Emission and Dispersion Models

5.3.1 TANKS Emission Model

Emission rates for the fuel storage tanks were generated using the TANKS program. TANKS is a Windows-based computer software program that estimates VOC and hazardous air pollutant (HAP) emissions from fixed- and floating-roof storage tanks. TANKS is based on the emission estimation procedures from Chapter 7 of EPA's Compilation Of Air Pollutant Emission Factors (AP-42). TANKS uses chemical, meteorological, roof fitting, and rim seal data to generate emissions estimates for several types of storage tanks including:

- Vertical and horizontal fixed roof tanks;
- Internal and external floating roof tanks;
- Domed external floating roof tanks; and
- Underground tanks.

5.3.2 TAPM Meteorological Model

TAPM predicts three-dimensional meteorology, including terrain-induced circulations. TAPM is a PC-based interface that is connected to databases of terrain, vegetation and soil type, leaf area index, sea-surface temperature, and synoptic-scale meteorological analyses for various regions around the world. TAPM is used to predict meteorological parameters at both ground level and at heights of up to 8,000 m above the surface; these data are required by the CALPUFF model. The TAPM output file requires processing through a program such as CALTAPM to generate a file that is used within CALMET to generate the three-dimensional wind fields required by the CALPUFF dispersion model.

The NSW EPA has released guidance documentation (Barclay and Scire, 2011) on the optimum settings for the use of the CALPUFF modelling system. One modelling approach provided in the document is the use of a 'Hybrid Mode' whereby numerical prognostic three-dimensional meteorological model data, in a 3D.DAT file, along with surface observation data gained from a representative nearby surface monitoring station, are combined. The CALTAPM program converts the TAPM data into a 3D.DAT file, which can be input directly into the CALMET meteorological processor.

5.3.3 CALPUFF Air Dispersion Model Suite

Various air dispersion models are required for the successful modelling of air quality impacts from the Site. These are: The Air Pollution Model (TAPM), which is used to generate prognostic meteorological data; CALTAPM, which is used to process the TAPM output into a format suitable for input into the CALMET model; CALMET, which generates three-dimensional wind fields used in the dispersion modelling; CALPUFF, which predicts the movement and concentration of pollutants; and CALPOST, which is used to process the CALPUFF output files.

CALPUFF is the NSW EPA model of choice for areas that are affected by coastal breezes, coastal fumigation or complex terrain. The Project site is located in a coastal area and, hence, the CALPUFF model was chosen for use in the AQIA. The CALPUFF modelling system consists of three main components and a set of pre-processing and post-processing programs. The main components of the modelling system are CALMET (a diagnostic three-dimensional meteorological model), CALPUFF (an air quality dispersion model), and CALPOST (a post-processing package). The main CALPUFF related software package programs are described in the following sections.

5.3.3.1 CALMET

CALMET is a meteorological model that develops hourly wind and temperature fields on a three-dimensional gridded modelling domain. Associated two-dimensional fields such as mixing height, surface characteristics and dispersion properties are also included in the file produced by CALMET. CALMET produces a meteorological file that is used within the CALPUFF model to predict the movement of pollution.

5.3.3.2 CALPUFF

CALPUFF is a non-steady-state three-dimensional Gaussian puff model developed for the US Environmental Protection Agency (US EPA) and approved by the NSW EPA for use in situations where basic Gaussian plume models are not effective, such as areas with complex meteorological or topographical conditions, including coastal areas with re-circulating sea breezes. The CALPUFF model substantially overcomes the basic limitations of the steady-state Gaussian plume models, and

as such, was chosen as the most suitable dispersion model for the AQIA and Site Model. Some examples of applications for which CALPUFF may be suitable include:

- Near-field impacts in complex flow or dispersion situations:
 - Complex terrain;
 - Stagnation, inversion, recirculation, and fumigation conditions;
 - Overwater transport and coastal conditions; and
 - Light wind speed and calm wind conditions.
- Long range transport;
- Visibility assessments and Class I area impact studies;
- Criteria pollutant modelling, including application to development applications;
- Secondary pollutant formation and particulate matter modelling; and
- Buoyant area and line sources (e.g. forest fires and aluminium reduction facilities).

5.3.3.3 CALPOST

The CALPOST program is used to process the outputs of the CALPUFF program into a format defined by the user. Results can be tabulated for selected options including percentiles, selected days, gridded results or discrete locations, and can be adjusted to account for chemical transformation and background values.

The program default settings were used for the CALPOST program, ensuring that the correct averaging periods, percentiles and receptors were selected to meet the NSW EPA ambient pollutant criteria assessed (DEC, 2005).

5.4 Model Setup

A summary of the data and parameters used as inputs to TAPM, CALMET and CALPUFF is shown in **Table 10**. Details of the TANKS inputs (and outputs) are provided in **Appendix B**. The CALMET and CALPUFF settings have been chosen in accordance with the following documents:

- Barclay & Scire (2011). Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales; and
- DEC (2005). Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.

Table 10 Summary of Model Input Parameters

Parameter	Input
TAPM	
Horizontal resolution	40 x 40 grid points; outer grid spacing 30,000 m x 30,000 m with an inner grid spacing of 1,000 metres.
Grid centre coordinates	33 deg 59 min E, 151 deg 13 min S
Vertical levels	Defaults
Land use data	Default TAPM database
Simulation length	1 January – 31 December 2014
CALMET (v6.42)	
Meteorological grid domain	35 km x 35 km
Meteorological grid resolution	250 metre resolution (140 x 140 grid cells)
Reference grid coordinate (centre)	335182 E, 6238801 S
Cell face heights in vertical grid	0, 20, 40, 80, 160, 320, 640, 1200, 2000 and 3000 m

Parameter	Input
Simulation length	1 year (2014)
Surface meteorological stations	Sydney Airport (BoM) 2014
Upper air meteorological station	No upper air stations. The 3-dimensional gridded prognostic data from TAPM (M3d) were used as the initial guess wind-field for CALMET
Terrain and land use data	Terrain elevations were extracted from the NASA Shuttle Radar Topography Mission Version 3 data set (SRTM1 30 metre resolution). Land use data taken from GLCC Australia Pacific (~1 km resolution)
TERRAD (Terrain radius of influence)	10km
RMAX1 (Radius of influence of meteorological stations: surface)	1km
RMAX2 (Radius of influence of meteorological stations: aloft)	10km
R1 (Observation weighting: surface)	5
R2 (Observation weighting: aloft)	20
IEXTRP (Vertical extrapolation of surface wind observation)	- 4 (extrapolate using similarity theory, exclude upper air observations from layer 1)
BIAS (NZ) (Layer dependent weighting factor for initial guess field)	0 (default)
CALPUFF (v7.2.1)	
Computational grid	10 km x 10 km approximately centred on the site
Sampling grid	4 km x 4 km with a nesting factor of 5 (~49 metres spacing), approximately centred on the site; converted to discrete receptors
Number of sensitive receptors	The sampling grid was converted to discrete receptor locations. An additional 13 residential receptors have been included as discussed previously.
Dispersion option	Dispersion coefficient. use turbulence computed from micrometeorology
Meteorological modelling period	1 January 2014 – 31 December 2014

The CALMET settings have been selected in accordance with Barclay & Scire 2011. A review of the prepared CALMET meteorological data using the above settings, as provided in **Appendix B**, shows a strong correlation between measured surface patterns and predicted data. It is therefore concluded that the meteorological data used in the assessment is fit for purpose.

Note that the CALMET meteorological file has been updated since the initial Vopak B4 assessment in order to accommodate the release of the 30m SRTM data and to further align with Barclay & Scire 2011.

5.5 Assessment Scenario

The dispersion modelling was undertaken for a maximum “peak” operational conditions scenario. The scenario has been created by selecting a representative number of fuel loading arms for the tankers per hour, together with the expected loading time of a tanker and assuming that all residual tanker fuels (resulting in remnant vapours in the empty tankers) where flammable fuels such as petroleum.

The details of the operational parameters adopted for the modelling scenario are as follows (further details are provided in **Section 6.4**):

- Continuous operation of the Facility (24 hours per day, 7 days per week, 365 days per year);
- A VRU operating at a stack concentration of 4 mg/L Total Unrecovered Vapours (TVOC's as n-propane);
- Storage tank emissions calculated using TANKS based on the tank designations in **Section 6.4.2**;
- A total of 9 gantry bays (6 existing and 3 proposed), loading 3.5 tankers per hour per bay², with an average truck loaded volume of 36m³, with a calculated total flow of 1,134m³/hr; and
- Residual fuel in tankers assumed to be 100% flammable (petroleum), with representative speciated headspace vapour percentages obtained from the USEPA Speciate Database website.

Advice from Vopak suggests that 3.5 tankers per bay per hour is a conservative and representative of a theoretical estimate of the operating maximum, and that generally there is likely to be less than this value resulting in lower emissions.

Further details of the calculation method are provided in **Section 6.4.3**. It is envisaged that by looking at hourly tanker loading information that the best hourly emissions assessment would be achieved, avoiding the possible removal of peak emissions if an annual averaged mass calculation was applied.

5.6 Sensitive Receptors

As indicated in **Section 4.0**, the impact assessment criteria for the pollutants assessed are applied either at the site boundary and beyond or at the closest existing or future sensitive receptor, depending on the pollutant. In order to provide a thorough assessment of pollutant concentrations surrounding the facility, a grid 4 km x 4 km with a 50 metre spacing, centred approximately on the site, was assessed. Additionally, receptors were placed along the approximate boundary of the Project. Concentrations predicted at on-site locations were excluded from the results. The receptors are shown in **Figure 3** indicated as blue crosses.

Sensitive receptors are generally defined as residential areas, hospitals, schools and similar facilities. In addition to the above gridded receptors and boundary receptors, sensitive receptors have been selected and identified in accordance with previous assessments for consistency. The sensitive receptors assessed are summarised in **Table 11** and shown in **Figure 3**.

² This equates to a total of 31.5 tankers per hour. This is a highly conservative estimate; given the proposed operations estimate averages of 11.7 tankers per hour and up to 14.05 tankers per hour during peak operations.

Table 11 Residential Sensitive Receptors

Receptor #	Receptor Description	X Coordinate	Y Coordinate
		m	m
1	Matraville Public School, Matraville	336377	6241348
2	St Agnes Primary School, Matraville	336628	6241013
3	Matraville High School, Chifley	337889	6240355
4	St Andrews Primary School, Malabar	338106	6240430
5	Malabar Public School, Malabar	338156	6240701
6	23 Adina Avenue, Phillip Bay	337019	6238494
7	61 Yarra Road, Phillip Bay	336641	6238493
8	52 Eyre Street, Chifley	337049	6239809
9	26 Moorina Avenue, Matraville	336345	6240209
10	5 Clonard Way, Little Bay	337171	6239080
11	Botany Golf Club, Banksmeadow	334852	6240659
12	Elaroo Avenue, Yarra Point	336468	6238404
13	La Perouse Point, ANZAC Parade	336621	6237803

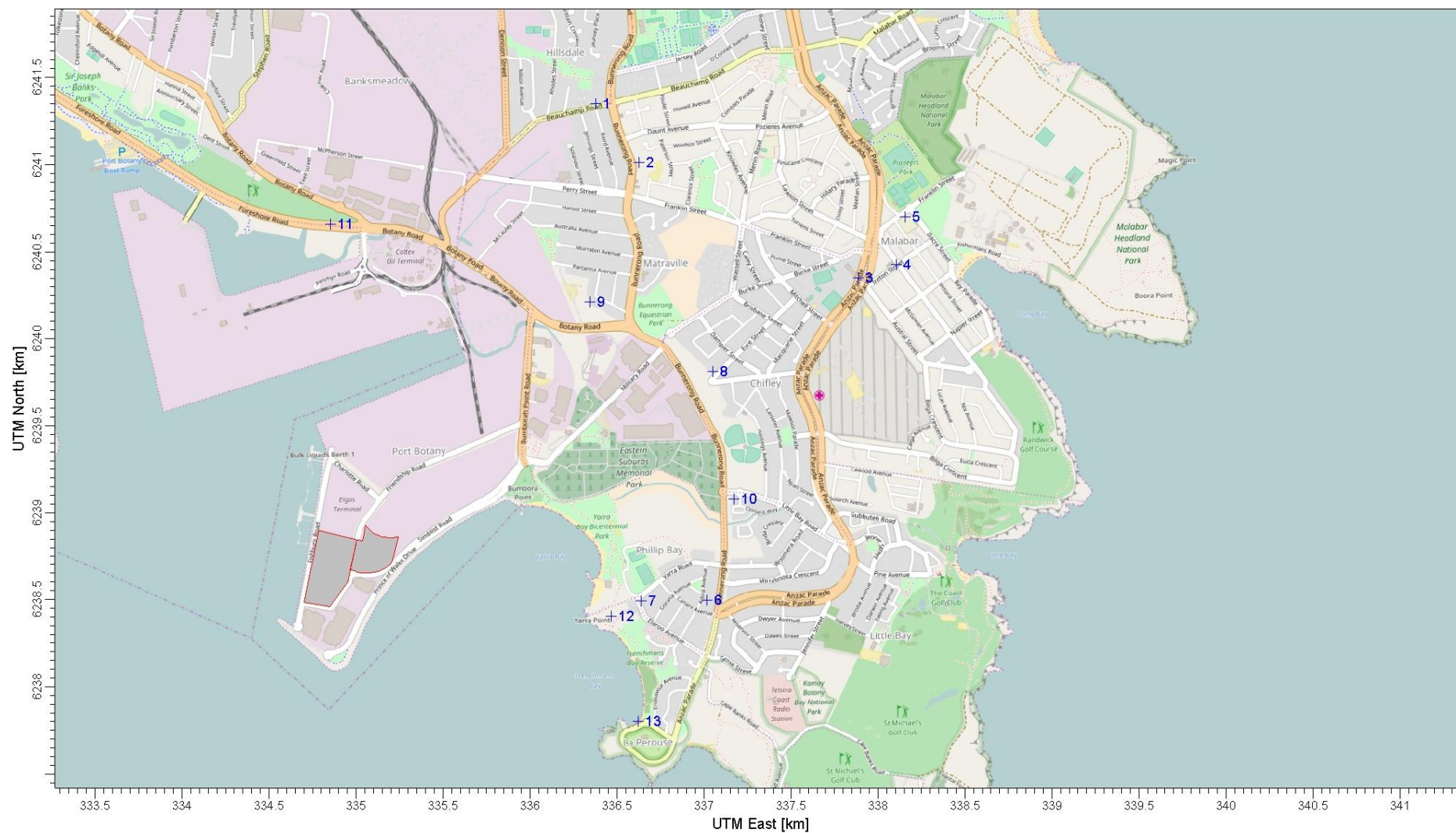


Figure 3 Sensitive Receptor Locations

6.0 Dispersion Model Inputs

The inputs used in the modelling are described in the following sections.

6.1 Meteorology

The meteorological data are used by the CALPUFF model in different ways to estimate the dispersion of air pollutants:

- Ambient temperature is used to incorporate thermal buoyancy effects when calculating the rise and dispersion of pollutant plumes;
- Wind direction determines the direction in which pollutants will be carried;
- Wind speed influences the dilution and entrainment of the plume into the air continuum;
- Atmospheric stability class is a measure of atmospheric turbulence and the dispersive properties of the atmosphere. Most dispersion models utilise six stability classes, ranging from A (very unstable) to F (stable/very stable); and
- Vertical mixing height is the height at which vertical mixing occurs in the atmosphere.

Meteorological data for the period January – December 2014 were used in this assessment. Prognostic meteorological data were generated using TAPM for upper air conditions for a 40 km x 40 km grid with a 1 km grid spacing centred close to the Vopak site. The TAPM output (processed using CALTAPM) was then used, with surface station data from the Bureau of Meteorology monitoring station at Sydney Airport, as input into the CALMET meteorological module to compute the wind fields used by CALPUFF. Sydney Airport is approximately 5 kilometres northwest of the Vopak site, across Botany Bay. Analyses of the meteorological data used in the modelling are provided in **Appendix B**. The analysis concluded that the data were considered to be representative of meteorological conditions around the site.

For the TANKS model, the Australian database was used. The database contains meteorological data for Sydney Airport, which were selected for this assessment.

6.2 Terrain

Digital terrain data used to generate the upper air prognostic meteorological data were obtained from the TAPM 9 second DEM database covering an area of 40 km by 40 km on a 1 km grid, roughly centred on the Vopak facility. For the CALMET model, the geophysical processor was used to convert land use and terrain data from WebGIS (SRTM1 for terrain at approximately a 30 metre resolution) and GLCC Australia Pacific (approximate 1 kilometre resolution) throughout the meteorological domain.

6.3 Building Wake Effects

The dispersion of pollutants emitted from stack sources may be affected by aerodynamic wakes generated by winds having to flow around buildings. Building wakes generally decrease the distance downwind at which stack plumes comes into contact with the ground, which may result in higher ground level pollutant concentrations closer to the emission source.

The Site B VRU is a point source, while the storage tank emissions have also been assessed as point sources in order to adequately assess potential building wake affects. The Prime building wake algorithm was used in the assessment as per EPA guidance (DEC 2005). All storage tanks and dominant structures have been included in the model.

6.4 Source Characteristics

Fuel storage tanks are sources of fugitive emissions. Details of the tank parameters and emission rates are provided in the following sections.

6.4.1 Bulk Liquid Berths

There are now two Bulk Liquids Berths, No's 1 and 2 (BLB 1 and BLB 2). BLB 2 was approved by the NSW Department of Planning in 2008 and NSW Ports officially opened on 21 February 2014 to cater for growing demand in this industry sector. The Bulk Liquids Berth at Port Botany services the discharge and load requirements of the petrochemical industry in New South Wales. Hazardous and non-hazardous bulk liquids, petrochemicals and gases are transferred by pipeline to nearby industry storage facilities which are operated by private companies.

Bulk liquids (which include VOC containing liquids such as petroleum) will be discharged from the BLBs to the liquid storage terminals via flexible hoses or MLAs for petroleum products connected to the Ship Manifold discharge pipework. VOC emissions have been estimated for the valves and flanges associated with BLB operations. Emissions were estimated using the *Emission Estimation Technique Manual for Petroleum Refining* (Commonwealth Government, 1999). Screening information was not available, and as such average emission factors were used together with the number of fittings for the berth. The parameters applied in the assessment are consistent with those in the approved document *Bulk Liquids Berth No. 2 – Port Botany – Air Quality Impact Assessment (SKM 2007)*.

6.4.2 Storage Tanks

The storage tanks would be designed to AP1650 and operated in accordance with the requirements of AS 1940; *The storage and handling of flammable and combustible liquids*. In complying with these standards, the following safety features would be installed:

- Tank level instruments (high and low) with independent high/low alarms;
- Tank vents with anti-flash gauze to prevent potential for sparking and ignition from external sources;
- Multi-level temperature measurements; and
- Water draining facilities to prevent water build up in the tank and potential corrosion in the tank base.

The TANKS emissions estimation model was used to calculate the predicted total VOC emissions from the storage tanks using the parameters provided in **Table 12**. Additional inputs required for the TANKS model, including tank roof types, construction materials and roof fittings were provided by Vopak and based on an internal review of these parameters, conducted in July 2017. Input and output data from the TANKS model is provided in **Appendix C**. The tanks types listed are defined as Vertical Fixed Roof Tank (VFR) and Internal Floating Roof (IFR).

Table 12 Storage Tank Details

Tank ID No.	Product	Tank Type	Tank Diameter (ft)	Volume(gal)	Throughput (gal/yr)
Site B					
101	Jet	IFR	118.1	4650462	68899241
102	Jet	IFR	118.1	4650462	68899241
103	Jet	IFR	118.1	4650462	68899241
104	Avcat (Jet)	IFR	65.6	1433554	21238909
105	98	IFR	65.6	1434610	41949872
206	95	IFR	91.9	2822457	77208946
207	95	IFR	91.9	2812682	77208946
208	98	IFR	91.9	2818230	82593160
309	98	IFR	39.4	511229	14960008
310	Bio Diesel	IFR	39.4	510964	8011640

Tank ID No.	Product	Tank Type	Tank Diameter (ft)	Volume(gal)	Throughput (gal/yr)
311	98	IFR	39.4	510700	14960008
312	91	IFR	39.4	510964	13007287
621	Diesel	IFR	120	6393659	155206146
622	Diesel	IFR	120	6393659	155206146
623	Jet	IFR	120	6393659	94725691
624	Ethanol	IFR	62.6	1741083	18369752
625	Ethanol	IFR	49.2	800624	8443396
726	91	IFR	123.8	6801321	173047328
727	91	IFR	88.6	3479260	88523493
728	98	IFR	88.6	3479260	101813098
729	91	IFR	123.8	6801321	173047328
730	98	IFR	54.1	1299339	38022387
940	Diesel	IFR	114.8	5846499	141923835
941	ULP	IFR	65.6	1909115	48567259
942	91	IFR	117.8	6150859	156497489
943	Diesel	IFR	117.8	6150859	149312160
Site B4					
110-01	Diesel	VFR	142.71	9246020	221904480
110-02	Diesel	VFR	142.71	9246020	221904480
110-03	Diesel	VFR	142.71	9246020	221904480
110-04	ULP	IFR	134.51	8221033	197304792
110-05	ULP	IFR	134.51	8221033	197304792
110-06	ULP	IFR	95.14	4247886	101949264
110-07	ULP	IFR	95.14	4247886	101949264

VFR - Vertical Fixed Roof Tank

IFR - Internal Floating Roof

Site operations also encompass the use of additive and slops tanks. These tanks are small in size and have an extremely low turnover when compared to the large storage tanks. The additives used on site are generally not volatile organic liquids due to their low vapour pressure. Any emissions from this source would be negligible in comparison to the larger tanks and have not been quantitatively reviewed in this assessment.

The product component databases prepared for Australian fuel for the NPI were used for the TANKS modelling. The default values of the fuel type compositions were compared against the values in the current NPI Emission Estimation Technique Manual. The diesel values were found to be the same, and were used for the TANKS emission estimations. The database did not contain default values for gasoline; as such, the unleaded petrol values published in the NPI EET (DSEWPC, 2012) were entered manually into the TANKS program and used to calculate emissions from the proposed gasoline tanks. A copy of the TANKS output is provided in **Appendix C**.

Site B and B4 Storage tank emission rates were calculated using the TANKS emission estimation model. The fuel throughput of each tank was evenly allocated to each month of the year within TANKS and the outputs provided in monthly emission rates to account for seasonal atmospheric influences. The monthly emission rates were estimated in kilograms per month and calculated back to

grams per second (g/s) for each month for use in the dispersion model and are provided in **Appendix C**.

Table 13 Fuel Composition – Substance Proportions (NPI)

Substance	Typical Liquid Composition (%)				
	Diesel (ADO)	Unleaded Petrol (ULP)	95	98	Jet Kerosene
Benzene	0.03	0.933	1.003	1.007	0.367
Cumene	0.975	0.100	0.120	0.170	2.830
Cyclohexane	0.010	0.765	0.990	1.100	1.200
Ethylbenzene	0.110	1.533	1.763	1.805	0.517
n-Hexane	0.010	1.830	1.520	2.025	4.650
Toluene	0.100	5.603	7.093	19.650	0.180
Xylenes	0.345	7.747	8.980	9.730	1.880

Source: Table 2: Minimum amount of individual substances in fuel stored to trip the Category 1 reporting threshold (10 tonnes), DSEWPC (2012).

The monthly emissions of the above pollutants in pounds were converted to an emission rate for each tank in grams per second assuming constant emissions (24/7/365). These were used as the emission rates in CALPUFF as an hourly varying emissions file. Each tank was modelled as a point source at the peak of the tank in order to adequately account for building wake influences. The model was set with no vertical momentum as the pipes generally exhaust in a down facing position.

6.4.3 Site B Gantry Vapour Emissions

Emissions from the truck filling gantries are generated when tankers are filled with fuel on site; as the tankers are loaded residual vapours from the empty tankers are expelled and captured by the gantry system. The composition of the expelled vapours is dependent on the previous contents of the tanker. The tanker being filled at the Facility may have previously contained either combustibles (i.e. diesel) or flammables (i.e. petroleum), resulting in residual vapours from either of these fuels. Flammable fuels generally have higher concentrations of VOCs than combustible fuels, and as such this assessment conservatively assumed that all residual vapours through the gantry system were from flammables.

After the vapour within the empty tanker is displaced and collected by the gantry vapour collection system (VCS), it is directed to the VRU. The volumetric flow rate of the gantry VRU emissions is dependent on the road tanker filling activities at that time, that is, the rate at which the air is displaced in the road tanker, tank compartment is the driver of the air flow through the VRU. The theoretical maximum operational scenario modelled assumes a flow rate of 1,134m³/hr and together with the diameter was used to calculate the velocity. The VRU stack emission characteristics are provided in **Table 14**.

Table 14 Vopak Site B VRU Stack Emission Parameters

Parameter	Units	Value
Temperature	°C	Assumed ambient
Height above ground	m	15
Internal exhaust diameter	m	0.2
Velocity	m/s	10.03
Volumetric Flow Rate	m ³ /s	0.315
Operational Total Unrecovered Vapours [as n-propane]	mg/L	4

The modelling has assumed a stack venting 15m above ground level with vertical momentum i.e. no 'witches' hat, T-junctions or other units that may limit the stacks vertical velocity.

Following discussions with the NSW EPA, the headspace vapour speciation profiles available from the USEPA Speciate Database³ for flammable based fuels (e.g. gasoline), which are presented in **Table 15** have been considered for this assessment. The average value for each pollutant of interest has been adopted for the purposes of determining the individual species headspace vapour concentration and associated mass emission rate.

Table 15 Flammable Headspace Vapour Speciation Profiles (USEPA Speciate Database)

Profile No.	Description	Percentage Headspace Composition						
		Benzene	Cumene	Cyclo-hexane	Ethyl-benzene	n-Hexane	Toluene	Xylenes*
2557	Mid Grade Gasoline Chicago Summer	0.71%	N/A	N/A	0.11%	2.08%	1.32%	0.40%
2556	Regular Gasoline Chicago Summer	0.77%	N/A	N/A	0.13%	3.07%	1.02%	0.49%
4469	Exxon Grade 87	0.76%	0.03%	0.30%	0.29%	3.79%	2.68%	1.28%
4475	Chevron Grade 87	0.95%	0.01%	0.38%	0.20%	2.55%	1.81%	0.84%
4530	Exxon Grade 89	0.87%	0.02%	0.20%	0.32%	1.63%	3.32%	1.37%
AVERAGE		0.81%	0.02%	0.29%	0.21%	2.62%	2.03%	0.87%

* The total Xylenes percentage is the sum of all the individual isomers.

The stack concentrations for each of the pollutants from the VRU were based on a stack concentration of 4 mg/L of Total Unrecovered Vapours (T-VOC's as n-propane), and the respective average headspace vapour percentages. The mass emission rates were then calculated from the stack concentrations and the theoretical peak volumetric flow rate of the VRU stack. An example of the mass emission rate calculation is provided in **Table 16**.

Table 16 VRU Benzene Mass Emission Rate Calculation Example

Parameter	Value	Units
T-VOC's [as n-propane]	4	mg/L
Molecular Weight – Propane	44.1	g/mol
Molecular Weight – Benzene	78.11	g/mol
T-VOC's [as benzene]	7	g/m ³
Average Benzene Vapour Headspace Percentage	0.81	%
Benzene Stack Concentration	0.057	g/m ³
Peak Volumetric Flow Rate	0.315	m ³ /s
Benzene Mass Emission Rate	0.018	g/s

A summary of all the estimated mass emission rates for the VRU is shown in **Section 6.5**.

³ https://cfpub.epa.gov/speciate/ehpa_speciate_browse_source.cfm?pType=G&strBrowseFilter=G [Accessed 15/12/2017]

6.4.4 Fugitive Emissions

Fugitive emissions from Site B and B4 storage tank pipe networks were estimated using the *Emission Estimation Technique Manual for Petroleum Refining* (Commonwealth Government, 1999). Screening information was not available, and as such average emission factors were used together with the estimated number of fittings. The emission factor and number of fittings applied are summarised in **Table 17** and were used to estimate the TVOC emission rate in g/s, which was then speciated to individual compound emission rates. Fugitive emissions were modelled as volume sources located at various locations on each site.

Table 17 Pipeline Parameters – Site B and B4

Pipe Loss Source	Emission Factor (kg/hr)	Count of sources			
		B1	B2	B3	B4
Connections / flanges	0.00006	600	250	450	439
Valves	0.0017	120	50	90	285
Pump seals	0.012	1.2	0.5	0.9	4
Compressors	0.0894	0	0	0	0
Pressure relief valves	0.0447	0	0	0	0
Open ended lines	0.0015	0	0	0	0

6.5 Emission Rates

The storage tank monthly emission rates were estimated in kilograms per month and calculated back to grams per second (g/s) for each month for use in the dispersion model. The tank emission rates for the assessed project Site B & B4 are provided in **Appendix C**. The estimated emission rates for all other sources are provided in **Table 18**.

Table 18 Modelled Emission Rates

Facility Source	Emission	Benzene	Cumene	Cyclohexane	Ethylbenzene	n-Hexane	Toluene	Xylenes
		g/s	g/s	g/s	g/s	g/s	g/s	g/s
VOPAK Site B	Gantry VRU	1.80E-02	7.20E-04	7.02E-03	6.30E-03	6.41E-02	5.30E-02	2.63E-02
	Pipe losses	4.81E-09	3.02E-10	4.65E-09	3.76E-09	1.53E-08	4.60E-08	9.80E-09
	Tank Venting	Varying TANKS output						
VOPAK Site B4	Pipe losses	4.87E-09	3.07E-10	4.71E-09	3.81E-09	1.55E-08	4.66E-08	9.94E-09
	Tank Venting	Varying TANKS output						
BLB1	Pipe losses	5.43E-03	3.42E-04	5.26E-03	4.25E-03	1.73E-02	5.20E-02	1.11E-02
BLB2	Pipe losses	5.43E-03	3.42E-04	5.26E-03	4.25E-03	1.73E-02	5.20E-02	1.11E-02
VOPAK Bitumen	Vapour Combustion Unit	1.37E-05	8.62E-07	1.33E-05	1.07E-05	4.37E-05	1.31E-04	2.79E-05
	Tank 1	7.07E-06	4.45E-07	6.84E-06	5.53E-06	2.25E-05	6.76E-05	1.44E-05
	Tank 2	9.19E-08	5.78E-09	8.89E-08	7.19E-08	2.93E-07	8.79E-07	1.87E-07
	Tank 3	2.91E-06	1.83E-07	2.81E-06	2.28E-06	9.28E-06	2.78E-05	5.93E-06
	Gantry Fugitive	9.13E-06	5.75E-07	8.83E-06	7.15E-06	2.91E-05	8.74E-05	1.86E-05

6.6 Limitations and Conservatism of Dispersion Modelling

The atmosphere is a complex, physical system, and the movement of air in a given location is dependent on a number of variables, including temperature, topography and land use, as well as larger-scale synoptic processes. Dispersion modelling is a method of simulating the movement of air pollutants in the atmosphere using mathematical equations. The model equations necessarily involve the current understanding of the complex environmental interactions and chemical reaction processes involved, available input data, processing time and data storage limitations. The model configuration particularly affects model predictions during certain meteorological conditions and source emission types. For example, the prediction of pollutant dispersion under low wind speed conditions (typically defined as those less than 1 m/s) or for low-level, non-buoyant sources, is problematic for most dispersion models. To accommodate these effects, the model is configured to provide conservative estimates of pollutant concentrations at particular locations.

The results of dispersion modelling, therefore, provide a conservative indication of the worst likely level of pollutants within the modelling domain. While the models, when used appropriately and with high quality input data, can provide very good indications of the scale of pollutant concentrations and the likely locations of the maximum concentrations occurring, their outputs should not be considered to be representative of exact pollutant concentrations at any given location or point in time.

For the purposes of this assessment a number of background and operational estimates were built in to the model to determine the cumulative ground level concentration impacts and the parameters for the worst case “peak” operational conditions. These assumptions introduce elements of conservatism which have been briefly explained in the following sections.

6.6.1 Background Literature Sources

Information from literature sources have been used in this assessment, including AQIA's for facilities adjacent to the Vopak sites. These reports were prepared for the EPA for the purposes of Development Applications or responding to a Pollution Reduction Program notice and have therefore been assumed to be valid and fit for purpose. As such, no further validation of the information provided in those reports has been undertaken for this assessment.

6.6.2 VRU Volumetric Flow Rate & Truck Headspace Vapour Ratio

The VRU volumetric flow rate was calculated based on a total of 9 gantry bays in operation (6 existing and 3 proposed), loading 3.5 tankers per hour per bay (31.5 tankers per hour), with an average truck loaded volume of 36m³, giving a peak calculated total flow of 1,134 m³/hr.

This is a highly conservative estimate given the proposed operations project a road tanker throughput of 3,700,000m³ by 2023 which averages to 11.7 tankers per hour

Vopak analysis of annual tanker loading throughput shows, that during the peak period between 3am to 7am, approximately 20% of road tanker loading occurs, which when applied to the maximum 2023 figures would increase the average from 11.7 to 14.05 road tankers per hour during the peak period.

The reduction in VRU flow rate from 1,134 m³/hr (modelled in this AQIA), to a substantially lower flow rate indicative of the predicted expected hourly peak numbers would result in a reduction in the speciated VOC emission rates.

Emissions from the truck filling gantries are generated when tankers are filled with fuel on site; as the tankers are loaded, residual vapours from the empty tankers are expelled and captured by the gantry system. The composition of the expelled vapours is dependent on the previous contents of the tanker. The tanker being filled at the Facility may have previously contained either combustibles (i.e. diesel) or flammables (i.e. petroleum), resulting in residual vapours from either of these fuels. Flammable fuels generally have higher concentrations of VOCs (particularly benzene) than combustible fuels, and as such this assessment assumed that all residual vapours through the gantry system were flammables, to ensure compliance in this “worst-case” scenario.

Based on the truck loading activities at the Vopak site, a more typical ratio of the likely truck headspace is approximately 60/40 flammable to combustible fuel vapours. If a typical headspace ratio was applied, it would result in lower average emission rates (specifically for benzene) from the VRU.

6.6.3 Petroleum (Flammables) Headspace Vapour Speciation Percentages

Following discussions between Vopak and the NSW EPA in November 2017, the headspace vapour speciation profiles available from the USEPA Speciate Database for flammable based fuels were considered for this assessment. The average value for each species of a number of representative flammable fuel profiles was adopted to calculate the individual species headspace vapour concentration and associated mass emission rate.

The headspace vapour percentage of benzene adopted for this assessment was 0.81%. Recent sampling of vapours from the VRU inlet at the Vopak site by Ektimo indicated a relative concentration of 0.5% benzene, which is 38% lower than the value used in this AQIA.

When considering the Site B benzene GLC impacts in isolation⁴ (23.99 µg/m³) and when factoring in the potential 38% reduction to the benzene mass emission rate from the VRU based on site specific sampling data, the potential Site B benzene GLC would be approximately 14.87µg/m³. This suggests a level of conservatism is built into the model due to a potential over-estimation of the benzene speciation percentage (taken from USEPA Speciate Database petroleum headspace profiles) used in lieu of available site data at the time the modelling was conducted for this AQIA.

6.6.4 Diesel (Combustibles) Liquid Composition Speciation Percentages

The VOC speciation data used for the TANKS modelling to determine the individual tanks emission rates were based on the Australian Government provided NPI default values. It is AECOMs experience that these values are considered to be conservative and would likely result in an overestimation of actual emissions.

Recent work on a similar tank farm showed a diesel liquid benzene percentage composition of closer to 0.004% and confirmed by recent product analysis conducted by Vopak in 2017 showing a benzene composition percentage of 0.003% when compared to the default NPI value of 0.03%. Additionally, the sampling from the similar tank farm also showed a diesel cumene percentage composition of 0.02% compared to the NPI default 0.96%.

⁴ Assuming that the Site B VRU is the main contributing source to the Max 99.9th Percentile Benzene GLC at or beyond the site boundary.

7.0 Dispersion Modelling Results

The NSW EPA's assessment criteria for the assessed pollutants apply to the 99.9th percentile for site-specific assessments, such as this AQIA. The data are presented for principle air toxics, individual air toxics and individual odorous air pollutants assessed at or beyond the plant boundary. Although individual odorous air pollutants are generally assessed at the nearest sensitive receptor, given the proximity of industrial receptors, at or beyond the boundary was conservatively assessed.

An additional assessment of the residential sensitive receptors has been provided to clarify any impact the Project may have on the local residential community.

7.1 Theoretical Peak Maximum Operational Assessment

The predicted maximum cumulative ground level concentrations for typical maximum operations at or beyond the site boundary, including residential receptors, resulting from the dispersion model are summarised in **Table 19**. The data is provided for the maximum cumulative impact at any modelled receptor at or beyond the Vopak site boundaries or overwater, with predicted concentration isopleths for all pollutants provided in **Appendix D**. The maximum cumulative value has been further broken up into its source contributions from Site B4, Site B, Vopak Bitumen & BLB pipe losses, and the background values as identified in **Section 5.1**.

Table 19 Maximum Cumulative Predicted Ground Level Concentrations At or Beyond the Site Boundary 99.9th Percentile (ng/m³)

Pollutant	Criteria (ng/m ³)	Ground Level Concentration (ng/m ³)					Cumulative % of Criteria
		Site B	Site B4	Vopak Bitumen & BLB1/2	Background GLC	Cumulative GLC*	
Benzene	29	23.99	0.00020	0.00046	1.31	25.30	87%
Cumene	21	0.01	14.93	0.00306	0.12	15.06	72%
Cyclohexane	19,000	10.12	0.00001	0	0.48	10.59	<1%
Ethylbenzene	8,000	8.33	0.00006	0.00036	0.34	8.67	<1%
n-Hexane	3,200	85.03	0.00040	0.00198	4.25	89.28	3%
Toluene	360	74.43	0.00032	0.00541	3.28	77.71	22%
Xylenes	190	35.04	0.00022	0.00154	1.41	36.46	19%

* Cumulative concentrations are the sum of contemporaneous impacts from Site B4, Site B, Vopak Bitumen & BLB1/2. The Background concentration was taken as the maximum 99.9th GLC at the same location as the maximum 99.9th GLC of all Vopak impacts.

As shown, the predicted maximum cumulative pollutant concentrations were all below their respective GLC assessment criteria. The following observations can be made:

- Cumulative benzene concentrations represent the pollutant with the highest proportion of the individual pollutant EPA criterion (87% of the benzene criterion). The predicted benzene isopleth is provided in **Figure 4**. The isopleth shows that the maximum cumulative benzene GLC is located on the western boundary of Site B within close proximity of the VRU, and adjacent to the waterfront in a location furthest from the residential sensitive receptors. The results suggest that the benzene emissions associated with the Site B VRU are contributing most to the cumulative result; and
- The pollutant with the second highest contribution to its EPA criterion (72% of the criterion) is cumene. The predicted cumene isopleth is presented in **Figure 5** below. The isopleth shows that the maximum cumulative cumene GLC is located on the eastern boundary of Site B4 adjacent to proposed diesel storage tanks. Site B4 contributes >99% of the cumulative cumene value, and is likely associated with the high default NPI values (for cumene in diesel) used in the TANKS model to estimate the diesel tank emissions (see **Section 6.6.4**).

The assessment predicts that no adverse impacts are likely to occur as a result of the Vopak Site B facilities proposed maximum peak operational conditions at and beyond the site boundary or at residential receptors.

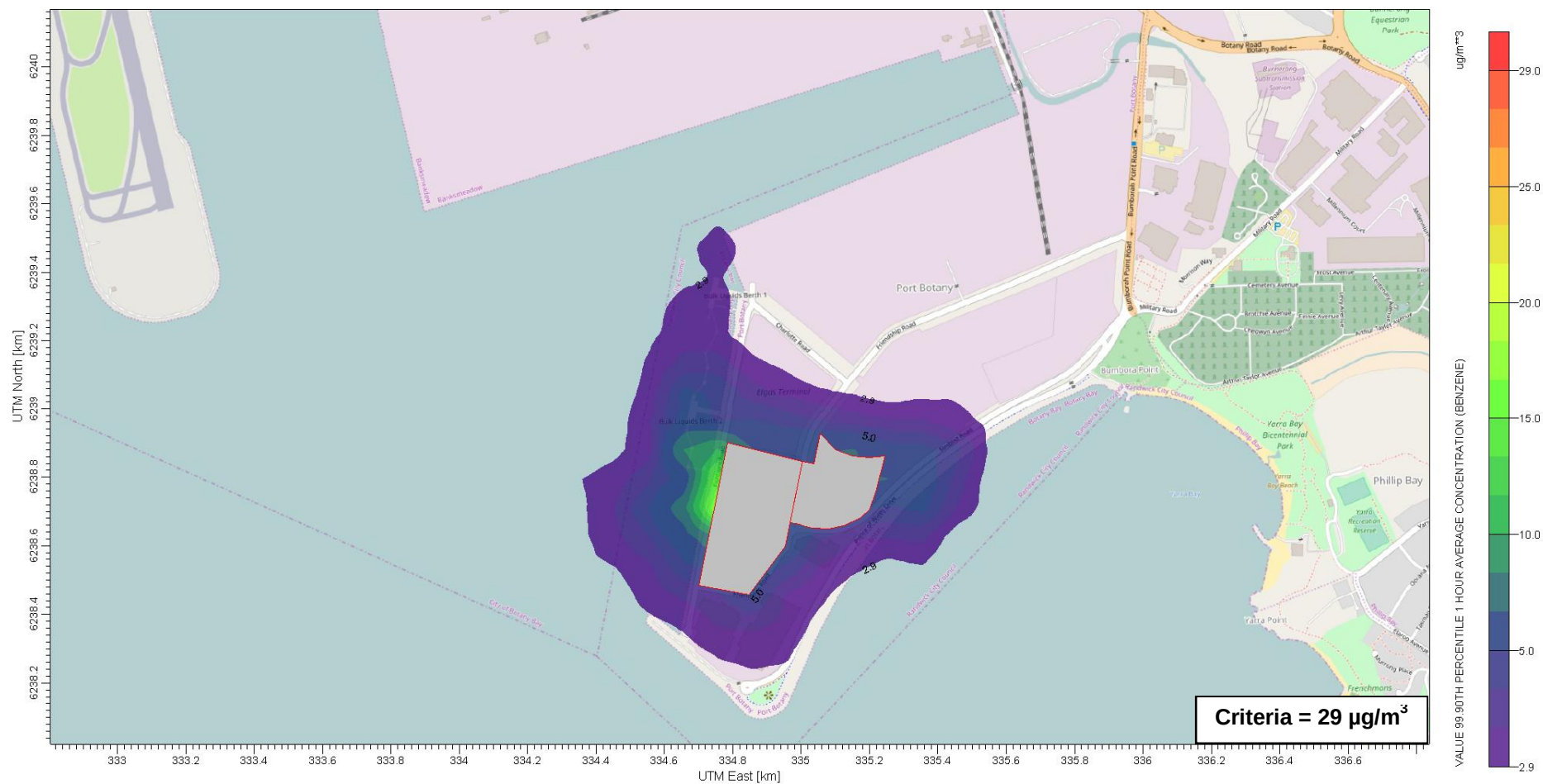


Figure 4 Maximum Cumulative Benzene Isopleth 99.9th Percentile

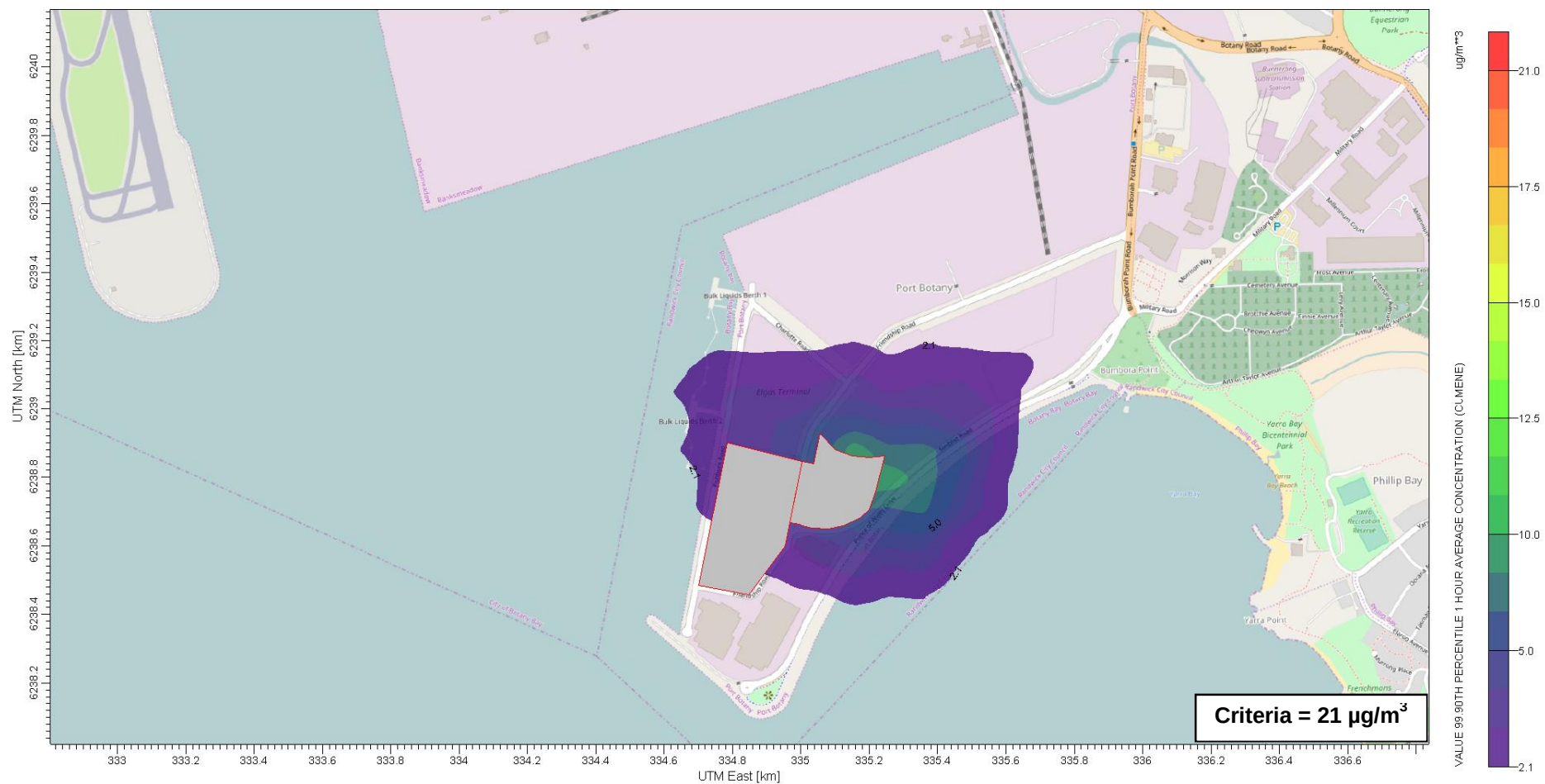


Figure 5 Maximum Cumulative Cumene Isopleth 99.9th Percentile

7.2 Specific Residential Receptor Assessment

The predicted maximum cumulative impacts provided include the selected residential receptors, and as the maximum cumulative values met the EPA criteria, subsequently the EPA criteria are also expected to be met at all residential receptors.

In order to further clarify the predicted cumulative impacts at the residential receptors the cumulative maximum 99.9th percentile GLC values have been provided **Table 20**. As shown, the predicted pollutant concentrations were all well below the assessment criteria. The maximum cumulative contribution to the EPA criteria was for benzene at Receptor 12 (Elaroo Avenue, Yarra Point) at 20%. Note that of this 5.4 µgm³ maximum, 4.6 µgm³ is from background emissions not related to Vopak operations. Subsequently, the modelled Vopak impacts at this maximum residential receptor location represent 3% of the benzene criterion.

The data show that the GLCs met the relevant assessment criteria at all residential receptors for all pollutants. Figures showing the predicted maximum cumulative concentrations are provided in **Figure 3**.

Table 20 Residential Receptor Predicted Maximum Ground Level Concentrations 99.9th Percentile (mg/m³)

#	Receptor Description	Cumulative Ground Level Concentration (ug/m³)						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	n-Hexane	Toluene	Xylenes
EPA Criterion (ug/m³)		29	21	19,000	8,000	3,200	360	190
1	Matraville Public School, Matraville	3.0	0.3	0.7	0.5	5.9	3.6	2.0
2	St Agnes Primary School, Matraville	2.9	0.3	0.7	0.5	5.7	3.6	1.9
3	Matraville High School, Chifley	3.0	0.3	0.7	0.5	5.9	3.7	2.1
4	St Andrews Primary School, Malabar	3.0	0.3	0.7	0.5	5.8	3.6	2.0
5	Malabar Public School, Malabar	2.9	0.3	0.7	0.5	5.5	3.6	1.9
6	23 Adina Avenue, Phillip Bay	5.2	0.5	0.8	0.6	6.3	3.9	2.3
7	61 Yarra Road, Phillip Bay	5.3	0.6	0.9	0.6	6.9	4.0	2.5
8	52 Eyre Street, Chifley	3.2	0.5	0.9	0.6	6.5	3.9	2.4
9	26 Moorina Avenue, Matraville	3.2	0.4	0.8	0.6	6.6	3.9	2.3
10	5 Clonard Way, Little Bay	5.2	0.5	0.8	0.6	6.3	3.9	2.3
11	Botany Golf Club, Banksmeadow	2.5	0.5	1.0	0.7	8.5	3.9	2.8
12	Elaroo Avenue, Yarra Point	5.4	0.7	0.9	0.6	7.1	4.0	2.6
13	La Perouse Point, ANZAC Parade	4.5	0.6	0.9	0.6	6.9	3.9	2.5

8.0 Tiered Procedure for Estimating Ground-Level Ozone Impacts from Stationary Sources – Site B4

Assessment of the air quality impacts from stationary sources of oxides of nitrogen (NO_x) and VOCs needs to consider the potential generation of ground-level ozone. The NSW EPA have developed a tiered approach to ozone impact assessment for this purpose (ENVIRON 2011). The assessment framework includes:

- Guidance on the application of a level 1 assessment – screening procedure; and
- Guidance on the application of a level 2 assessment – refined procedure.

The steps required under the tiered procedure, as they apply to the assessment, are provided in the following sections in accordance and with reference to the tiered procedure document (ENVIRON 2011).

8.1 Region Classification

The initial step involves the classification of the region within which the source is to be located as either an ozone “attainment area” or “non-attainment area” based 1 hour and 4 hour average ozone concentrations recorded over a five year period. The different categories have varying assessment criteria for triggering the need for an ozone assessment; non-attainment areas have stricter thresholds. The assessment document identified that for 2006-2010 the Sydney region is defined as a non-attainment area, a result that is highly likely should the most recent 5 year period be assessed. This report assumes that the Vopak B4 site is located in a non-attainment area.

8.2 Threshold Assessment

The second step in the procedure involves the evaluation of the source’s emissions against the new or modified source thresholds for NO_x and VOC emissions. Total emissions from the new or modified source, from all individual emission units, are compared to the emission thresholds.

For a source with emissions below the relevant emission threshold, an ozone impact assessment is not required. Where source emissions are above the relevant emission threshold, a Level 1 assessment should be undertaken using the Level 1 screening procedure tool.

To be consistent with the cumulative assessment of Vopak emissions in Port Botany, the total tonnes per year of VOCs emitted for Vopak sites B1, B2, B3 (GHD 2006) and B4 (current assessment; **Appendix B**) have been calculated and compared against the thresholds.

The reported tonnes per annum (tpa) from B1, B2 and B3, including emissions from storage tanks and truck loading (gantry) was 68 tpa VOC. The estimated tpa from the B4 facility, as calculated from the TANKS data provided in **Appendix B**, is 26 tpa VOC. No significant stationary NO_x sources are expected from the Vopak sites. The total cumulative VOC emission from the Vopak sites is 86 tpa (0.236 t/day).

The non-attainment threshold applicable for a modified source (applicable as the review is cumulatively assessing the Vopak sites) for the application of a Level 1 Screening Assessment is >35 tpa. The assessment triggers this threshold and hence a Level 1 Screening Assessment is required.

8.3 Level 1 Screening Assessment

Criteria for determining the significance of predicted incremental increase in ambient ozone concentrations for non-attainment areas comprise the evaluation of sources against a screening impact level (SIL) of 0.5 ppb and against the maximum allowable increment of 1 ppb.

In cases where the maximum ozone increment is below the SIL and/or below the relevant maximum allowable increment, further ozone impact assessment is not required but a best management practice (BMP) determination should be undertaken for the source.

In the event the impacts are greater than the maximum allowable increment, the EPA may consider the impact of the source on local and regional air quality and may require that a Level 2 refined assessment be undertaken for the source.

To undertake the Level 1 Screening Assessment the EPA (with ENVIRON 2011) has created a Level 1 Screening Tool and is available on the EPA website (<http://www.epa.nsw.gov.au/air/appmethods.htm>). Specific data is entered into the tool, including source region and the tonnes per day of VOC and NO_x, and the ozone impacts are calculated. In the case of this assessment, the calculated Vopak cumulative tonnes/day (previously provided as 0.236 t/day VOC) was entered into the model and the incremental and cumulative ozone values calculated by the tool. The results of the tool calculation are provided below:

- Maximum 1-hr Ozone Increment = 0.080 ppb (threshold is 1 ppb); and
- Maximum 4-hr Ozone Increment = 0.054 ppb (threshold is 1 ppb).

The results of the tool show that the designated thresholds are not exceeded and therefore no further ozone assessment is required. A review of BMP is provided in **Section 8.4**.

Note that there are no significant stationary sources of NO_x at the Vopak sites, although mobile vehicle NO_x emissions from the truck loading are notable at 23 tpa NO_x. VOC emissions from mobile vehicles is also notable at 7 tpa. The EPA assessment applies to stationary sources only. However, should the mobile vehicle NO_x and VOC emissions be included in the assessment (totalling 117tpa, 0.320 t/day) the threshold would still not be exceeded (0.11 ppb 1 hour increment and 0.073 ppb 4 hour increment).

8.4 Best Management Practice (BMP) Review

The operations for the Vopak B4 site are relative simple, being an arrangement of liquid storage tanks. The gasoline tanks are designed with with a geodesic dome with full contact aluminium internal floating roof, while the diesel allocated tanks have a fixed geodesic domed roof. The design of the tanks relevant to the type of fuel stored is industry standard (API 650).

With respect to the adjacent Vopak sites, the truck loading gantry emissions are filtered through a vapour recovery unit (VRU). The use of a VRU for truck loading emissions is industry standard and regulated by the NSW POEO Act and regulations.

9.0 Recommended Mitigation Measures

The following section provides a discussion of potential construction and operational mitigation measures which may be implemented to minimise air pollutant emissions from the site.

9.1 Construction Mitigation Measures

Mitigation of air quality impacts relating to construction works essentially relates to management such works. For any construction activity, the focus should be on implementing a strict dust and air quality management regime. Mitigation measures for the Project are to be detailed in the Construction Environmental Management Plan (CEMP). All reasonable and feasible management measures should be documented and employed where practicable to do so. Management plans and monitoring programs should be suitably documented for easy reference throughout the process.

Vopak has prepared CEMPs as part of the construction of the existing neighbouring facilities and for subsequent modifications, which provide the framework for the implementation of environmental management requirements necessary for the construction phase of the Project. Prior to each construction phase the CEMP was updated and reviewed by the relevant agency stakeholders as nominated by the Project Approval. Subject to approval, the Project will also be subject to a specific CEMP that incorporates the outcomes and recommendations of the EIS.

A key objective of the CEMP is to clearly outline the procedures to address and manage potential environmental impacts associated with the activities. As a minimum, the plan should outline the following aspects related to the works:

- Environmental Policy;
- Environmental Management Structure, Communication and Responsibility;
- Approval and Licensing Requirements;
- Reporting;
- Emergency Contacts and Response;
- Environmental Management Activities and Controls;
- Environmental Monitoring;
- Complaints;
- Corrective Action; and
- Environmental Management Plan Review.

The mitigation measures recommended for inclusion for the construction period are as follows:

- All vehicles and plant/equipment should be fitted with appropriate emission control equipment and be serviced and maintained in accordance with the manufacturers' specifications. Smoke from vehicles/plant should not be visible for more than ten seconds;
- Trucks entering and leaving the premises that are carrying loads of dust-generating materials must have their loads covered at all times, except during loading and unloading;
- Hard surfaces or paving should be used where possible, as unpaved routes can account for a significant proportion of fugitive dust emissions, particularly during dry/windy conditions. Routes should be inspected regularly and repaired when necessary, and roads should be swept and watered as required to limit dirt/dust build up and potential dust generation during windy conditions;
- Any areas on site that are not covered with hard surfaces should be vegetated wherever possible to minimise wind erosion and associated dust generation;
- All vehicles should be switched off when not in use for extended periods;
- Use of water carts and/or road sweeping to minimise dust generation. The frequency of operation is to be increased during dry windy conditions which create a higher potential for dust generation;
- Wetting and covering of stockpiles where hazardous material has been encountered;

- Active excavation area works are wet down with hoses; and
- Housekeeping is maintained to keep exposed areas to a minimum.

9.2 Operational Mitigation Measures

Operational mitigation measures are those implemented after operations have commenced in accordance with its development consent. Operational mitigation measures focus on undertaking of specific activities in a manner designed to minimise environmental impacts. The following subsections describe the operational mitigation measures proposed to minimise air quality impacts.

9.2.1 Site B Vapour Recovery Unit

Vopak are committed to operating the proposed improved performance vapour recovery system on the truck loading gantry, which accommodates for the proposed increase in throughput. The following stack design measures have been proposed to ensure compliance with ground level concentration criteria, and minimise offsite air quality impacts:

- Stack venting from the new VRU at Site B would occur at 15m above ground level (5m taller than proposed originally) with vertical momentum i.e. no 'witches' hat, T-junctions or other units that may limit the stacks vertical velocity; and
- Propose an interim stack concentration limit at 4 mg/L of total unrecovered vapours. This limit is less than half of the 10 mg/L limit proposed by the NSW EPA, and considerably lower than the regulatory limit of 110 mg/L of volatile organic liquid outlined in *cl. 64.d ii)* of the *Protection of the Environment (Clean Air) Regulation 2010 (NSW)*.

In addition to the above measures it is recommended that following commissioning of the new VRU, emissions testing be carried out to characterise speciated VOC emissions from the stack under normal operating conditions, to determine site specific headspace percentages for each pollutant.

Following emissions testing a Level 2 air quality assessment should be carried out in accordance with the *Approved Methods* (EPA 2017), which updates all relevant mass emission rates based on Vopak site specific sampling data. A verification report containing the stack testing and dispersion modelling results should be prepared and submitted to the EPA for review.

The objective of the verification report is to recommend a permanent VRU limit based on the updated operational AQIA results, which does not exceed the original limit of 10 mg/L of Total Unrecovered Vapours proposed by the NSW EPA, but still maintains environmental compliance with all relevant ground level concentration criteria in the *Approved Methods* (EPA 2017).

9.2.2 Air Quality Management Plan

An Air Quality Management Plan (AQMP) should be prepared in accordance with conditions of consent and the Environment Protection Licence for Project. The following information should be included:

- Sensitive receptors in proximity to the site;
- The legislative framework and standards applicable to the operation;
- Potential contributors to off-site pollutant impacts, including the pollutants that are of concern;
- Mitigation measures required to minimise the operation's effects on local air quality;
- Contingency plans for complaints and pollution incidents; and
- Review and reporting protocols.

9.3 Potential Benzene Mitigation Measures

A qualitative assessment of potential options for future consideration to reduce the annual Vopak Benzene emissions was conducted with the main items presented in the following sections.

9.3.1 Site B Tank Roof Modifications

The potential to reduce benzene emissions by the modification of existing tank roof types & fittings to a theoretical “best-case” scenario was examined using the TANKS modelling software.

For the purposes of this ideal scenario, all tank contents, dimensions and throughputs were replicated from **Section 6.4.2**, however each IFR tank was assumed to be self-supporting, have welded roofing and dual seals, to maximise potential benzene emission reductions.

The results indicated that based on the TANKS modelling, a potential annual reduction of 115kg of benzene released from the Site B tanks could be achieved in that ideal scenario. It should be noted that conversion of existing roof tanks & seals may require considerable financial outlay and as such modifications should be targeted at sources that provide the greatest impact with regards to benzene emission reduction.

9.3.2 Pipeline Flanges & Pump Seals

Vopak are committed to assessing the feasibility and cost/benefit ratio of updating their pipeline flanges and pumps seals to industry best practice (where not already implemented) to minimise fugitive VOC emissions from these items.

Previous assessment of the flange and pump emissions undertaken in the *Proposed Expansion to Site B Bulk Liquids Storage Terminal, Environmental Assessment (GHD 2006)* adopted emission factors from Table 13 of the *National Pollution Inventory Emissions Estimation Technique Manual for Petroleum Refining* (NPI 1999). The assessment used the Leak/No-Leak Method, adopting ‘no leak’ emission factors in Table 13 of the Emissions Estimation Technique Manual (EETM) for process fugitives for both flanges and pump seals for light liquids.

The emission factors and number of fittings that were applied in this AQIA are summarised in **Table 17** and were used to calculate the TVOC annual loss in kg/year, which was then speciated to determine the Benzene fugitive emissions and presented in **Table 21**.

Table 21 Pipeline Parameters –Estimated Annual Benzene Fugitive Emissions

Pipe Loss Source	Emission Factor (kg/hr)	Estimated Annual Benzene Fugitive Emissions (kg/year)
Connections / flanges	0.00006	12
Valves	0.0017	104
Pump seals	0.012	9
Compressors	0.0894	0
Pressure relief valves	0.0447	0
Open ended lines	0.0015	0

It is recommended that following commissioning of Site B4 and the associated changes to the Site B infrastructure to accommodate the increased annual throughput, that a representative Leak Detection survey be conducted to determine the extent of any fugitive benzene emissions associated with leaks from the pipeline flanges and pumps. Where leaks are detected, Vopak will assess options to minimise the benzene fugitive emissions from these locations, such as replacing pump or flange seals if practical. It should be noted, what when compared to the modelled emissions, that mitigating all flange/pump seal fugitive emissions may only result in a maximum annual benzene emissions decrease of 21 kg.

10.0 Conclusion

AECOM conducted an assessment of the potential effects on air quality associated with the proposed capacity increase and associated infrastructure to the Vopak Site B Terminal at Port Botany NSW. Vopak has proposed an increase in storage tank emissions due to an increase in throughput from 3,950Mlpa to 7,800Mlpa, with a mixture of petroleum, diesel, biodiesel, ethanol and jet fuel stored on-site. The proposed increase would also require an upgrade or replacement of the existing vapour recovery unit to handle an increase in VOC emissions from the gantry. This assessment has also incorporated the operation of the proposed bulk liquid fuel storage facility at Vopak Site B4, Bulk Liquid Berths and Vopak Bitumen. In addition to potential emissions from Vopak operations this assessment undertook a review of other potential VOC sources in proximity to the project and incorporated this into a cumulative assessment to cover the major VOC emissions sources in Port Botany.

This assessment investigated the effects of the proposed operations on the air quality of the surrounding environment. The assessment of air emissions was limited to VOCs during operation of the proposed facility. VOC concentrations at sensitive receptor locations were estimated through dispersion modelling using the CALPUFF program. A cumulative assessment including local VOC emissions was included.

The results of the modelling predicted that all assessed VOC concentrations would be less than the relevant EPA guideline criteria at all sensitive receptor locations assessed at and beyond the site boundary and at residential areas.

In accordance with EPA requirements, a tiered approach to ozone impact assessment was undertaken for the Project. The assessment identified that the site triggered the requirements to undertake a level 1 assessment based on total annual VOC emissions. The Tier 1 assessment confirmed that the Project emissions do not trigger further thresholds and as such no further assessment beyond the Tier 1 assessment undertaken was required.

It should be noted that the predicted ground level concentrations in this assessment are based on a theoretical peak worst-case operational scenario. Any potential operational changes or site modifications that result in a reduction of the emission rates from any sources, including the tanks, VRU or pipeline fittings will also result in reductions in the ground level concentration impacts.

This air quality impact assessment predicts that the operation of Vopak Site B under the proposed capacity increase together with other existing or currently approved Vopak operations is not expected to adversely affect the airborne environment or amenity of sensitive receptors.

11.0 References

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Appendix A

Meteorological Data Analyses

Appendix A Meteorological Data Analyses

Wind roses were prepared to compare the data used in the modelling to data recorded at Sydney Airport over the longer term. The BoM website provides historical wind roses for 9am and 3pm only, so in order to analyse the CALMET data wind roses for the combined years 2013, 2014 and 2015 have been prepared for annual and seasonal time periods. The wind rose comparison is provided over page, comparing the CALMET data centred on the airport against the BoM Sydney Airport data.

The annual wind roses were similar, showing strong components from the north-easterly, north-westerly and south directions, with lesser winds present from all other directions. The annual percentage of calms were similar with 0.7 % for CALMET versus 0.2 % for BoM. A review of the seasonal wind roses shows a strong correlation between CALMET and BoM.

The wind directions at 9 am showed similar data, with a large proportion of winds from the northwest and south. The 3 pm wind roses both showed a strong north-easterly component for both datasets, however the Sydney Airport data did show a larger southerly and easterly component. The wind speeds recorded at BoM were generally stronger than those predicted by CALMET.

A review of the CALMET wind speed categories is provided below. The data show that winds are typically mild to high with 85% of the winds between 2.1 and 8.8 m/s. Given the coastal location of the Airport this is considered a reasonable representation. This is further justified by the three year (2013-2015) data from the below wind roses reporting a calm percentage of 0.2%, meaning high winds are expected.

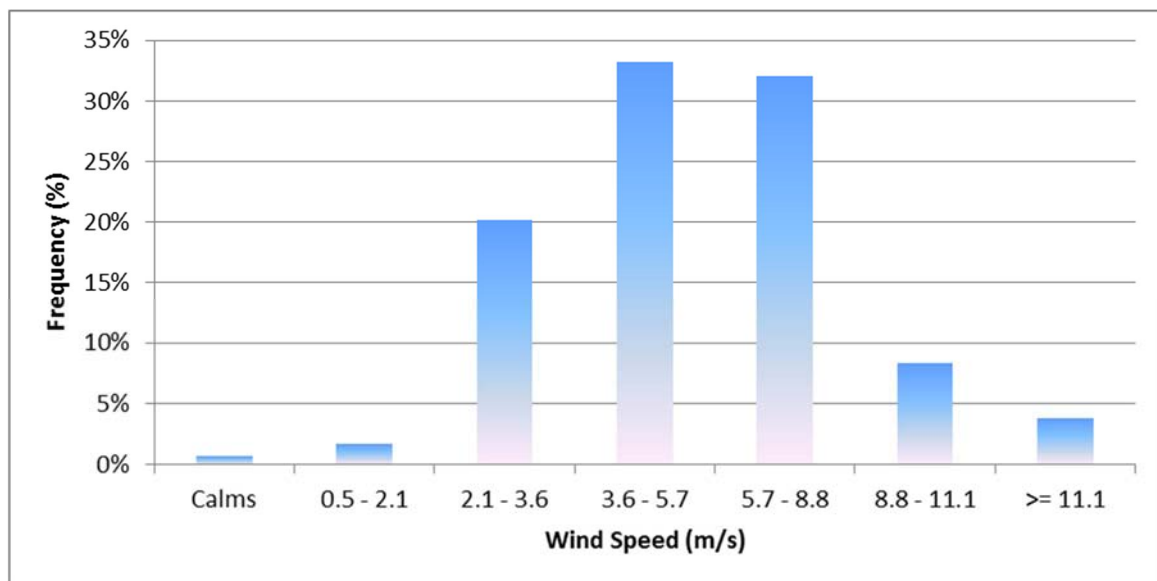


Figure Wind Speed Frequency Distribution

A review of the wind speeds by hour of day has been provided over page. The data show typical trends, with the average strongest winds in the daytime hours and lowest at night time. There is a notable range between the maximum and minimum, however the 10th percentile to 90th percentile data shows a balanced range.

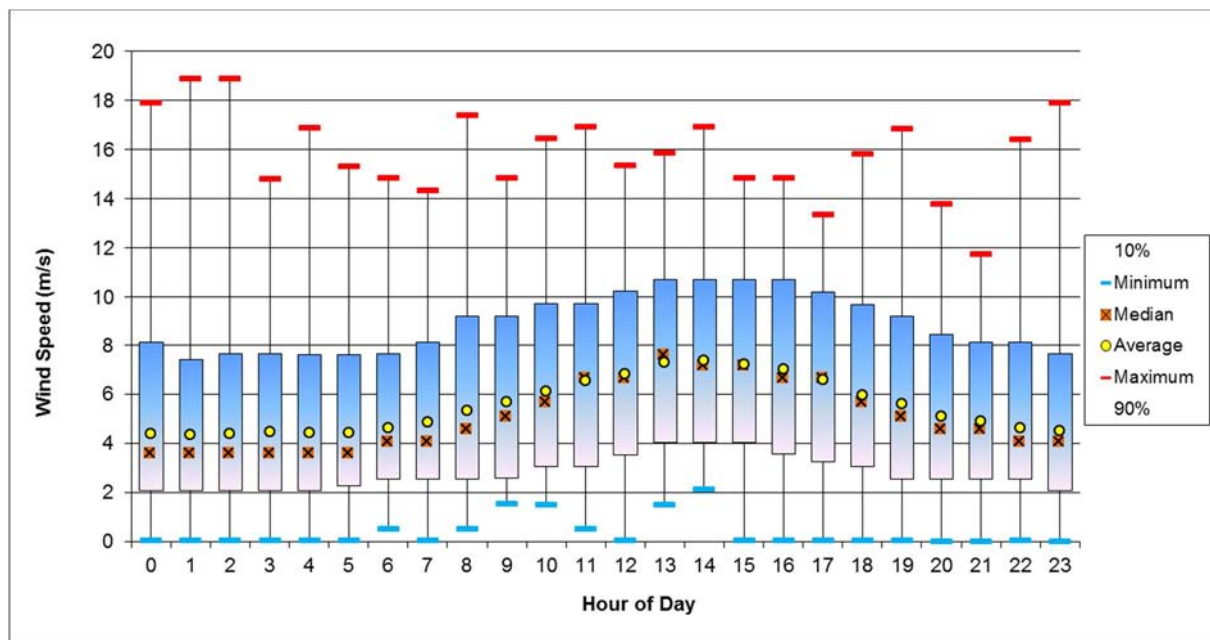


Figure Wind Speed Distribution by Hour of Day

A review of the stability classes for CALMET centred on the airport and on the Vopak B4 site. The data show mostly neutral conditions (condition D) at both locations, with slightly more variability at the Vopak B4 site.

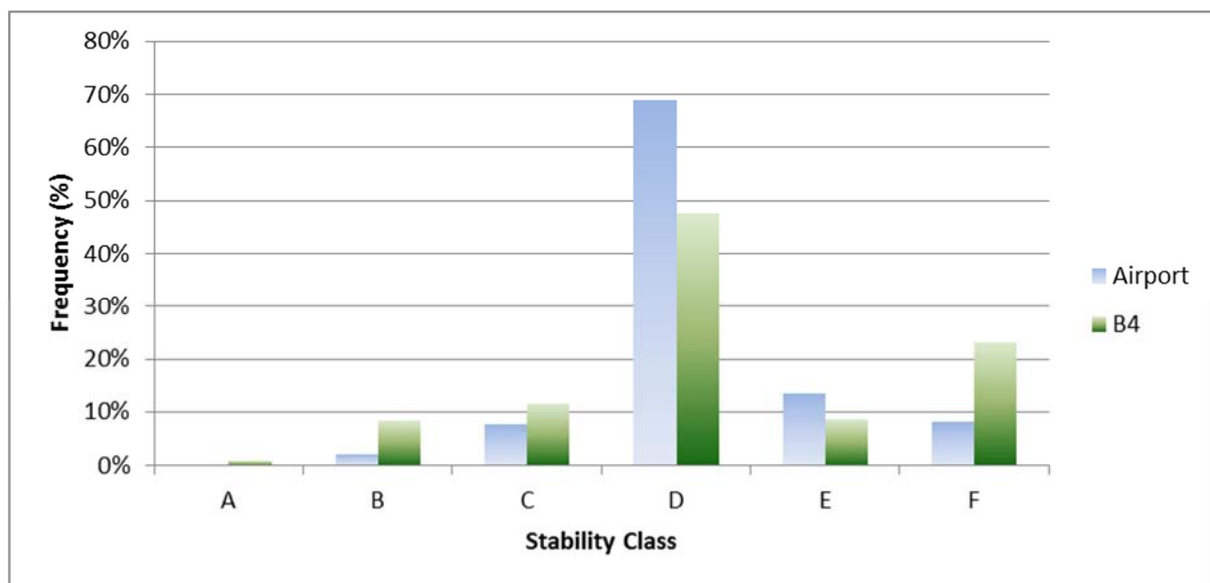
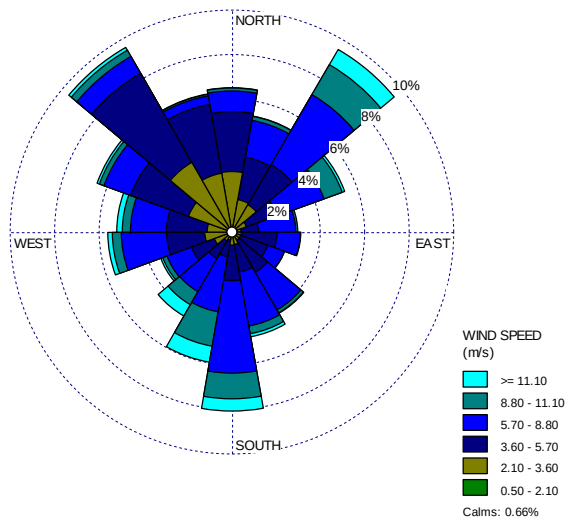
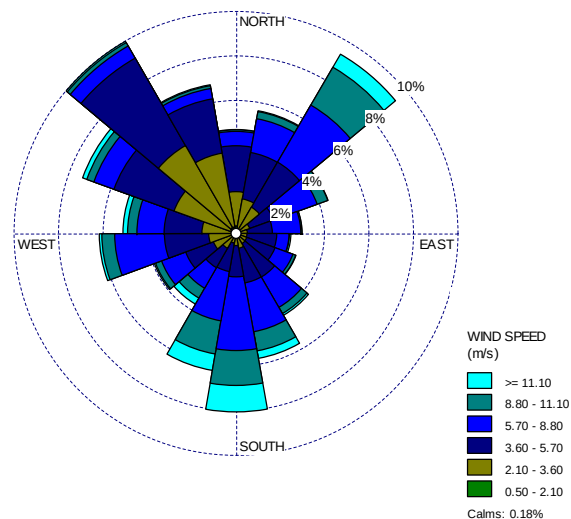
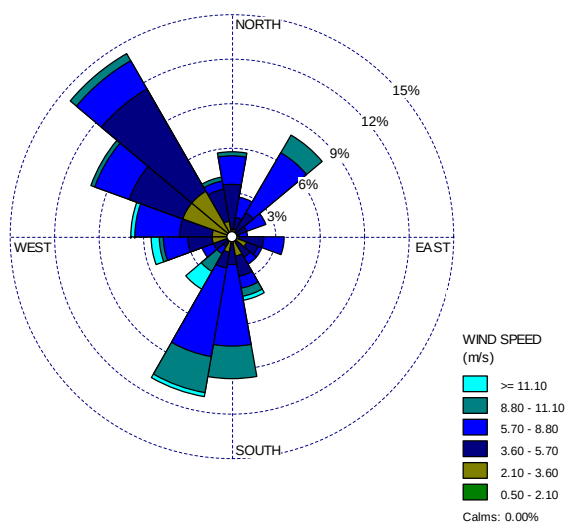


Figure Stability Class Frequency

A summary of the Sydney Airport long term Climatic data is provided at the end of this section.

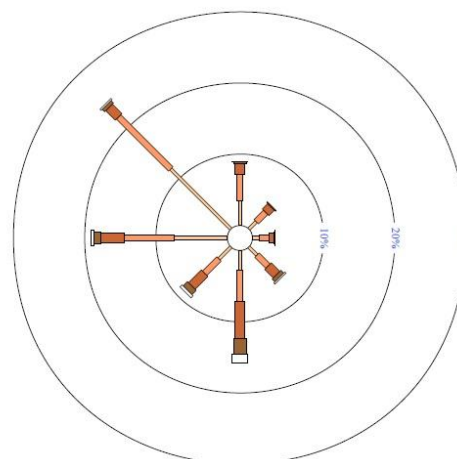
CALMET Airport 2014 vs BoM Sydney Airport Long Term**CALMET Airport – Annual, all hours 2014****BoM Sydney Airport – Annual, 2013-2015****CALMET Airport – Annual, 9 am, 2014**

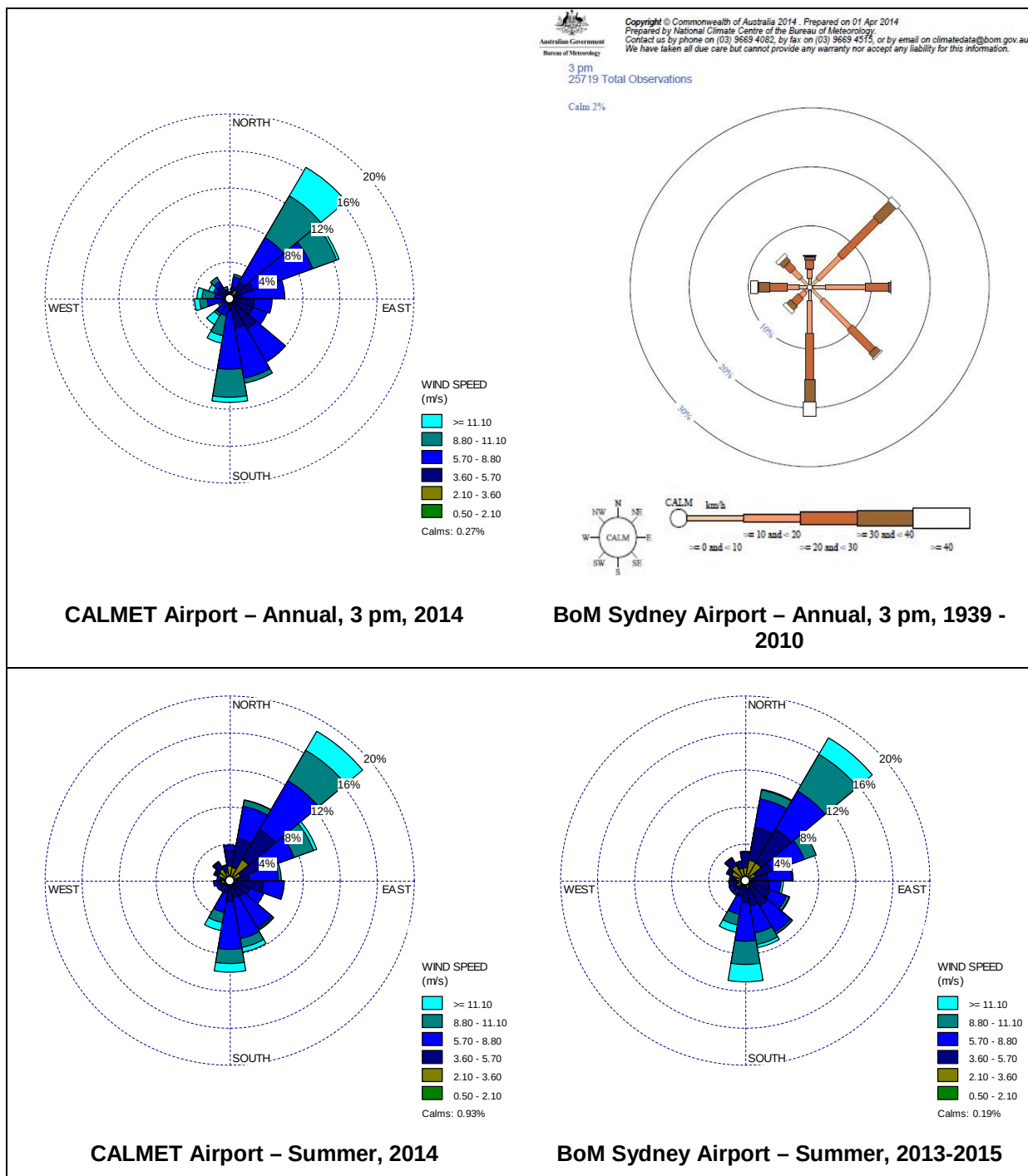
Australian Government
Bureau of Meteorology

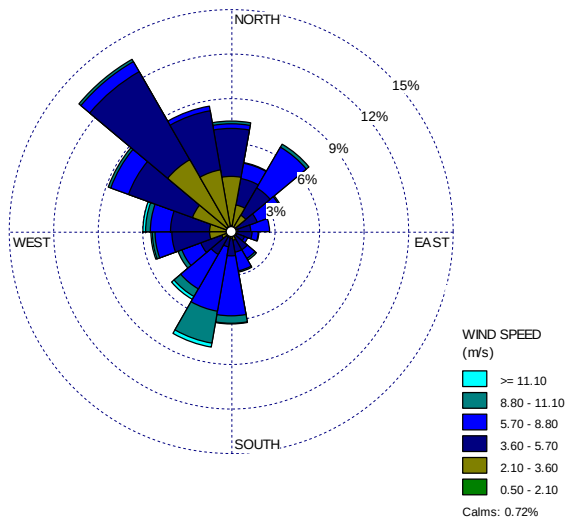
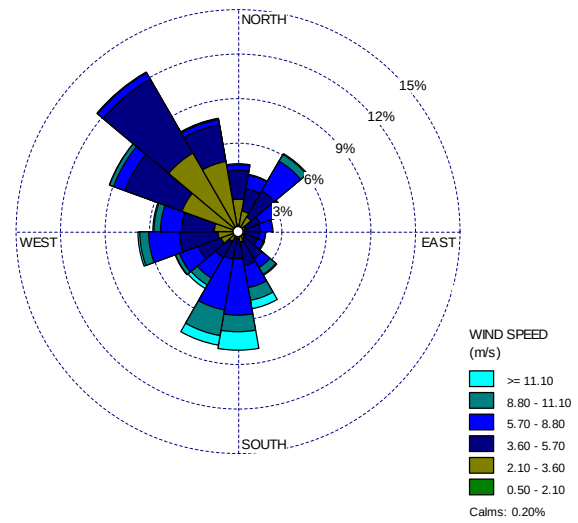
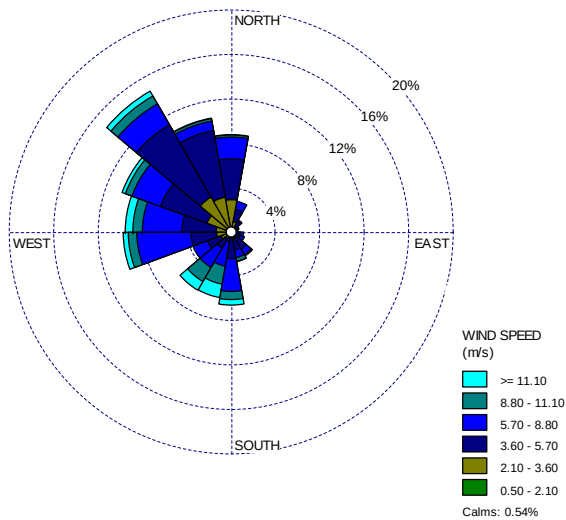
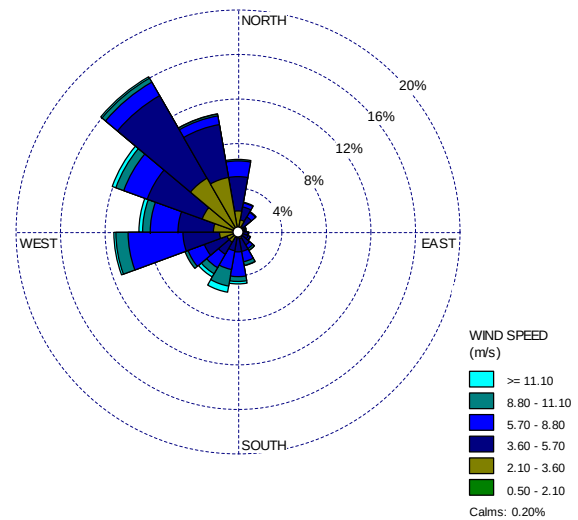
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Prepared by National Climate Centre of the Bureau of Meteorology
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on climatedata@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

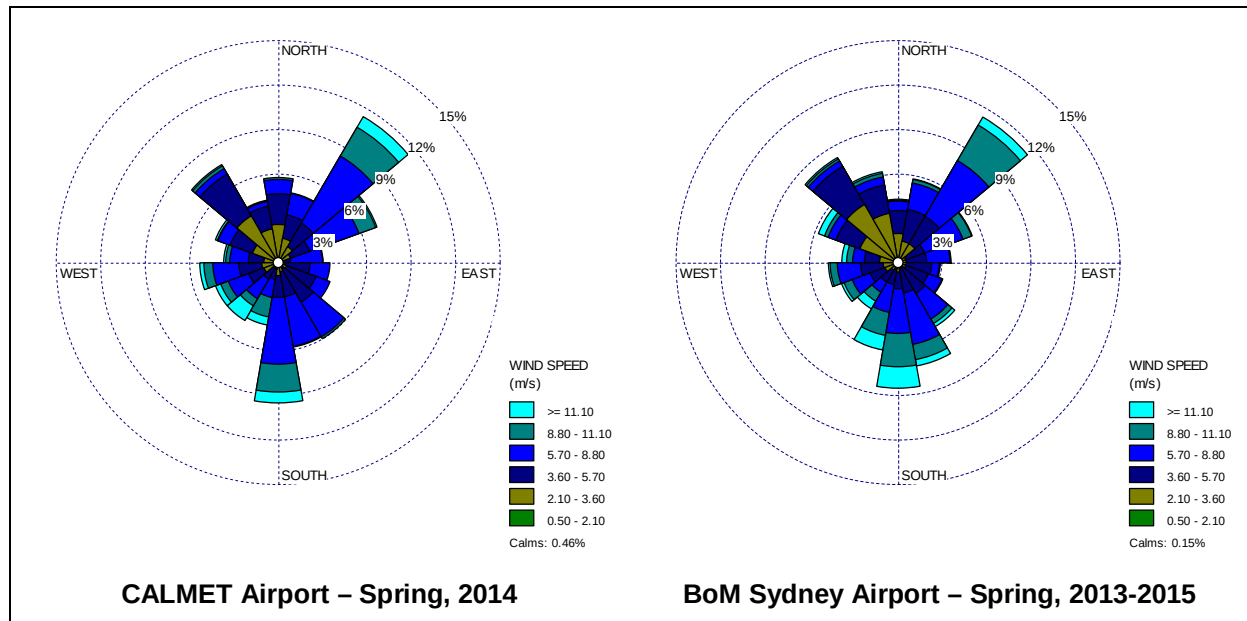
9 am
25642 Total Observations

Calm 9%

**BoM Sydney Airport – Annual, 9 am, 1939 – 2010**



**CALMET Airport – Autumn, 2014****BoM Sydney Airport – Autumn, 2013-2015****CALMET Airport – Winter, 2014****BoM Sydney Airport – Winter, 2013-2015**



Climate Averages: Sydney Airport AMO (Site Number 066037) – 1939 - 2015

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years		
Average temperature (°C)																
Maximum	26.5	26.4	25.3	22.9	20	17.6	17	18.3	20.6	22.6	24.1	25.8	22.3	76	1939	2015
Minimum	18.9	19.1	17.6	14.2	10.9	8.7	7.2	8.2	10.5	13.2	15.4	17.5	13.5	76	1939	2015
Average rainfall																
Rainfall (mm)	94	111.9	115.4	109.3	98.7	122.8	69.9	77	60.2	70.7	81.5	74.1	1085.4	86	1929	2015
Number of days of rain ≥ 1 mm	8	8.6	9.2	8.6	8.5	8.8	6.6	6.9	6.8	7.8	8.4	7.8	96	86	1929	2015
Average 9 am conditions																
Temperature (°C)	22.4	22.3	21.1	18.2	14.6	11.9	10.8	12.5	15.7	18.4	19.9	21.6	17.4	71	1939	2010
9 am relative humidity (%)	70	73	73	71	73	74	71	65	62	61	64	66	69	60	1939	2010
9 am wind speed (km/h)	14.4	13.8	12.9	12.9	12.6	13.4	13.3	14.4	15.5	16.3	16	14.8	14.2	70	1939	2010
Average 3 pm conditions																
Temperature (°C)	24.8	24.8	23.9	21.7	19	16.6	16.1	17.2	19	20.7	22.1	23.9	20.8	71	1939	2010
3 pm relative humidity (%)	60	63	61	59	58	57	52	49	51	54	56	58	57	60	1939	2010
3 pm wind speed (km/h)	24.1	23	21	19.3	17.1	17.8	18.2	20.8	23.1	24.6	25.3	25.2	21.6	70	1939	2010
Source: http://www.bom.gov.au/climate/averages/tables/cw_066037.shtml ; accessed 14 May 2015																

Appendix B

TANKS Details

Appendix B TANKS Details

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: _2017 T101 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Jet

Tank Dimensions

Diameter (ft): 118.10
Volume (gallons): 4,650,462.00
Turnovers: 14.82
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,190.88

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	74
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	21
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meteorological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T101 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Jet kerosene	Jan	74.28	66.29	82.28	64.81	0.2918	N/A	N/A	87.8787			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.7133	N/A	N/A	78.1100	0.0037	0.0368	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0283	0.0142	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0052	0.0053	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0465	0.7458	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0127	N/A	N/A	130.0000	0.8838	0.0527	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.5076	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Feb	73.64	66.36	80.92	64.81	0.2872	N/A	N/A	87.8683			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.6850	N/A	N/A	78.1100	0.0037	0.0368	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0283	0.0141	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0052	0.0053	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0465	0.7462	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0125	N/A	N/A	130.0000	0.8838	0.0525	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.4983	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Mar	72.15	65.15	79.15	64.81	0.2766	N/A	N/A	87.8419			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.6207	N/A	N/A	78.1100	0.0037	0.0367	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0283	0.0139	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0120	0.1236	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0052	0.0052	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0465	0.7473	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0119	N/A	N/A	130.0000	0.8838	0.0519	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.4769	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0188	0.0159	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Apr	68.78	62.46	75.11	64.81	0.2538	N/A	N/A	87.7953			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.4827	N/A	N/A	78.1100	0.0037	0.0366	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0283	0.0135	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0120	0.1236	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0052	0.0051	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0465	0.7494	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0107	N/A	N/A	130.0000	0.8838	0.0511	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.4316	N/A	N/A	92.1300	0.0018	0.0052	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0188	0.0155	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	May	65.15	59.75	70.54	64.81	0.2312	N/A	N/A	87.7809			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.3447	N/A	N/A	78.1100	0.0037	0.0365	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0283	0.0130	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0120	0.1233	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0052	0.0050	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1941	N/A	N/A	86.1700	0.0465	0.7508	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0098	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3868	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0188	0.0150	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Jun	62.81	57.84	67.78	64.81	0.2176	N/A	N/A	87.7665			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.2620	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0283	0.0126	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0120	0.1232	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0052	0.0049	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0465	0.7518	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0092	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3602	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0188	0.0147	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Jul	62.13	56.74	67.52	64.81	0.2137	N/A	N/A	87.7614			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.2386	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0283	0.0125	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0120	0.1232	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0052	0.0048	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0465	0.7521	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0090	N/A	N/A	130.0000	0.8838	0.0512	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3527	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0188	0.0146	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Aug	64.21	57.69	70.74	64.81	0.2257	N/A	N/A	87.7756			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.3111	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0283	0.0128	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0120	0.1233	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0052	0.0049	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0465	0.7512	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0096	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3759	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0188	0.0149	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Sep	66.91	59.48	74.35	64.81	0.2420	N/A	N/A	87.7890			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.4103	N/A	N/A	78.1100	0.0037	0.0366	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0283	0.0132	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.4565	N/A	N/A	84.1600	0.0120	0.1235	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1375	N/A	N/A	106.1700	0.0052	0.0050	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.2839	N/A	N/A	86.1700	0.0465	0.7501	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0102	N/A	N/A	130.0000	0.8838	0.0512	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.4080	N/A	N/A	92.1300	0.0018	0.0052	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1148	N/A	N/A	106.1700	0.0188	0.0152	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Oct	69.93	61.90	77.95	64.81	0.2613	N/A	N/A	87.7981			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.5284	N/A	N/A	78.1100	0.0037	0.0367	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0736	N/A	N/A	120.2000	0.0283	0.0136	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5755	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1521	N/A	N/A	106.1700	0.0052	0.0051	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.4629	N/A	N/A	86.1700	0.0465	0.7491	86.17	Option 2: A=6.876, B=1171.17,

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T101 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Jet kerosene	262.79	135.99	94.33	149.83	642.94
Benzene	9.63	0.50	3.46	5.49	19.07
Cumene (Isopropyl benzene)	3.55	3.85	1.28	2.03	10.70
Cyclohexane	32.46	1.63	11.65	18.51	64.25
Ethyl benzene	1.34	0.70	0.48	0.77	3.30
Hexane (-n)	196.76	6.32	70.63	112.18	385.89
Jet kerosene	13.59	120.18	4.88	7.75	146.40
Toluene	1.38	0.24	0.49	0.78	2.90
Xylene (-m)	4.08	2.56	1.47	2.33	10.43

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T102 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Jet

Tank Dimensions

Diameter (ft): 118.10
Volume (gallons): 4,650,462.00
Turnovers: 14.82
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Vapor-mounted
Secondary Seal: Rim-mounted

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,190.88

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	74
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	21
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T102 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Jet kerosene	Jan	74.28	66.29	82.28	64.81	0.2918	N/A	N/A	87.8787			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.7133	N/A	N/A	78.1100	0.0037	0.0368	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0283	0.0142	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0052	0.0053	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0465	0.7458	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0127	N/A	N/A	130.0000	0.8838	0.0527	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.5076	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Feb	73.64	66.36	80.92	64.81	0.2872	N/A	N/A	87.8683			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.6850	N/A	N/A	78.1100	0.0037	0.0368	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0283	0.0141	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0052	0.0053	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0465	0.7462	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0125	N/A	N/A	130.0000	0.8838	0.0525	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.4983	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Mar	72.15	65.15	79.15	64.81	0.2766	N/A	N/A	87.8419			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.6207	N/A	N/A	78.1100	0.0037	0.0367	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0283	0.0139	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0120	0.1236	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0052	0.0052	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0465	0.7473	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0119	N/A	N/A	130.0000	0.8838	0.0519	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.4769	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0188	0.0159	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Apr	68.78	62.46	75.11	64.81	0.2538	N/A	N/A	87.7953			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.4827	N/A	N/A	78.1100	0.0037	0.0366	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0283	0.0135	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0120	0.1236	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0052	0.0051	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0465	0.7494	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0107	N/A	N/A	130.0000	0.8838	0.0511	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.4316	N/A	N/A	92.1300	0.0018	0.0052	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0188	0.0155	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	May	65.15	59.75	70.54	64.81	0.2312	N/A	N/A	87.7809			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.3447	N/A	N/A	78.1100	0.0037	0.0365	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0283	0.0130	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0120	0.1233	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0052	0.0050	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1941	N/A	N/A	86.1700	0.0465	0.7508	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0098	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3868	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0188	0.0150	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Jun	62.81	57.84	67.78	64.81	0.2176	N/A	N/A	87.7665			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.2620	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0283	0.0126	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0120	0.1232	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0052	0.0049	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0465	0.7518	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0092	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3602	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0188	0.0147	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Jul	62.13	56.74	67.52	64.81	0.2137	N/A	N/A	87.7614			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.2386	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0283	0.0125	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0120	0.1232	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0052	0.0048	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0465	0.7521	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0090	N/A	N/A	130.0000	0.8838	0.0512	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3527	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0188	0.0146	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Aug	64.21	57.69	70.74	64.81	0.2257	N/A	N/A	87.7756			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.3111	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0283	0.0128	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0120	0.1233	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0052	0.0049	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0465	0.7512	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0096	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3759	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0188	0.0149	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Sep	66.91	59.48	74.35	64.81	0.2420	N/A	N/A	87.7890			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.4103	N/A	N/A	78.1100	0.0037	0.0366	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0283	0.0132	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.4565	N/A	N/A	84.1600	0.0120	0.1235	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1375	N/A	N/A	106.1700	0.0052	0.0050	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.2839	N/A	N/A	86.1700	0.0465	0.7501	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0102	N/A	N/A	130.0000	0.8838	0.0512	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.4080	N/A	N/A	92.1300	0.0018	0.0052	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1148	N/A	N/A	106.1700	0.0188	0.0152	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Oct	69.93	61.90	77.95	64.81	0.2613	N/A	N/A	87.7981			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.5284	N/A	N/A	78.1100	0.0037	0.0367	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0736	N/A	N/A	120.2000	0.0283	0.0136	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5755	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1521	N/A	N/A	106.1700	0.0052	0.0051	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.4629	N/A	N/A	86.1700	0.0465	0.7491	86.17	Option 2: A=6.876, B=1171.17,

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T102 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Jet kerosene	99.68	135.99	94.33	149.83	479.82
Benzene	3.65	0.50	3.46	5.49	13.09
Cumene (Isopropyl benzene)	1.35	3.85	1.28	2.03	8.50
Cyclohexane	12.31	1.63	11.65	18.51	44.10
Ethyl benzene	0.51	0.70	0.48	0.77	2.46
Hexane (-n)	74.63	6.32	70.63	112.18	263.76
Jet kerosene	5.16	120.18	4.88	7.75	137.96
Toluene	0.52	0.24	0.49	0.78	2.05
Xylene (-m)	1.55	2.56	1.47	2.33	7.90

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T103 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Jet

Tank Dimensions

Diameter (ft): 118.10
Volume (gallons): 4,650,462.00
Turnovers: 14.82
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Vapor-mounted
Secondary Seal: Rim-mounted

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,190.88

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	74
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	21
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T103 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Jet kerosene	Jan	74.28	66.29	82.28	64.81	0.2918	N/A	N/A	87.8787			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.7133	N/A	N/A	78.1100	0.0037	0.0368	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0283	0.0142	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0052	0.0053	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0465	0.7458	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0127	N/A	N/A	130.0000	0.8838	0.0527	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.5076	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Feb	73.64	66.36	80.92	64.81	0.2872	N/A	N/A	87.8683			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.6850	N/A	N/A	78.1100	0.0037	0.0368	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0283	0.0141	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0052	0.0053	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0465	0.7462	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0125	N/A	N/A	130.0000	0.8838	0.0525	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.4983	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Mar	72.15	65.15	79.15	64.81	0.2766	N/A	N/A	87.8419			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.6207	N/A	N/A	78.1100	0.0037	0.0367	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0283	0.0139	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0120	0.1236	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0052	0.0052	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0465	0.7473	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0119	N/A	N/A	130.0000	0.8838	0.0519	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.4769	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0188	0.0159	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Apr	68.78	62.46	75.11	64.81	0.2538	N/A	N/A	87.7953			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.4827	N/A	N/A	78.1100	0.0037	0.0366	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0283	0.0135	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0120	0.1236	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0052	0.0051	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0465	0.7494	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0107	N/A	N/A	130.0000	0.8838	0.0511	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.4316	N/A	N/A	92.1300	0.0018	0.0052	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0188	0.0155	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	May	65.15	59.75	70.54	64.81	0.2312	N/A	N/A	87.7809			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.3447	N/A	N/A	78.1100	0.0037	0.0365	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0283	0.0130	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0120	0.1233	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0052	0.0050	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1941	N/A	N/A	86.1700	0.0465	0.7508	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0098	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3868	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0188	0.0150	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Jun	62.81	57.84	67.78	64.81	0.2176	N/A	N/A	87.7665			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.2620	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0283	0.0126	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0120	0.1232	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0052	0.0049	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0465	0.7518	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0092	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3602	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0188	0.0147	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Jul	62.13	56.74	67.52	64.81	0.2137	N/A	N/A	87.7614			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.2386	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0283	0.0125	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0120	0.1232	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0052	0.0048	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0465	0.7521	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0090	N/A	N/A	130.0000	0.8838	0.0512	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3527	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0188	0.0146	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Aug	64.21	57.69	70.74	64.81	0.2257	N/A	N/A	87.7756			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.3111	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0283	0.0128	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0120	0.1233	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0052	0.0049	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0465	0.7512	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0096	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3759	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0188	0.0149	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Sep	66.91	59.48	74.35	64.81	0.2420	N/A	N/A	87.7890			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.4103	N/A	N/A	78.1100	0.0037	0.0366	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0650	N/A	N/A	120.2000	0.0283	0.0132	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.4565	N/A	N/A	84.1600	0.0120	0.1235	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1375	N/A	N/A	106.1700	0.0052	0.0050	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.2839	N/A	N/A	86.1700	0.0465	0.7501	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0102	N/A	N/A	130.0000	0.8838	0.0512	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.4080	N/A	N/A	92.1300	0.0018	0.0052	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1148	N/A	N/A	106.1700	0.0188	0.0152	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Oct	69.93	61.90	77.95	64.81	0.2613	N/A	N/A	87.7981			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.5284	N/A	N/A	78.1100	0.0037	0.0367	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0736	N/A	N/A	120.2000	0.0283	0.0136	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5755	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1521	N/A	N/A	106.1700	0.0052	0.0051	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.4629	N/A	N/A	86.1700	0.0465	0.7491	86.17	Option 2: A=6.876, B=1171.17

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T103 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Jet kerosene	99.68	135.99	94.33	149.83	479.82
Benzene	3.65	0.50	3.46	5.49	13.09
Cumene (Isopropyl benzene)	1.35	3.85	1.28	2.03	8.50
Cyclohexane	12.31	1.63	11.65	18.51	44.10
Ethyl benzene	0.51	0.70	0.48	0.77	2.46
Hexane (-n)	74.63	6.32	70.63	112.18	263.76
Jet kerosene	5.16	120.18	4.88	7.75	137.96
Toluene	0.52	0.24	0.49	0.78	2.05
Xylene (-m)	1.55	2.56	1.47	2.33	7.90

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T104 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Jet

Tank Dimensions

Diameter (ft): 65.60
Volume (gallons): 1,433,554.00
Turnovers: 14.82
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 675.97

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	29
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	16
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	16

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T104 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Jet kerosene	Jan	74.28	66.29	82.28	64.81	0.2918	N/A	N/A	87.8787			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.7133	N/A	N/A	78.1100	0.0037	0.0368	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0283	0.0142	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0052	0.0053	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0465	0.7458	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0127	N/A	N/A	130.0000	0.8838	0.0527	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.5076	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Feb	73.64	66.36	80.92	64.81	0.2872	N/A	N/A	87.8683			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.6850	N/A	N/A	78.1100	0.0037	0.0368	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0283	0.0141	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0052	0.0053	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0465	0.7462	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0125	N/A	N/A	130.0000	0.8838	0.0525	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.4983	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Mar	72.15	65.15	79.15	64.81	0.2766	N/A	N/A	87.8419			150.03	Option 1: VP70 = .011 VP80 = .015
Benzene						1.6207	N/A	N/A	78.1100	0.0037	0.0367	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0283	0.0139	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0120	0.1236	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0052	0.0052	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0465	0.7473	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0119	N/A	N/A	130.0000	0.8838	0.0519	162.00	Option 1: VP70 = .011 VP80 = .015
Toluene						0.4769	N/A	N/A	92.1300	0.0018	0.0053	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0188	0.0159	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Apr	68.78	62.46	75.11	64.81	0.2538	N/A	N/A	87.7953			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.4827	N/A	N/A	78.1100	0.0037	0.0366	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0283	0.0135	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0120	0.1236	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0052	0.0051	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0465	0.7494	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0107	N/A	N/A	130.0000	0.8838	0.0511	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.4316	N/A	N/A	92.1300	0.0018	0.0052	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0188	0.0155	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	May	65.15	59.75	70.54	64.81	0.2312	N/A	N/A	87.7809			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.3447	N/A	N/A	78.1100	0.0037	0.0365	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0283	0.0130	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0120	0.1233	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0052	0.0050	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1941	N/A	N/A	86.1700	0.0465	0.7508	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0098	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3868	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0188	0.0150	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Jun	62.81	57.84	67.78	64.81	0.2176	N/A	N/A	87.7665			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.2620	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0283	0.0126	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0120	0.1232	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0052	0.0049	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0465	0.7518	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0092	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3602	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0188	0.0147	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Jul	62.13	56.74	67.52	64.81	0.2137	N/A	N/A	87.7614			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.2386	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0283	0.0125	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0120	0.1232	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0052	0.0048	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0465	0.7521	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0090	N/A	N/A	130.0000	0.8838	0.0512	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3527	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0188	0.0146	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Aug	64.21	57.69	70.74	64.81	0.2257	N/A	N/A	87.7756			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.3111	N/A	N/A	78.1100	0.0037	0.0364	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0283	0.0128	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0120	0.1233	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0052	0.0049	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0465	0.7512	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0096	N/A	N/A	130.0000	0.8838	0.0513	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.3759	N/A	N/A	92.1300	0.0018	0.0051	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0188	0.0149	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Sep	66.91	59.48	74.35	64.81	0.2420	N/A	N/A	87.7890			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.4103	N/A	N/A	78.1100	0.0037	0.0366	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0283	0.0132	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.4565	N/A	N/A	84.1600	0.0120	0.1235	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1375	N/A	N/A	106.1700	0.0052	0.0050	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.2839	N/A	N/A	86.1700	0.0465	0.7501	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Jet kerosene						0.0102	N/A	N/A	130.0000	0.8838	0.0512	162.00	Option 1: VP60 = .0085 VP70 = .011
Toluene						0.4080	N/A	N/A	92.1300	0.0018	0.0052	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1148	N/A	N/A	106.1700	0.0188	0.0152	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Jet kerosene	Oct	69.93	61.90	77.95	64.81	0.2613	N/A	N/A	87.7981			150.03	Option 1: VP60 = .0085 VP70 = .011
Benzene						1.5284	N/A	N/A	78.1100	0.0037	0.0367	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0736	N/A	N/A	120.2000	0.0283	0.0136	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5755	N/A	N/A	84.1600	0.0120	0.1237	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1521	N/A	N/A	106.1700	0.0052	0.0051	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.4629	N/A	N/A	86.1700	0.0465	0.7491	86.17	Option 2: A=6.876, B=1171.17

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0188	0.0161	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T104 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Jet kerosene	145.97	75.47	57.12	46.23	324.78
Benzene	5.35	0.28	2.09	1.69	9.41
Cumene (Isopropyl benzene)	1.97	2.14	0.77	0.63	5.51
Cyclohexane	18.03	0.91	7.05	5.71	31.70
Ethyl benzene	0.75	0.39	0.29	0.24	1.66
Hexane (-n)	109.29	3.51	42.77	34.61	190.18
Jet kerosene	7.55	66.69	2.95	2.39	79.59
Toluene	0.76	0.14	0.30	0.24	1.44
Xylene (-m)	2.27	1.42	0.89	0.72	5.29

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T105 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 98

Tank Dimensions

Diameter (ft): 65.60
Volume (gallons): 1,434,610.00
Turnovers: 29.24
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 675.97

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	30
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	18
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	16

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T105 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 9)	Jan	74.28	66.29	82.28	64.81	4.6515	N/A	N/A	67.0972			93.11	Option 4: RVP=9, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.6451	0.9375	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0203	0.0166	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.5076	N/A	N/A	92.1300	0.1965	0.0298	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0973	0.0043	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 9)	Feb	73.64	66.36	80.92	64.81	4.5959	N/A	N/A	67.0907			93.11	Option 4: RVP=9, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.6451	0.9378	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0203	0.0165	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4983	N/A	N/A	92.1300	0.1965	0.0296	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 9)	Mar	72.15	65.15	79.15	64.81	4.4683	N/A	N/A	67.0757			93.11	Option 4: RVP=9, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0110	0.0057	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.6451	0.9386	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0203	0.0164	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4769	N/A	N/A	92.1300	0.1965	0.0291	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0973	0.0041	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 9)	Apr	68.78	62.46	75.11	64.81	4.1905	N/A	N/A	67.0421			93.11	Option 4: RVP=9, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0110	0.0056	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.6451	0.9404	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0203	0.0161	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4316	N/A	N/A	92.1300	0.1965	0.0281	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0973	0.0039	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 9)	May	65.15	59.75	70.54	64.81	3.9064	N/A	N/A	67.0062			93.11	Option 4: RVP=9, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.6451	0.9424	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0203	0.0157	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3868	N/A	N/A	92.1300	0.1965	0.0270	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 9)	Jun	62.81	57.84	67.78	64.81	3.7325	N/A	N/A	66.9835			93.11	Option 4: RVP=9, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.6451	0.9436	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3602	N/A	N/A	92.1300	0.1965	0.0264	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 9)	Jul	62.13	56.74	67.52	64.81	3.6829	N/A	N/A	66.9769			93.11	Option 4: RVP=9, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0110	0.0053	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.6451	0.9439	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3527	N/A	N/A	92.1300	0.1965	0.0262	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 9)	Aug	64.21	57.69	70.74	64.81	3.8360	N/A	N/A	66.9971			93.11	Option 4: RVP=9, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.6451	0.9429	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0203	0.0156	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3759	N/A	N/A	92.1300	0.1965	0.0268	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 9)	Sep	66.91	59.48	74.35	64.81	4.0422	N/A	N/A	67.0236			93.11	Option 4: RVP=9, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclo													

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T105 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 9)	2,139.34	130.41	861.85	677.51	3,809.11
Benzene	10.62	1.31	4.28	3.36	19.57
Cumene (Isopropyl benzene)	0.09	0.22	0.03	0.03	0.37
Cyclohexane	11.96	1.43	4.82	3.79	22.01
Ethyl benzene	1.89	2.35	0.76	0.60	5.60
Gasoline (RVP 10)	2,011.41	84.13	810.32	636.99	3,542.85
Hexane (-n)	34.45	2.64	13.88	10.91	61.88
Toluene	60.43	25.63	24.34	19.14	129.54
Xylene (-m)	8.50	12.69	3.42	2.69	27.30

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T206 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 95

Tank Dimensions

Diameter (ft): 91.90
Volume (gallons): 2,822,457.00
Turnovers: 27.36
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 1,326.63

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	45
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	32
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T206 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.5271	N/A	N/A	66.5487			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0100	0.0043	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0099	0.0044	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0176	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.7853	0.9675	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0152	0.0105	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0709	0.0091	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0898	0.0033	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.4618	N/A	N/A	66.5455			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0100	0.0043	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0099	0.0044	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0176	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.7853	0.9676	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0152	0.0105	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0709	0.0090	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0898	0.0033	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.3119	N/A	N/A	66.5380			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0100	0.0043	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0099	0.0043	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0176	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.7853	0.9680	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0152	0.0104	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0709	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0898	0.0032	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	4.9851	N/A	N/A	66.5214			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0100	0.0042	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0099	0.0042	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.7853	0.9690	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0152	0.0102	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0709	0.0086	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0898	0.0031	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.6507	N/A	N/A	66.5037			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0100	0.0041	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0099	0.0041	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.7853	0.9699	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0152	0.0100	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0709	0.0083	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0898	0.0029	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.4459	N/A	N/A	66.4925			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0100	0.0040	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0099	0.0041	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.7853	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0152	0.0098	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0709	0.0080	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0898	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.3874	N/A	N/A	66.4892			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0100	0.0040	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0099	0.0041	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.7853	0.9707	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0152	0.0098	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0709	0.0080	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0898	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.5678	N/A	N/A	66.4992			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0100	0.0040	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0099	0.0041	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.7853	0.9702	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0152	0.0099	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0709	0.0082	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0898	0.0029	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.8107	N/A	N/A	66.5122			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0100	0.0041	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0898	0.0033	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T206 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	3,667.21	165.82	1,383.44	1,626.97	6,843.44
Benzene	15.35	1.66	5.79	6.81	29.61
Cumene (Isopropyl benzene)	0.09	0.20	0.03	0.04	0.36
Cyclohexane	15.62	1.64	5.89	6.93	30.09
Ethyl benzene	2.68	2.92	1.01	1.19	7.79
Gasoline (RVP 10)	3,552.90	130.22	1,340.32	1,576.26	6,599.71
Hexane (-n)	37.53	2.52	14.16	16.65	70.85
Toluene	31.66	11.76	11.94	14.04	69.41
Xylene (-m)	11.38	14.89	4.29	5.05	35.62

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T207 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 95

Tank Dimensions

Diameter (ft): 91.90
Volume (gallons): 2,812,682.00
Turnovers: 27.45
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Vapor-mounted
Secondary Seal: Rim-mounted

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 1,326.63

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	45
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	32
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T207 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.5271	N/A	N/A	66.5487			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0100	0.0043	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0099	0.0044	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0176	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.7853	0.9675	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0152	0.0105	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0709	0.0091	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0898	0.0033	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.4618	N/A	N/A	66.5455			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0100	0.0043	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0099	0.0044	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0176	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.7853	0.9676	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0152	0.0105	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0709	0.0090	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0898	0.0033	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.3119	N/A	N/A	66.5380			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0100	0.0043	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0099	0.0043	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0176	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.7853	0.9680	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0152	0.0104	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0709	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0898	0.0032	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	4.9851	N/A	N/A	66.5214			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0100	0.0042	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0099	0.0042	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.7853	0.9690	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0152	0.0102	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0709	0.0086	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0898	0.0031	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.6507	N/A	N/A	66.5037			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0100	0.0041	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0099	0.0041	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.7853	0.9699	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0152	0.0100	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0709	0.0083	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0898	0.0029	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.4459	N/A	N/A	66.4925			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0100	0.0040	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0099	0.0041	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.7853	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0152	0.0098	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0709	0.0080	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0898	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.3874	N/A	N/A	66.4892			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0100	0.0040	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0099	0.0041	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.7853	0.9707	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0152	0.0098	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0709	0.0080	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0898	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.5678	N/A	N/A	66.4992			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0100	0.0040	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0099	0.0041	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0176	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.7853	0.9702	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0152	0.0099	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0709	0.0082	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0898	0.0029	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.8107	N/A	N/A	66.5122			93.02	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0100	0.0041	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0012	0.0000	120.20	Option 2: A=6.9636, B=1460.793.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0898	0.0033	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T207 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	1,391.01	165.82	1,383.44	1,626.97	4,567.24
Benzene	5.82	1.66	5.79	6.81	20.09
Cumene (Isopropyl benzene)	0.03	0.20	0.03	0.04	0.30
Cyclohexane	5.93	1.64	5.89	6.93	20.39
Ethyl benzene	1.01	2.92	1.01	1.19	6.13
Gasoline (RVP 10)	1,347.65	130.22	1,340.32	1,576.26	4,394.46
Hexane (-n)	14.23	2.52	14.16	16.65	47.56
Toluene	12.01	11.76	11.94	14.04	49.76
Xylene (-m)	4.32	14.89	4.29	5.05	28.55

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T208 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 98

Tank Dimensions

Diameter (ft): 91.90
Volume (gallons): 2,818,230.00
Turnovers: 29.31
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 1,326.63

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	45
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	32
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T208 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	4.6515	N/A	N/A	67.0972			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.6451	0.9375	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0203	0.0166	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.1965	0.0298	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0973	0.0043	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	4.5959	N/A	N/A	67.0807			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.6451	0.9378	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0203	0.0165	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.1965	0.0296	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	4.4683	N/A	N/A	67.0757			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0110	0.0057	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.6451	0.9386	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0203	0.0164	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.1965	0.0291	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0973	0.0041	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	4.1905	N/A	N/A	67.0421			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0110	0.0056	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.6451	0.9404	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0203	0.0161	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.1965	0.0281	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0973	0.0039	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	3.9064	N/A	N/A	67.0062			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.6451	0.9424	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0203	0.0157	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.1965	0.0270	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	3.7325	N/A	N/A	66.9835			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.6451	0.9436	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.1965	0.0264	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	3.6829	N/A	N/A	66.9769			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0110	0.0053	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.6451	0.9439	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.1965	0.0262	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	3.8360	N/A	N/A	66.9971			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.6451	0.9429	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0203	0.0156	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.1965	0.0268	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.0422	N/A	N/A	67.0236			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793,

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T208 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	2,997.03	183.28	1,130.62	1,329.65	5,640.58
Benzene	14.88	1.85	5.61	6.60	28.94
Cumene (Isopropyl benzene)	0.12	0.31	0.05	0.05	0.53
Cyclohexane	16.76	2.02	6.32	7.44	32.53
Ethyl benzene	2.64	3.31	1.00	1.17	8.12
Gasoline (RVP 10)	2,817.81	118.24	1,063.01	1,250.14	5,249.20
Hexane (-n)	48.26	3.71	18.21	21.41	91.59
Toluene	84.66	36.01	31.94	37.56	190.16
Xylene (-m)	11.90	17.83	4.49	5.28	39.51

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T309 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 98

Tank Dimensions

Diameter (ft): 39.40
Volume (gallons): 511,229.00
Turnovers: 29.26
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Vapor-mounted
Secondary Seal: Rim-mounted

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 243.84

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	20
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	20
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	3

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T309 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	4.6515	N/A	N/A	67.0972			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.6451	0.9375	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0203	0.0166	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.1965	0.0298	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0973	0.0043	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	4.5959	N/A	N/A	67.0907			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.6451	0.9378	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0203	0.0165	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.1965	0.0296	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	4.4683	N/A	N/A	67.0757			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6865	N/A	N/A	84.1600	0.0110	0.0057	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.6451	0.9386	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0203	0.0164	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.1965	0.0291	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0973	0.0041	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	4.1905	N/A	N/A	67.0421			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0110	0.0056	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.6451	0.9404	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0203	0.0161	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.1965	0.0281	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0973	0.0039	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	3.9064	N/A	N/A	67.0062			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.6451	0.9424	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0203	0.0157	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.1965	0.0270	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	3.7325	N/A	N/A	66.9835			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.6451	0.9436	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.1965	0.0264	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	3.6829	N/A	N/A	66.9769			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0110	0.0053	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.6451	0.9439	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.1965	0.0262	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	3.8360	N/A	N/A	66.9971			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.6451	0.9429	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0203	0.0156	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.1965	0.0268	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.0422	N/A	N/A	67.0236			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-20

Xylene (-m)

0.1439

N/A

N/A

106.1700

0.0973

0.0042

106.17

Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T309 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	487.38	77.43	748.05	244.40	1,557.26
Benzene	2.42	0.78	3.71	1.21	8.13
Cumene (Isopropyl benzene)	0.02	0.13	0.03	0.01	0.19
Cyclohexane	2.73	0.85	4.18	1.37	9.13
Ethyl benzene	0.43	1.40	0.66	0.22	2.70
Gasoline (RVP 10)	458.23	49.95	703.32	229.78	1,441.29
Hexane (-n)	7.85	1.57	12.05	3.94	25.40
Toluene	13.77	15.22	21.13	6.90	57.01
Xylene (-m)	1.94	7.53	2.97	0.97	13.41

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T310 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Diesel

Tank Dimensions

Diameter (ft): 39.40
Volume (gallons): 510,964.00
Turnovers: 15.68
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Vapor-mounted
Secondary Seal: Rim-mounted

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 243.84

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	20
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	20
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	3

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T310 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	74.28	66.29	82.28	64.81	0.0158	N/A	N/A	118.0745			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.7133	N/A	N/A	78.1100	0.0003	0.0514	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0098	0.0836	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0001	0.0176	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0103	N/A	N/A	130.0000	0.9842	0.6994	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0001	0.0274	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0035	0.0506	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Feb	73.64	66.36	80.92	64.81	0.0155	N/A	N/A	118.0628			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6850	N/A	N/A	78.1100	0.0003	0.0515	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0098	0.0833	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0001	0.0177	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0101	N/A	N/A	130.0000	0.9842	0.6995	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0001	0.0275	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0035	0.0505	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Mar	72.15	65.15	79.15	64.81	0.0148	N/A	N/A	118.0258			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6207	N/A	N/A	78.1100	0.0003	0.0518	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0098	0.0827	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0001	0.0178	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0096	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0011	0.0192	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0001	0.0277	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0010	0.0508	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0035	0.0503	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Apr	68.78	62.46	75.11	64.81	0.0133	N/A	N/A	117.9396			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4827	N/A	N/A	78.1100	0.0003	0.0526	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0098	0.0814	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0001	0.0181	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0087	N/A	N/A	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0011	0.0190	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0001	0.0283	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0035	0.0499	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	May	65.15	59.75	70.54	64.81	0.0119	N/A	N/A	117.8689			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3447	N/A	N/A	78.1100	0.0003	0.0533	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0098	0.0798	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0001	0.0184	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0078	N/A	N/A	130.0000	0.9842	0.7004	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0001	0.0289	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0035	0.0493	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jun	62.81	57.84	67.78	64.81	0.0111	N/A	N/A	117.7755			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2620	N/A	N/A	78.1100	0.0003	0.0540	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0098	0.0791	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0001	0.0186	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0072	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0001	0.0294	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0010	0.0514	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jul	62.13	56.74	67.52	64.81	0.0108	N/A	N/A	117.7398			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2386	N/A	N/A	78.1100	0.0003	0.0543	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0098	0.0789	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0001	0.0187	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0070	N/A	N/A	130.0000	0.9842	0.6991	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0001	0.0295	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0010	0.0515	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Aug	64.21	57.69	70.74	64.81	0.0116	N/A	N/A	117.8365			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3111	N/A	N/A	78.1100	0.0003	0.0536	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0098	0.0795	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0001	0.0185	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0076	N/A	N/A	130.0000	0.9842	0.7002	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0001	0.0291	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0010	0.0512	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0035	0.0492	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Sep	66.91	59.48	74.35	64.81	0.0126	N/A	N/A	117.9134			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4103	N/A	N/A	78.1100	0.0003	0.0529	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0098	0.0805	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.4565	N/A	N/A	84.1600	0.0001	0.0182	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0082	N/A	N/A	130.0000	0.9842	0.7003	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1375	N/A	N/A	106.1700	0.0011	0.0189	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.2839	N/A	N/A	86.1700	0.0001	0.0286	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4080	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1148	N/A	N/A	106.1700	0.0035	0.0495	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Oct	69.93	61.90	77.95	64.81	0.0138	N/A	N/A	117.9461			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.5284	N/A	N/A	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0736	N/A	N/A	120.2000	0.0098	0.0820	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5755	N/A	N/A	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0090	N/A	N/A	130.0000	0.9842	0.6990	188.00	Option 1: VP60 = .0065 VP70 = .009</

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0035	0.0505	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T310 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Distillate fuel oil no. 2	2.33	48.63	3.58	1.17	55.72
Benzene	0.12	0.01	0.19	0.06	0.39
Cumene (Isopropyl benzene)	0.19	0.47	0.29	0.10	1.05
Cyclohexane	0.04	0.00	0.06	0.02	0.13
Distillate fuel oil no. 2	1.63	47.87	2.51	0.82	52.82
Ethyl benzene	0.04	0.05	0.07	0.02	0.19
Hexane (-n)	0.07	0.00	0.10	0.03	0.20
Toluene	0.12	0.05	0.18	0.06	0.41
Xylene (-m)	0.12	0.17	0.18	0.06	0.52

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T311 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 98

Tank Dimensions

Diameter (ft): 39.40
Volume (gallons): 510,700.00
Turnovers: 29.29
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Vapor-mounted
Secondary Seal: Rim-mounted

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 243.84

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	20
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	20
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	3

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T311 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	4.6515	N/A	N/A	67.0972			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.6451	0.9375	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0203	0.0166	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.1965	0.0298	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0973	0.0043	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	4.5959	N/A	N/A	67.0907			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.6451	0.9378	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0203	0.0165	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.1965	0.0296	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	4.4683	N/A	N/A	67.0757			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0110	0.0057	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.6451	0.9386	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0203	0.0164	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.1965	0.0291	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0973	0.0041	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	4.1905	N/A	N/A	67.0421			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0110	0.0056	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.6451	0.9404	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0203	0.0161	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.1965	0.0281	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0973	0.0039	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	3.9064	N/A	N/A	67.0062			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.6451	0.9424	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0203	0.0157	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.1965	0.0270	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	3.7325	N/A	N/A	66.9835			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.6451	0.9436	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.1965	0.0264	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	3.6829	N/A	N/A	66.9769			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0110	0.0053	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.6451	0.9439	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.1965	0.0262	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	3.8360	N/A	N/A	66.9971			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.6451	0.9429	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0203	0.0156	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.1965	0.0268	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.0422	N/A	N/A	67.0236			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793,

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T311 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	487.38	77.43	748.05	244.40	1,557.26
Benzene	2.42	0.78	3.71	1.21	8.13
Cumene (Isopropyl benzene)	0.02	0.13	0.03	0.01	0.19
Cyclohexane	2.73	0.85	4.18	1.37	9.13
Ethyl benzene	0.43	1.40	0.66	0.22	2.70
Gasoline (RVP 10)	458.23	49.95	703.32	229.78	1,441.29
Hexane (-n)	7.85	1.57	12.05	3.94	25.40
Toluene	13.77	15.22	21.13	6.90	57.01
Xylene (-m)	1.94	7.53	2.97	0.97	13.41

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T312 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91

Tank Dimensions

Diameter (ft): 39.40
Volume (gallons): 510,964.00
Turnovers: 25.46
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Vapor-mounted
Secondary Seal: Rim-mounted

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 243.84

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	20
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	20
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	3

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T312 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T312 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	620.95	64.67	953.06	311.38	1,950.05
Benzene	2.34	0.60	3.59	1.17	7.70
Cumene (Isopropyl benzene)	0.01	0.06	0.02	0.01	0.10
Cyclohexane	1.98	0.49	3.03	0.99	6.49
Ethyl benzene	0.38	0.99	0.58	0.19	2.15
Gasoline (RVP 10)	603.15	52.70	925.75	302.45	1,884.05
Hexane (-n)	7.39	1.18	11.34	3.71	23.63
Toluene	4.09	3.62	6.28	2.05	16.05
Xylene (-m)	1.61	5.01	2.47	0.81	9.89

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T621 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Diesel

Tank Dimensions

Diameter (ft): 120.00
Volume (gallons): 6,393,659.00
Turnovers: 24.28
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,261.94

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	104
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	25
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	4
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T621 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	74.28	66.29	82.28	64.81	0.0158	N/A	N/A	118.0745			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.7133	N/A	N/A	78.1100	0.0003	0.0514	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0098	0.0836	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0001	0.0176	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0103	N/A	N/A	130.0000	0.9842	0.6994	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0001	0.0274	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0035	0.0506	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Feb	73.64	66.36	80.92	64.81	0.0155	N/A	N/A	118.0628			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6850	N/A	N/A	78.1100	0.0003	0.0515	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0098	0.0833	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0001	0.0177	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0101	N/A	N/A	130.0000	0.9842	0.6995	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0001	0.0275	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0035	0.0505	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Mar	72.15	65.15	79.15	64.81	0.0148	N/A	N/A	118.0258			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6207	N/A	N/A	78.1100	0.0003	0.0518	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0098	0.0827	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0001	0.0178	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0096	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0011	0.0192	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0001	0.0277	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0010	0.0508	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0035	0.0503	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Apr	68.78	62.46	75.11	64.81	0.0133	N/A	N/A	117.9396			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4827	N/A	N/A	78.1100	0.0003	0.0526	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0098	0.0814	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0001	0.0181	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0087	N/A	N/A	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0011	0.0190	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0001	0.0283	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0035	0.0499	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	May	65.15	59.75	70.54	64.81	0.0119	N/A	N/A	117.8689			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3447	N/A	N/A	78.1100	0.0003	0.0533	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0098	0.0798	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0001	0.0184	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0078	N/A	N/A	130.0000	0.9842	0.7004	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0001	0.0289	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0035	0.0493	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jun	62.81	57.84	67.78	64.81	0.0111	N/A	N/A	117.7755			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2620	N/A	N/A	78.1100	0.0003	0.0540	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0098	0.0791	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0001	0.0186	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0072	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0001	0.0294	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0010	0.0514	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jul	62.13	56.74	67.52	64.81	0.0108	N/A	N/A	117.7398			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2386	N/A	N/A	78.1100	0.0003	0.0543	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0098	0.0789	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0001	0.0187	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0070	N/A	N/A	130.0000	0.9842	0.6991	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0001	0.0295	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0010	0.0515	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Aug	64.21	57.69	70.74	64.81	0.0116	N/A	N/A	117.8365			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3111	N/A	N/A	78.1100	0.0003	0.0536	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0098	0.0795	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0001	0.0185	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0076	N/A	N/A	130.0000	0.9842	0.7002	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0001	0.0291	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0010	0.0512	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0035	0.0492	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Sep	66.91	59.48	74.35	64.81	0.0126	N/A	N/A	117.9134			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4103	N/A	N/A	78.1100	0.0003	0.0529	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0098	0.0805	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.4565	N/A	N/A	84.1600	0.0001	0.0182	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0082	N/A	N/A	130.0000	0.9842	0.7003	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1375	N/A	N/A	106.1700	0.0011	0.0189	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.2839	N/A	N/A	86.1700	0.0001	0.0286	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4080	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1148	N/A	N/A	106.1700	0.0035	0.0495	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Oct	69.93	61.90	77.95	64.81	0.0138	N/A	N/A	117.9461			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.5284	N/A	N/A	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0736	N/A	N/A	120.2000	0.0098	0.0820	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5755	N/A	N/A	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0090	N/A	N/A	130.0000	0.9842	0.6990	188.00	Option 1: VP60 = .0065 VP70 = .009</

Xylene (-m)

0.1439

N/A

N/A

106.1700

0.0035

0.0505

106.17

Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T621 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Distillate fuel oil no. 2	18.74	309.34	9.12	10.85	348.05
Benzene	0.98	0.09	0.48	0.57	2.12
Cumene (Isopropyl benzene)	1.53	3.02	0.74	0.89	6.18
Cyclohexane	0.34	0.03	0.16	0.20	0.73
Distillate fuel oil no. 2	13.11	304.46	6.38	7.59	331.54
Ethyl benzene	0.36	0.34	0.17	0.21	1.08
Hexane (-n)	0.53	0.03	0.26	0.31	1.12
Toluene	0.96	0.31	0.47	0.55	2.28
Xylene (-m)	0.94	1.07	0.46	0.54	3.00

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T622 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Diesel

Tank Dimensions

Diameter (ft): 120.00
Volume (gallons): 639,659.00
Turnovers: 242.64
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,261.94

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	104
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	25
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	4
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T622 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	74.28	66.29	82.28	64.81	0.0158	N/A	N/A	118.0745			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.7133	N/A	N/A	78.1100	0.0003	0.0514	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0098	0.0836	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0001	0.0176	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0103	N/A	N/A	130.0000	0.9842	0.6994	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0001	0.0274	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0035	0.0506	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Feb	73.64	66.36	80.92	64.81	0.0155	N/A	N/A	118.0628			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6850	N/A	N/A	78.1100	0.0003	0.0515	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0098	0.0833	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0001	0.0177	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0101	N/A	N/A	130.0000	0.9842	0.6995	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0001	0.0275	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0035	0.0505	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Mar	72.15	65.15	79.15	64.81	0.0148	N/A	N/A	118.0258			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6207	N/A	N/A	78.1100	0.0003	0.0518	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0098	0.0827	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0001	0.0178	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0096	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0011	0.0192	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0001	0.0277	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0010	0.0508	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0035	0.0503	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Apr	68.78	62.46	75.11	64.81	0.0133	N/A	N/A	117.9396			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4827	N/A	N/A	78.1100	0.0003	0.0526	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0098	0.0814	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0001	0.0181	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0087	N/A	N/A	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0011	0.0190	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0001	0.0283	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0035	0.0499	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	May	65.15	59.75	70.54	64.81	0.0119	N/A	N/A	117.8689			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3447	N/A	N/A	78.1100	0.0003	0.0533	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0098	0.0798	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0001	0.0184	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0078	N/A	N/A	130.0000	0.9842	0.7004	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0001	0.0289	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0035	0.0493	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jun	62.81	57.84	67.78	64.81	0.0111	N/A	N/A	117.7755			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2620	N/A	N/A	78.1100	0.0003	0.0540	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0098	0.0791	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0001	0.0186	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0072	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0001	0.0294	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0010	0.0514	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jul	62.13	56.74	67.52	64.81	0.0108	N/A	N/A	117.7398			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2386	N/A	N/A	78.1100	0.0003	0.0543	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0098	0.0789	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0001	0.0187	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0070	N/A	N/A	130.0000	0.9842	0.6991	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0001	0.0295	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0010	0.0515	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Aug	64.21	57.69	70.74	64.81	0.0116	N/A	N/A	117.8365			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3111	N/A	N/A	78.1100	0.0003	0.0536	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0098	0.0795	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0001	0.0185	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0076	N/A	N/A	130.0000	0.9842	0.7002	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0001	0.0291	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0010	0.0512	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0035	0.0492	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Sep	66.91	59.48	74.35	64.81	0.0126	N/A	N/A	117.9134			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4103	N/A	N/A	78.1100	0.0003	0.0529	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0098	0.0805	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.4565	N/A	N/A	84.1600	0.0001	0.0182	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0082	N/A	N/A	130.0000	0.9842	0.7003	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1375	N/A	N/A	106.1700	0.0011	0.0189	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.2839	N/A	N/A	86.1700	0.0001	0.0286	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4080	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1148	N/A	N/A	106.1700	0.0035	0.0495	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Oct	69.93	61.90	77.95	64.81	0.0138	N/A	N/A	117.9461			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.5284	N/A	N/A	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0736	N/A	N/A	120.2000	0.0098	0.0820	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5755	N/A	N/A	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0090	N/A	N/A	130.0000	0.9842	0.6990	188.00	Option 1: VP60 = .0065 VP70 = .009</

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0035	0.0505	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T622 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Distillate fuel oil no. 2	18.74	309.34	9.12	10.85	348.05
Benzene	0.98	0.09	0.48	0.57	2.12
Cumene (Isopropyl benzene)	1.53	3.02	0.74	0.89	6.18
Cyclohexane	0.34	0.03	0.16	0.20	0.73
Distillate fuel oil no. 2	13.11	304.46	6.38	7.59	331.54
Ethyl benzene	0.36	0.34	0.17	0.21	1.08
Hexane (-n)	0.53	0.03	0.26	0.31	1.12
Toluene	0.96	0.31	0.47	0.55	2.28
Xylene (-m)	0.94	1.07	0.46	0.54	3.00

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T625 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Ethanol

Tank Dimensions

Diameter (ft): 49.20
Volume (gallons): 800,624.00
Turnovers: 10.55
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 380.23

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	22
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	12
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	4

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T625 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Ethanol	Jan	74.28	66.29	82.28	64.81	1.0449	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Feb	73.64	66.36	80.92	64.81	1.0233	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Mar	72.15	65.15	79.15	64.81	0.9744	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Apr	68.78	62.46	75.11	64.81	0.8712	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	May	65.15	59.75	70.54	64.81	0.7706	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Jun	62.81	57.84	67.78	64.81	0.7114	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Jul	62.13	56.74	67.52	64.81	0.6949	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Aug	64.21	57.69	70.74	64.81	0.7464	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Sep	66.91	59.48	74.35	64.81	0.8181	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Oct	69.93	61.90	77.95	64.81	0.9051	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Nov	72.02	63.68	80.36	64.81	0.9701	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726
Ethanol	Dec	73.67	65.34	82.01	64.81	1.0243	N/A	N/A	46.0700			46.07	Option 2: A=8.12187, B=1598.673, C=226.726

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T625 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Ethanol	202.33	38.20	86.44	48.06	375.03

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T726 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91

Tank Dimensions

Diameter (ft): 123.80
Volume (gallons): 6,801,321.00
Turnovers: 25.44
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,407.47

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	79
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	23
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T726 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793,

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T726 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	5,143.81	273.80	1,850.24	3,074.23	10,342.07
Benzene	19.35	2.55	6.96	11.57	40.43
Cumene (Isopropyl benzene)	0.10	0.27	0.04	0.06	0.47
Cyclohexane	16.36	2.09	5.89	9.78	34.12
Ethyl benzene	3.15	4.20	1.13	1.88	10.37
Gasoline (RVP 10)	4,996.41	223.11	1,797.22	2,986.13	10,002.88
Hexane (-n)	61.23	5.01	22.02	36.59	124.86
Toluene	33.89	15.34	12.19	20.26	81.68
Xylene (-m)	13.31	21.21	4.79	7.95	47.26

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T727 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91

Tank Dimensions

Diameter (ft): 88.60
Volume (gallons): 3,479,260.00
Turnovers: 25.44
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 1,233.07

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	47
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	17
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	5

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T727 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T727 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	3,681.27	195.71	1,279.43	1,574.57	6,730.98
Benzene	13.85	1.83	4.81	5.92	26.41
Cumene (Isopropyl benzene)	0.07	0.20	0.02	0.03	0.32
Cyclohexane	11.71	1.50	4.07	5.01	22.29
Ethyl benzene	2.26	3.00	0.78	0.97	7.01
Gasoline (RVP 10)	3,575.79	159.48	1,242.77	1,529.45	6,507.49
Hexane (-n)	43.82	3.58	15.23	18.74	81.37
Toluene	24.26	10.97	8.43	10.37	54.03
Xylene (-m)	9.53	15.16	3.31	4.07	32.07

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T728 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 98

Tank Dimensions

Diameter (ft): 88.60
Volume (gallons): 3,479,260.00
Turnovers: 29.26
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 1,233.07

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	47
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	17
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	5

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T728 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	4.6515	N/A	N/A	67.0972			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.6451	0.9375	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0203	0.0166	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.1965	0.0298	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0973	0.0043	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	4.5959	N/A	N/A	67.0907			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.6451	0.9378	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0203	0.0165	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.1965	0.0296	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	4.4683	N/A	N/A	67.0757			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6865	N/A	N/A	84.1600	0.0110	0.0057	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.6451	0.9386	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0203	0.0164	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.1965	0.0291	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0973	0.0041	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	4.1905	N/A	N/A	67.0421			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0110	0.0056	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.6451	0.9404	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0203	0.0161	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.1965	0.0281	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0973	0.0039	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	3.9064	N/A	N/A	67.0062			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.6451	0.9424	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0203	0.0157	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.1965	0.0270	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	3.7325	N/A	N/A	66.9835			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.6451	0.9436	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.1965	0.0264	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	3.6829	N/A	N/A	66.9769			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0110	0.0053	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.6451	0.9439	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.1965	0.0262	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	3.8360	N/A	N/A	66.9971			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.6451	0.9429	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0203	0.0156	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.1965	0.0268	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.0422	N/A	N/A	67.0236			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T728 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	2,889.41	234.34	1,004.22	1,235.87	5,363.85
Benzene	14.34	2.36	4.98	6.13	27.82
Cumene (Isopropyl benzene)	0.12	0.40	0.04	0.05	0.60
Cyclohexane	16.16	2.58	5.62	6.91	31.26
Ethyl benzene	2.55	4.23	0.89	1.09	8.75
Gasoline (RVP 10)	2,716.63	151.18	944.17	1,161.97	4,973.95
Hexane (-n)	46.53	4.75	16.17	19.90	87.34
Toluene	81.62	46.05	28.37	34.91	190.94
Xylene (-m)	11.48	22.80	3.99	4.91	43.18

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T729 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91

Tank Dimensions

Diameter (ft): 123.80
Volume (gallons): 6,801,321.00
Turnovers: 25.44
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,407.47

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	79
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	23
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T729 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T729 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	5,143.81	273.80	1,850.24	3,074.23	10,342.07
Benzene	19.35	2.55	6.96	11.57	40.43
Cumene (Isopropyl benzene)	0.10	0.27	0.04	0.06	0.47
Cyclohexane	16.36	2.09	5.89	9.78	34.12
Ethyl benzene	3.15	4.20	1.13	1.88	10.37
Gasoline (RVP 10)	4,996.41	223.11	1,797.22	2,986.13	10,002.88
Hexane (-n)	61.23	5.01	22.02	36.59	124.86
Toluene	33.89	15.34	12.19	20.26	81.68
Xylene (-m)	13.31	21.21	4.79	7.95	47.26

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T730 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 98

Tank Dimensions

Diameter (ft): 54.10
Volume (gallons): 1,299,339.00
Turnovers: 29.26
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 459.74

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	22
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	12
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	4

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T730 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	4.6515	N/A	N/A	67.0972			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.6451	0.9375	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0203	0.0166	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.1965	0.0298	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0973	0.0043	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	4.5959	N/A	N/A	67.0807			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0110	0.0058	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.6451	0.9378	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0203	0.0165	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.1965	0.0296	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	4.4683	N/A	N/A	67.0757			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0101	0.0051	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0110	0.0057	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.6451	0.9386	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0203	0.0164	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.1965	0.0291	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0973	0.0041	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	4.1905	N/A	N/A	67.0421			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0110	0.0056	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0181	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.6451	0.9404	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0203	0.0161	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.1965	0.0281	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0973	0.0039	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	3.9064	N/A	N/A	67.0062			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.6451	0.9424	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0203	0.0157	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.1965	0.0270	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	3.7325	N/A	N/A	66.9835			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.6451	0.9436	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.1965	0.0264	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	3.6829	N/A	N/A	66.9769			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0101	0.0047	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0110	0.0053	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.6451	0.9439	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0203	0.0155	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.1965	0.0262	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0973	0.0036	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	3.8360	N/A	N/A	66.9971			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0101	0.0048	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0110	0.0054	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0181	0.0008	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.6451	0.9429	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0203	0.0156	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.1965	0.0268	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0973	0.0037	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.0422	N/A	N/A	67.0236			93.11	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0101	0.0049	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0017	0.0000	120.20	Option 2: A=6.9636, B=1460.793,

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0973	0.0042	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T730 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	1,764.30	143.33	685.52	460.79	3,053.94
Benzene	8.76	1.44	3.40	2.29	15.89
Cumene (Isopropyl benzene)	0.07	0.24	0.03	0.02	0.36
Cyclohexane	9.87	1.58	3.83	2.58	17.85
Ethyl benzene	1.56	2.59	0.60	0.41	5.15
Gasoline (RVP 10)	1,658.80	92.46	644.53	433.23	2,829.03
Hexane (-n)	28.41	2.90	11.04	7.42	49.77
Toluene	49.84	28.16	19.36	13.02	110.38
Xylene (-m)	7.01	13.95	2.72	1.83	25.51

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T940 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Diesel

Tank Dimensions

Diameter (ft): 114.80
Volume (gallons): 5,846,499.00
Turnovers: 24.28
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,070.16

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	71
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	21
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T940 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	74.28	66.29	82.28	64.81	0.0158	N/A	N/A	118.0745			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.7133	N/A	N/A	78.1100	0.0003	0.0514	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0098	0.0836	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0001	0.0176	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0103	N/A	N/A	130.0000	0.9842	0.6994	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0001	0.0274	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0035	0.0506	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Feb	73.64	66.36	80.92	64.81	0.0155	N/A	N/A	118.0628			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6850	N/A	N/A	78.1100	0.0003	0.0515	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0098	0.0833	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0001	0.0177	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0101	N/A	N/A	130.0000	0.9842	0.6995	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0001	0.0275	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0035	0.0505	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Mar	72.15	65.15	79.15	64.81	0.0148	N/A	N/A	118.0258			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6207	N/A	N/A	78.1100	0.0003	0.0518	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0098	0.0827	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0001	0.0178	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0096	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0011	0.0192	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0001	0.0277	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0010	0.0508	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0035	0.0503	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Apr	68.78	62.46	75.11	64.81	0.0133	N/A	N/A	117.9396			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4827	N/A	N/A	78.1100	0.0003	0.0526	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0098	0.0814	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0001	0.0181	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0087	N/A	N/A	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0011	0.0190	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0001	0.0283	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0035	0.0499	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	May	65.15	59.75	70.54	64.81	0.0119	N/A	N/A	117.8689			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3447	N/A	N/A	78.1100	0.0003	0.0533	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0098	0.0798	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0001	0.0184	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0078	N/A	N/A	130.0000	0.9842	0.7004	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0001	0.0289	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0035	0.0493	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jun	62.81	57.84	67.78	64.81	0.0111	N/A	N/A	117.7755			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2620	N/A	N/A	78.1100	0.0003	0.0540	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0098	0.0791	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0001	0.0186	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0072	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0001	0.0294	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0010	0.0514	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jul	62.13	56.74	67.52	64.81	0.0108	N/A	N/A	117.7398			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2386	N/A	N/A	78.1100	0.0003	0.0543	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0098	0.0789	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0001	0.0187	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0070	N/A	N/A	130.0000	0.9842	0.6991	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0001	0.0295	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0010	0.0515	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Aug	64.21	57.69	70.74	64.81	0.0116	N/A	N/A	117.8365			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3111	N/A	N/A	78.1100	0.0003	0.0536	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0098	0.0795	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0001	0.0185	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0076	N/A	N/A	130.0000	0.9842	0.7002	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0001	0.0291	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0010	0.0512	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0035	0.0492	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Sep	66.91	59.48	74.35	64.81	0.0126	N/A	N/A	117.9134			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4103	N/A	N/A	78.1100	0.0003	0.0529	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0098	0.0805	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.4565	N/A	N/A	84.1600	0.0001	0.0182	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0082	N/A	N/A	130.0000	0.9842	0.7003	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1375	N/A	N/A	106.1700	0.0011	0.0189	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.2839	N/A	N/A	86.1700	0.0001	0.0286	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4080	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1148	N/A	N/A	106.1700	0.0035	0.0495	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Oct	69.93	61.90	77.95	64.81	0.0138	N/A	N/A	117.9461			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.5284	N/A	N/A	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0736	N/A	N/A	120.2000	0.0098	0.0820	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5755	N/A	N/A	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0090	N/A	N/A	130.0000	0.9842	0.6990	188.00	Option 1: VP60 = .0065 VP70 = .009

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0035	0.0505	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T940 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Distillate fuel oil no. 2	17.92	295.68	6.46	9.93	330.00
Benzene	0.94	0.09	0.34	0.52	1.89
Cumene (Isopropyl benzene)	1.46	2.88	0.53	0.81	5.68
Cyclohexane	0.32	0.03	0.12	0.18	0.65
Distillate fuel oil no. 2	12.54	291.01	4.52	6.95	315.02
Ethyl benzene	0.34	0.33	0.12	0.19	0.98
Hexane (-n)	0.51	0.03	0.18	0.28	1.00
Toluene	0.91	0.30	0.33	0.51	2.05
Xylene (-m)	0.90	1.02	0.32	0.50	2.73

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T941 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91/ULP

Tank Dimensions

Diameter (ft): 65.60
Volume (gallons): 1,909,115.00
Turnovers: 25.44
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 675.97

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	29
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	16
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	4

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T941 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T941 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	2,725.64	145.02	1,008.07	863.18	4,741.91
Benzene	10.25	1.35	3.79	3.25	18.65
Cumene (Isopropyl benzene)	0.05	0.15	0.02	0.02	0.23
Cyclohexane	8.67	1.11	3.21	2.75	15.73
Ethyl benzene	1.67	2.22	0.62	0.53	5.04
Gasoline (RVP 10)	2,647.53	118.17	979.19	838.45	4,583.34
Hexane (-n)	32.44	2.65	12.00	10.27	57.37
Toluene	17.96	8.13	6.64	5.69	38.41
Xylene (-m)	7.05	11.23	2.61	2.23	23.13

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T942 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91

Tank Dimensions

Diameter (ft): 117.80
Volume (gallons): 6,150,859.00
Turnovers: 25.44
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,179.77

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	74
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	23
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T942 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T942 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	4,894.51	260.22	1,778.60	2,783.46	9,716.80
Benzene	18.41	2.43	6.69	10.47	38.01
Cumene (Isopropyl benzene)	0.09	0.26	0.03	0.05	0.44
Cyclohexane	15.57	1.99	5.66	8.85	32.07
Ethyl benzene	3.00	3.99	1.09	1.71	9.78
Gasoline (RVP 10)	4,754.26	212.05	1,727.63	2,703.70	9,397.65
Hexane (-n)	58.26	4.76	21.17	33.13	117.33
Toluene	32.25	14.58	11.72	18.34	76.89
Xylene (-m)	12.66	20.16	4.60	7.20	44.63

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T943 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: Diesel

Tank Dimensions

Diameter (ft): 117.80
Volume (gallons): 6,150,859.00
Turnovers: 24.28
Self Supp. Roof? (y/n): Y
No. of Columns: 0.00
Eff. Col. Diam. (ft): 0.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,179.77

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	74
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	23
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T943 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	74.28	66.29	82.28	64.81	0.0158	N/A	N/A	118.0745			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.7133	N/A	N/A	78.1100	0.0003	0.0514	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0098	0.0836	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0001	0.0176	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0103	N/A	N/A	130.0000	0.9842	0.6994	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0001	0.0274	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0035	0.0506	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Feb	73.64	66.36	80.92	64.81	0.0155	N/A	N/A	118.0628			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6850	N/A	N/A	78.1100	0.0003	0.0515	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0098	0.0833	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0001	0.0177	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0101	N/A	N/A	130.0000	0.9842	0.6995	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0011	0.0193	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0001	0.0275	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0010	0.0507	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0035	0.0505	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Mar	72.15	65.15	79.15	64.81	0.0148	N/A	N/A	118.0258			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.6207	N/A	N/A	78.1100	0.0003	0.0518	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0098	0.0827	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0001	0.0178	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0096	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0011	0.0192	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0001	0.0277	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0010	0.0508	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0035	0.0503	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Apr	68.78	62.46	75.11	64.81	0.0133	N/A	N/A	117.9396			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4827	N/A	N/A	78.1100	0.0003	0.0526	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0098	0.0814	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0001	0.0181	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0087	N/A	N/A	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0011	0.0190	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0001	0.0283	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0035	0.0499	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	May	65.15	59.75	70.54	64.81	0.0119	N/A	N/A	117.8689			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3447	N/A	N/A	78.1100	0.0003	0.0533	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0649	N/A	N/A	120.2000	0.0098	0.0798	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0001	0.0184	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0078	N/A	N/A	130.0000	0.9842	0.7004	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0001	0.0289	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0035	0.0493	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jun	62.81	57.84	67.78	64.81	0.0111	N/A	N/A	117.7755			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2620	N/A	N/A	78.1100	0.0003	0.0540	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0098	0.0791	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0001	0.0186	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0072	N/A	N/A	130.0000	0.9842	0.6996	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0001	0.0294	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0010	0.0514	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Jul	62.13	56.74	67.52	64.81	0.0108	N/A	N/A	117.7398			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2386	N/A	N/A	78.1100	0.0003	0.0543	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0098	0.0789	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0001	0.0187	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0070	N/A	N/A	130.0000	0.9842	0.6991	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0001	0.0295	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0010	0.0515	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Aug	64.21	57.69	70.74	64.81	0.0116	N/A	N/A	117.8365			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3111	N/A	N/A	78.1100	0.0003	0.0536	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0098	0.0795	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0001	0.0185	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0076	N/A	N/A	130.0000	0.9842	0.7002	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0001	0.0291	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0010	0.0512	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0035	0.0492	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Sep	66.91	59.48	74.35	64.81	0.0126	N/A	N/A	117.9134			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4103	N/A	N/A	78.1100	0.0003	0.0529	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0098	0.0805	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.4565	N/A	N/A	84.1600	0.0001	0.0182	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0082	N/A	N/A	130.0000	0.9842	0.7003	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1375	N/A	N/A	106.1700	0.0011	0.0189	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Hexane (-n)						2.2839	N/A	N/A	86.1700	0.0001	0.0286	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4080	N/A	N/A	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1148	N/A	N/A	106.1700	0.0035	0.0495	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Distillate fuel oil no. 2	Oct	69.93	61.90	77.95	64.81	0.0138	N/A	N/A	117.9461			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.5284	N/A	N/A	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0736	N/A	N/A	120.2000	0.0098	0.0820	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5755	N/A	N/A	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Distillate fuel oil no. 2						0.0090	N/A	N/A	130.0000	0.9842	0.6990	188.00	Option 1: VP60 = .0065 VP70 = .009

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0035	0.0505	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T943 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Distillate fuel oil no. 2	18.39	303.15	6.68	10.46	338.69
Benzene	0.96	0.09	0.35	0.55	1.96
Cumene (Isopropyl benzene)	1.50	2.96	0.55	0.85	5.86
Cyclohexane	0.33	0.03	0.12	0.19	0.67
Distillate fuel oil no. 2	12.87	298.36	4.68	7.32	323.23
Ethyl benzene	0.35	0.33	0.13	0.20	1.01
Hexane (-n)	0.52	0.03	0.19	0.30	1.03
Toluene	0.94	0.30	0.34	0.53	2.11
Xylene (-m)	0.92	1.05	0.33	0.52	2.82

TANKS 4.0.9d
Emissions Report - Summary Format
Total Emissions Summaries - All Tanks in Report

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

Tank Identification				Losses (lbs)
2017 T101 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	642.94
2017 T102 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	479.82
2017 T103 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	479.82
2017 T104 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	324.78
2017 T105 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	3,809.11
2017 T206 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	6,843.44
2017 T207 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	4,567.24
2017 T208 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	5,640.58
2017 T309 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	1,557.26
2017 T310 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	55.72
2017 T311 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	1,557.26
2017 T312 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	1,950.05
2017 T621 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	348.05
2017 T622 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	348.05
2017 T625 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	375.03
2017 T726 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	10,342.07
2017 T727 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	6,730.98
2017 T728 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	5,363.85
2017 T729 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	10,342.07
2017 T730 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	3,053.94
2017 T940 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	330.00
2017 T941 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	4,741.91
2017 T942 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	9,716.80
2017 T943 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	338.69
Total Emissions for all Tanks:				79,939.48

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	_2017 T110-01 - VFRT
City:	Sydney Airport Amo
State:	NSW
Company:	Vopak
Type of Tank:	Vertical Fixed Roof Tank
Description:	Diesel

Tank Dimensions

Shell Height (ft):	79.89
Diameter (ft):	142.71
Liquid Height (ft) :	77.26
Avg. Liquid Height (ft):	49.21
Volume (gallons):	9,246,020.00
Turnovers:	24.00
Net Throughput(gal/yr):	221,904,480.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	13.78
Slope (ft/ft) (Cone Roof)	0.19

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meteorological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T110-01 - VFRT - Vertical Fixed Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	70.10	65.17	75.03	63.52	0.0139	0.0119	0.0161	117.9506			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.5353	1.3456	1.7466	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (isopropyl benzene)						0.0740	0.0620	0.0881	120.2000	0.0098	0.0821	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5826	1.3912	1.7950	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0090	0.0078	0.0105	130.0000	0.9842	0.6990	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1530	0.1296	0.1798	106.1700	0.0011	0.0191	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4735	2.1855	2.7918	86.1700	0.0001	0.0281	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4488	0.3871	0.5187	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1278	0.1082	0.1505	106.1700	0.0035	0.0502	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Feb	69.87	65.29	74.44	63.52	0.0138	0.0120	0.0158	117.9459			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.5259	1.3501	1.7201	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (isopropyl benzene)						0.0734	0.0623	0.0863	120.2000	0.0098	0.0820	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5730	1.3958	1.7684	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0090	0.0078	0.0103	130.0000	0.9842	0.6990	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1518	0.1302	0.1764	106.1700	0.0011	0.0191	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4592	2.1923	2.7520	86.1700	0.0001	0.0282	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4457	0.3885	0.5099	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1268	0.1086	0.1476	106.1700	0.0035	0.0501	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Mar	68.63	64.11	73.15	63.52	0.0133	0.0116	0.0152	117.9382			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4766	1.3075	1.6634	78.1100	0.0003	0.0526	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (isopropyl benzene)						0.0703	0.0596	0.0825	120.2000	0.0098	0.0813	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5234	1.3527	1.7115	84.1600	0.0001	0.0181	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0087	0.0075	0.0099	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1457	0.1251	0.1691	106.1700	0.0011	0.0190	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.3846	2.1273	2.6668	86.1700	0.0001	0.0283	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4296	0.3748	0.4911	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1217	0.1043	0.1415	106.1700	0.0035	0.0498	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Apr	65.89	61.49	70.29	63.52	0.0122	0.0106	0.0139	117.8902			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3720	1.2169	1.5432	78.1100	0.0003	0.0531	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (isopropyl benzene)						0.0636	0.0541	0.0745	120.2000	0.0098	0.0801	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.4179	1.2610	1.5905	84.1600	0.0001	0.0183	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0080	0.0069	0.0091	130.0000	0.9842	0.7004	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1328	0.1143	0.1539	106.1700	0.0011	0.0189	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.2256	1.9886	2.4853	86.1700	0.0001	0.0287	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3956	0.3457	0.4514	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1108	0.0952	0.1286	106.1700	0.0035	0.0494	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	May	62.92	58.86	66.98	63.52	0.0111	0.0097	0.0126	117.7807			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2656	1.1314	1.4129	78.1100	0.0003	0.0540	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (isopropyl benzene)						0.0571	0.0490	0.0662	120.2000	0.0098	0.0791	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3104	1.1745	1.4591	84.1600	0.0001	0.0186	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0072	0.0063	0.0082	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1201	0.1043	0.1378	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.0633	1.8573	2.2878	86.1700	0.0001	0.0293	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3613	0.3186	0.4088	92.1300	0.0010	0.0514	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1001	0.0868	0.1150	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Jun	60.82	56.98	64.66	63.52	0.0103	0.0091	0.0118	117.6592			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.1947	1.0733	1.3272	78.1100	0.0003	0.0548	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (isopropyl benzene)						0.0528	0.0457	0.0608	120.2000	0.0098	0.0787	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2386	1.1155	1.3726	84.1600	0.0001	0.0189	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0067	0.0059	0.0077	130.0000	0.9842	0.6980	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1117	0.0976	0.1274	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.9546	1.7677	2.1574	86.1700	0.0001	0.0299	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3387	0.3003	0.3811	92.1300	0.0010	0.0518	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0930	0.0812	0.1063	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Jul	60.08	55.87	64.29	63.52	0.0101	0.0088	0.0116	117.6058			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.1703	1.0402	1.3137	78.1100	0.0003	0.0552	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (isopropyl benzene)						0.0513	0.0438	0.0600	120.2000	0.0098	0.0786	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2139	1.0819	1.3590	84.1600	0.0001	0.0191	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0065	0.0057	0.0076	130.0000	0.9842	0.6971	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1088	0.0939	0.1258	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.9172	1.7166	2.1367	86.1700	0.0001	0.0301	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3309	0.2899	0.3768	92.1300	0.0010	0.0520	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0906	0.0780	0.1049	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Aug	61.49	56.74	66.24	63.52	0.0106	0.0090	0.0124	117.7023			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2168	1.0660	1.3850	78.1100	0.0003	0.0545	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (isopropyl benzene)						0.0541	0.0453	0.0644	120.2000	0.0098	0.0788	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2610	1.1082	1.4309	84.1600	0.0001	0.0188	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0069	0.0058	0.0081	130.0000	0.9842	0.6986	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1143	0.0968	0.1344	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.9886	1.7565	2.2454	86.1700	0.0001			

Xylene (-m)

0.1249

0.1047

0.1484

106.1700

0.0035

0.0500

106.17

Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T110-01 - VFRT - Vertical Fixed Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	7,545.93	1,836.59	9,382.52
Benzene	402.41	97.88	500.29
Cumene (Isopropyl benzene)	606.62	147.70	754.32
Cyclohexane	138.62	33.72	172.34
Distillate fuel oil no. 2	5,277.13	1,284.46	6,561.59
Ethyl benzene	142.88	34.78	177.65
Hexane (-n)	217.61	52.92	270.53
Toluene	386.75	94.11	480.86
Xylene (-m)	373.91	91.02	464.93

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	_2017 T110-02 - VFRT
City:	Sydney Airport Amo
State:	NSW
Company:	Vopak
Type of Tank:	Vertical Fixed Roof Tank
Description:	Diesel

Tank Dimensions

Shell Height (ft):	79.89
Diameter (ft):	142.71
Liquid Height (ft) :	77.26
Avg. Liquid Height (ft):	49.21
Volume (gallons):	9,246,020.00
Turnovers:	24.00
Net Throughput(gal/yr):	221,904,480.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	13.78
Slope (ft/ft) (Cone Roof)	0.19

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T110-02 - VFRT - Vertical Fixed Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	70.10	65.17	75.03	63.52	0.0139	0.0119	0.0161	117.9506			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.5353	1.3456	1.7466	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0740	0.0620	0.0881	120.2000	0.0098	0.0821	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5826	1.3912	1.7950	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0090	0.0078	0.0105	130.0000	0.9842	0.6990	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1530	0.1296	0.1798	106.1700	0.0011	0.0191	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4735	2.1855	2.7918	86.1700	0.0001	0.0281	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4488	0.3871	0.5187	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1278	0.1082	0.1505	106.1700	0.0035	0.0502	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Feb	69.87	65.29	74.44	63.52	0.0138	0.0120	0.0158	117.9459			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.5259	1.3501	1.7201	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0734	0.0623	0.0863	120.2000	0.0098	0.0820	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5730	1.3958	1.7684	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0090	0.0078	0.0103	130.0000	0.9842	0.6990	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1518	0.1302	0.1764	106.1700	0.0011	0.0191	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4592	2.1923	2.7520	86.1700	0.0001	0.0282	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4457	0.3885	0.5099	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1268	0.1086	0.1476	106.1700	0.0035	0.0501	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Mar	68.63	64.11	73.15	63.52	0.0133	0.0116	0.0152	117.9382			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4766	1.3075	1.6634	78.1100	0.0003	0.0526	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0703	0.0596	0.0825	120.2000	0.0098	0.0813	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5234	1.3527	1.7115	84.1600	0.0001	0.0181	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0087	0.0075	0.0099	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1457	0.1251	0.1691	106.1700	0.0011	0.0190	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.3846	2.1273	2.6668	86.1700	0.0001	0.0283	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4296	0.3748	0.4911	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1217	0.1043	0.1415	106.1700	0.0035	0.0498	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Apr	65.89	61.49	70.29	63.52	0.0122	0.0106	0.0139	117.8902			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3720	1.2169	1.5432	78.1100	0.0003	0.0531	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0636	0.0541	0.0745	120.2000	0.0098	0.0801	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.4179	1.2610	1.5905	84.1600	0.0001	0.0183	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0080	0.0069	0.0091	130.0000	0.9842	0.7004	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1328	0.1143	0.1539	106.1700	0.0011	0.0189	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.2256	1.9886	2.4853	86.1700	0.0001	0.0287	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3956	0.3457	0.4514	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1108	0.0952	0.1286	106.1700	0.0035	0.0494	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	May	62.92	58.86	66.98	63.52	0.0111	0.0097	0.0126	117.7807			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2656	1.1314	1.4129	78.1100	0.0003	0.0540	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0571	0.0490	0.0662	120.2000	0.0098	0.0791	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3104	1.1745	1.4591	84.1600	0.0001	0.0186	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0072	0.0063	0.0082	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1201	0.1043	0.1378	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.0633	1.8573	2.2878	86.1700	0.0001	0.0293	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3613	0.3186	0.4088	92.1300	0.0010	0.0514	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1001	0.0868	0.1150	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Jun	60.82	56.98	64.66	63.52	0.0103	0.0091	0.0118	117.6592			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.1947	1.0733	1.3272	78.1100	0.0003	0.0548	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0528	0.0457	0.0608	120.2000	0.0098	0.0787	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2386	1.1155	1.3726	84.1600	0.0001	0.0189	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0067	0.0059	0.0077	130.0000	0.9842	0.6980	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1117	0.0976	0.1274	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.9546	1.7677	2.1574	86.1700	0.0001	0.0299	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3387	0.3003	0.3811	92.1300	0.0010	0.0518	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0930	0.0812	0.1063	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Jul	60.08	55.87	64.29	63.52	0.0101	0.0088	0.0116	117.6058			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.1703	1.0402	1.3137	78.1100	0.0003	0.0552	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0513	0.0438	0.0600	120.2000	0.0098	0.0786	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2139	1.0819	1.3589	84.1600	0.0001	0.0191	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0065	0.0057	0.0076	130.0000	0.9842	0.6971	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1088	0.0939	0.1258	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.9172	1.7166	2.1367	86.1700	0.0001	0.0301	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3309	0.2899	0.3768	92.1300	0.0010	0.0520	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0906	0.0780	0.1049	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Aug	61.49	56.74	66.24	63.52	0.0106	0.0090	0.0124	117.7023			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2168	1.0660	1.3850	78.1100	0.0003	0.0545	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0541	0.0453	0.0644	120.2000	0.0098	0.0788	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2610	1.1082	1.4309	84.1600	0.0001	0.0188	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0069	0.0058	0.0081	130.0000	0.9842	0.6986	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1143	0.0968	0.1344	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.9886	1.7565	2.2454					

Xylene (-m)

0.1249

0.1047

0.1484

106.1700

0.0035

0.0500

106.17

Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T110-02 - VFRT - Vertical Fixed Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	7,545.93	1,836.59	9,382.52
Benzene	402.41	97.88	500.29
Cumene (Isopropyl benzene)	606.62	147.70	754.32
Cyclohexane	138.62	33.72	172.34
Distillate fuel oil no. 2	5,277.13	1,284.46	6,561.59
Ethyl benzene	142.88	34.78	177.65
Hexane (-n)	217.61	52.92	270.53
Toluene	386.75	94.11	480.86
Xylene (-m)	373.91	91.02	464.93

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	_2017 T110-03 - VFRT
City:	Sydney Airport Amo
State:	NSW
Company:	Vopak
Type of Tank:	Vertical Fixed Roof Tank
Description:	Diesel

Tank Dimensions

Shell Height (ft):	79.89
Diameter (ft):	142.71
Liquid Height (ft) :	77.26
Avg. Liquid Height (ft):	49.21
Volume (gallons):	9,246,020.00
Turnovers:	24.00
Net Throughput(gal/yr):	221,904,480.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	13.78
Slope (ft/ft) (Cone Roof)	0.19

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T110-03 - VFRT - Vertical Fixed Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	70.10	65.17	75.03	63.52	0.0139	0.0119	0.0161	117.9506			186.01	Option 1: VP70 = .009 VP80 = .012
Benzene						1.5353	1.3456	1.7466	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0740	0.0620	0.0881	120.2000	0.0098	0.0821	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5826	1.3912	1.7950	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0090	0.0078	0.0105	130.0000	0.9842	0.6990	188.00	Option 1: VP70 = .009 VP80 = .012
Ethyl benzene						0.1530	0.1296	0.1798	106.1700	0.0011	0.0191	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4735	2.1855	2.7918	86.1700	0.0001	0.0281	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4488	0.3871	0.5185	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1278	0.1082	0.1505	106.1700	0.0035	0.0502	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Feb	69.87	65.29	74.44	63.52	0.0138	0.0120	0.0158	117.9459			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.5259	1.3501	1.7201	78.1100	0.0003	0.0524	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0734	0.0623	0.0863	120.2000	0.0098	0.0820	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5730	1.3958	1.7684	84.1600	0.0001	0.0180	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0090	0.0078	0.0103	130.0000	0.9842	0.6990	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1518	0.1302	0.1764	106.1700	0.0011	0.0191	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4592	2.1923	2.7520	86.1700	0.0001	0.0282	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4457	0.3885	0.5099	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1268	0.1086	0.1476	106.1700	0.0035	0.0501	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Mar	68.63	64.11	73.15	63.52	0.0133	0.0116	0.0152	117.9382			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.4766	1.3075	1.6634	78.1100	0.0003	0.0526	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0703	0.0596	0.0825	120.2000	0.0098	0.0813	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.5234	1.3527	1.7115	84.1600	0.0001	0.0181	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0087	0.0075	0.0099	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1457	0.1251	0.1691	106.1700	0.0011	0.0190	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.3846	2.1273	2.6668	86.1700	0.0001	0.0283	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4296	0.3748	0.4911	92.1300	0.0010	0.0510	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1217	0.1043	0.1415	106.1700	0.0035	0.0498	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Apr	65.89	61.49	70.29	63.52	0.0122	0.0106	0.0139	117.8902			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.3720	1.2169	1.5432	78.1100	0.0003	0.0531	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0636	0.0541	0.0745	120.2000	0.0098	0.0801	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.4179	1.2610	1.5905	84.1600	0.0001	0.0183	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0080	0.0069	0.0091	130.0000	0.9842	0.7004	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1328	0.1143	0.1539	106.1700	0.0011	0.0189	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.2256	1.9886	2.4853	86.1700	0.0001	0.0287	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3956	0.3457	0.4514	92.1300	0.0010	0.0511	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1108	0.0952	0.1286	106.1700	0.0035	0.0494	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	May	62.92	58.86	66.98	63.52	0.0111	0.0097	0.0126	117.7807			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2656	1.1314	1.4129	78.1100	0.0003	0.0540	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0571	0.0490	0.0662	120.2000	0.0098	0.0791	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.3104	1.1745	1.4591	84.1600	0.0001	0.0186	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0072	0.0063	0.0082	130.0000	0.9842	0.6997	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1201	0.1043	0.1378	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.0633	1.8573	2.2878	86.1700	0.0001	0.0293	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3613	0.3186	0.4088	92.1300	0.0010	0.0514	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1001	0.0868	0.1150	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Jun	60.82	56.98	64.66	63.52	0.0103	0.0091	0.0118	117.6592			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.1947	1.0733	1.3272	78.1100	0.0003	0.0548	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0528	0.0457	0.0608	120.2000	0.0098	0.0787	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2386	1.1155	1.3726	84.1600	0.0001	0.0189	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0067	0.0059	0.0077	130.0000	0.9842	0.6980	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1117	0.0976	0.1274	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.9546	1.7677	2.1574	86.1700	0.0001	0.0299	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3387	0.3003	0.3811	92.1300	0.0010	0.0518	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0930	0.0812	0.1063	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Jul	60.08	55.87	64.29	63.52	0.0101	0.0088	0.0116	117.6058			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.1703	1.0402	1.3137	78.1100	0.0003	0.0552	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0513	0.0438	0.0600	120.2000	0.0098	0.0786	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2139	1.0819	1.3590	84.1600	0.0001	0.0191	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0065	0.0057	0.0076	130.0000	0.9842	0.6971	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1088	0.0939	0.1258	106.1700	0.0011	0.0188	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.9172	1.7166	2.1367	86.1700	0.0001	0.0301	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3309	0.2899	0.3768	92.1300	0.0010	0.0520	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0906	0.0780	0.1049	106.1700	0.0035	0.0491	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Aug	61.49	56.74	66.24	63.52	0.0106	0.0090	0.0124	117.7023			186.01	Option 1: VP60 = .0065 VP70 = .009
Benzene						1.2168	1.0660	1.3850	78.1100	0.0003	0.0545	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cumene (Isopropyl benzene)						0.0541	0.0453	0.0644	120.2000	0.0098	0.0788	120.20	Option 2: A=6.9636, B=1460.793, C=207.78
Cyclohexane						1.2610	1.1082	1.4309	84.1600	0.0001	0.0188	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Distillate fuel oil no. 2						0.0069	0.0058	0.0081	130.0000	0.9842	0.6986	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethyl benzene						0.1143	0.0968	0.1344	106.1700	0.0011	0.0188		

Xylene (-m)

0.1249

0.1047

0.1484

106.1700

0.0035

0.0500

106.17

Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T110-03 - VFRT - Vertical Fixed Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	7,545.93	1,836.59	9,382.52
Benzene	402.41	97.88	500.29
Cumene (Isopropyl benzene)	606.62	147.70	754.32
Cyclohexane	138.62	33.72	172.34
Distillate fuel oil no. 2	5,277.13	1,284.46	6,561.59
Ethyl benzene	142.88	34.78	177.65
Hexane (-n)	217.61	52.92	270.53
Toluene	386.75	94.11	480.86
Xylene (-m)	373.91	91.02	464.93

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T110-04 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91

Tank Dimensions

Diameter (ft): 134.51
Volume (gallons): 8,221,033.00
Turnovers: 24.00
Self Supp. Roof? (y/n): N
No. of Columns: 8.00
Eff. Col. Diam. (ft): 1.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,842.03

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	79
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	23
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T110-04 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T110-04 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	5,588.80	304.41	1,850.24	3,629.14	11,372.59
Benzene	21.03	2.84	6.96	13.65	44.48
Cumene (Isopropyl benzene)	0.11	0.30	0.04	0.07	0.52
Cyclohexane	17.78	2.33	5.89	11.54	37.54
Ethyl benzene	3.43	4.67	1.13	2.22	11.45
Gasoline (RVP 10)	5,428.66	248.06	1,797.22	3,525.14	10,999.08
Hexane (-n)	66.53	5.57	22.02	43.20	137.32
Toluene	36.82	17.06	12.19	23.91	89.98
Xylene (-m)	14.46	23.58	4.79	9.39	52.22

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T110-05 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91

Tank Dimensions

Diameter (ft): 134.51
Volume (gallons): 8,221,033.00
Turnovers: 24.00
Self Supp. Roof? (y/n): N
No. of Columns: 8.00
Eff. Col. Diam. (ft): 1.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 2,842.03

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	79
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	23
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T110-05 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T110-05 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	5,588.80	304.41	1,850.24	3,629.14	11,372.59
Benzene	21.03	2.84	6.96	13.65	44.48
Cumene (Isopropyl benzene)	0.11	0.30	0.04	0.07	0.52
Cyclohexane	17.78	2.33	5.89	11.54	37.54
Ethyl benzene	3.43	4.67	1.13	2.22	11.45
Gasoline (RVP 10)	5,428.66	248.06	1,797.22	3,525.14	10,999.08
Hexane (-n)	66.53	5.57	22.02	43.20	137.32
Toluene	36.82	17.06	12.19	23.91	89.98
Xylene (-m)	14.46	23.58	4.79	9.39	52.22

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T110-06 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91

Tank Dimensions

Diameter (ft): 95.14
Volume (gallons): 4,247,886.00
Turnovers: 24.00
Self Supp. Roof? (y/n): N
No. of Columns: 6.00
Eff. Col. Diam. (ft): 1.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 1,421.82

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	45
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	32
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T110-06 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T110-06 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	3,953.01	223.13	1,440.47	1,815.60	7,432.21
Benzene	14.87	2.08	5.42	6.83	29.20
Cumene (Isopropyl benzene)	0.08	0.22	0.03	0.04	0.36
Cyclohexane	12.58	1.71	4.58	5.78	24.64
Ethyl benzene	2.42	3.42	0.88	1.11	7.84
Gasoline (RVP 10)	3,839.73	181.83	1,399.20	1,763.57	7,184.33
Hexane (-n)	47.05	4.08	17.15	21.61	89.90
Toluene	26.05	12.50	9.49	11.96	60.00
Xylene (-m)	10.23	17.29	3.73	4.70	35.94

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: 2017 T110-07 - IFRT
City: Sydney Airport Amo
State: NSW
Company: Vopak
Type of Tank: Internal Floating Roof Tank
Description: 91

Tank Dimensions

Diameter (ft): 95.14
Volume (gallons): 4,247,886.00
Turnovers: 24.00
Self Supp. Roof? (y/n): N
No. of Columns: 6.00
Eff. Col. Diam. (ft): 1.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: Aluminum/Diffuse
Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Detail
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 1,421.82

Deck Fitting/Status**Quantity**

Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	45
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	2
Stub Drain (1-in. Diameter)/Weighted Mech. Actuation, Gask.	32
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Wiper	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Ungask.	6

Meterological Data used in Emissions Calculations: Sydney Airport Amo, NSW (Avg Atmospheric Pressure = 14.74 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

2017 T110-07 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	74.28	66.29	82.28	64.81	5.7130	N/A	N/A	66.4966			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.7133	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0858	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7616	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1755	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7902	N/A	N/A	66.0000	0.8149	0.9701	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.7417	N/A	N/A	86.1700	0.0183	0.0123	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.5076	N/A	N/A	92.1300	0.0560	0.0070	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1468	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Feb	73.64	66.36	80.92	64.81	5.6456	N/A	N/A	66.4938			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6850	N/A	N/A	78.1100	0.0093	0.0039	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0839	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.7332	N/A	N/A	84.1600	0.0077	0.0033	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1719	N/A	N/A	106.1700	0.0153	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.7109	N/A	N/A	66.0000	0.8149	0.9703	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6993	N/A	N/A	86.1700	0.0183	0.0122	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4983	N/A	N/A	92.1300	0.0560	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1438	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Mar	72.15	65.15	79.15	64.81	5.4908	N/A	N/A	66.4874			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.6207	N/A	N/A	78.1100	0.0093	0.0038	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0796	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.6685	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1637	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.5287	N/A	N/A	66.0000	0.8149	0.9706	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.6024	N/A	N/A	86.1700	0.0183	0.0121	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4769	N/A	N/A	92.1300	0.0560	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1369	N/A	N/A	106.1700	0.0775	0.0027	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Apr	68.78	62.46	75.11	64.81	5.1535	N/A	N/A	66.4729			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4827	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0706	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.5295	N/A	N/A	84.1600	0.0077	0.0032	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1464	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						6.1314	N/A	N/A	66.0000	0.8149	0.9715	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.3938	N/A	N/A	86.1700	0.0183	0.0119	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.4316	N/A	N/A	92.1300	0.0560	0.0066	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1223	N/A	N/A	106.1700	0.0775	0.0026	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	May	65.15	59.75	70.54	64.81	4.8082	N/A	N/A	66.4574			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3447	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0619	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3903	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1295	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.7244	N/A	N/A	66.0000	0.8149	0.9723	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1841	N/A	N/A	86.1700	0.0183	0.0116	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3868	N/A	N/A	92.1300	0.0560	0.0063	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1081	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jun	62.81	57.84	67.78	64.81	4.5966	N/A	N/A	66.4476			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2620	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0568	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3067	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1196	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4748	N/A	N/A	66.0000	0.8149	0.9729	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0577	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3602	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0997	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Jul	62.13	56.74	67.52	64.81	4.5362	N/A	N/A	66.4448			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2386	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0554	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.2830	N/A	N/A	84.1600	0.0077	0.0030	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1168	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.4035	N/A	N/A	66.0000	0.8149	0.9730	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.0219	N/A	N/A	86.1700	0.0183	0.0114	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3527	N/A	N/A	92.1300	0.0560	0.0061	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.0974	N/A	N/A	106.1700	0.0775	0.0023	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Aug	64.21	57.69	70.74	64.81	4.7225	N/A	N/A	66.4535			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.3111	N/A	N/A	78.1100	0.0093	0.0036	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0598	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.78
Cyclohexane						1.3563	N/A	N/A	84.1600	0.0077	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=-222.65
Ethyl benzene						0.1255	N/A	N/A	106.1700	0.0153	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=-213.21
Gasoline (RVP 10)						5.6234	N/A	N/A	66.0000	0.8149	0.9725	92.00	Option 4: RVP=10, ASTM Slope=3
Hexane (-n)						2.1327	N/A	N/A	86.1700	0.0183	0.0115	86.17	Option 2: A=6.876, B=1171.17, C=-224.41
Toluene						0.3759	N/A	N/A	92.1300	0.0560	0.0062	92.13	Option 2: A=6.954, B=1344.8, C=-219.48
Xylene (-m)						0.1046	N/A	N/A	106.1700	0.0775	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=-215.11
Gasoline (RVP 10)	Sep	66.91	59.48	74.35	64.81	4.9734	N/A	N/A	66.4649			92.84	Option 4: RVP=10, ASTM Slope=3
Benzene						1.4103	N/A	N/A	78.1100	0.0093	0.0037	78.11	Option 2: A=6.905, B=1211.033, C=-220.79
Cumene (Isopropyl benzene)						0.0660	N/A	N/A	120.2000	0.0010	0.0000	120.20	Option 2: A=6.9636, B=1460.793, C=-207.

Xylene (-m)	0.1439	N/A	N/A	106.1700	0.0775	0.0028	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

_2017 T110-07 - IFRT - Internal Floating Roof Tank
Sydney Airport Amo, NSW

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 10)	3,953.01	223.13	1,440.47	1,815.60	7,432.21
Benzene	14.87	2.08	5.42	6.83	29.20
Cumene (Isopropyl benzene)	0.08	0.22	0.03	0.04	0.36
Cyclohexane	12.58	1.71	4.58	5.78	24.64
Ethyl benzene	2.42	3.42	0.88	1.11	7.84
Gasoline (RVP 10)	3,839.73	181.83	1,399.20	1,763.57	7,184.33
Hexane (-n)	47.05	4.08	17.15	21.61	89.90
Toluene	26.05	12.50	9.49	11.96	60.00
Xylene (-m)	10.23	17.29	3.73	4.70	35.94

TANKS 4.0.9d
Emissions Report - Summary Format
Total Emissions Summaries - All Tanks in Report

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

Tank Identification				Losses (lbs)
2017 T110-01 - VFRT	Vopak	Vertical Fixed Roof Tank	Sydney Airport Amo, NSW	9,382.52
2017 T110-02 - VFRT	Vopak	Vertical Fixed Roof Tank	Sydney Airport Amo, NSW	9,382.52
2017 T110-03 - VFRT	Vopak	Vertical Fixed Roof Tank	Sydney Airport Amo, NSW	9,382.52
2017 T110-04 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	11,372.59
2017 T110-05 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	11,372.59
2017 T110-06 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	7,432.21
2017 T110-07 - IFRT	Vopak	Internal Floating Roof Tank	Sydney Airport Amo, NSW	7,432.21
Total Emissions for all Tanks:				65,757.16

Appendix C

Emission Rates

Appendix C Emission Rates

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
DT01	January	8.036E-03	1.259E-02	2.761E-03	2.936E-03	4.315E-03	7.831E-03	7.693E-03
	February	8.552E-03	1.338E-02	2.939E-03	3.119E-03	4.594E-03	8.328E-03	8.174E-03
	March	7.607E-03	1.176E-02	2.616E-03	2.752E-03	4.095E-03	7.378E-03	7.208E-03
	April	7.240E-03	1.091E-02	2.494E-03	2.570E-03	3.915E-03	6.959E-03	6.727E-03
	May	6.423E-03	9.411E-03	2.217E-03	2.234E-03	3.490E-03	6.112E-03	5.840E-03
	June	6.180E-03	8.874E-03	2.136E-03	2.118E-03	3.370E-03	5.839E-03	5.533E-03
	July	5.991E-03	8.541E-03	2.072E-03	2.043E-03	3.272E-03	5.647E-03	5.335E-03
	August	6.370E-03	9.206E-03	2.201E-03	2.194E-03	3.470E-03	6.033E-03	5.732E-03
	September	7.034E-03	1.038E-02	2.427E-03	2.458E-03	3.818E-03	6.710E-03	6.429E-03
	October	7.336E-03	1.107E-02	2.527E-03	2.608E-03	3.966E-03	7.055E-03	6.825E-03
	November	7.891E-03	1.211E-02	2.715E-03	2.839E-03	4.253E-03	7.632E-03	7.434E-03
	December	7.984E-03	1.244E-02	2.745E-03	2.903E-03	4.293E-03	7.763E-03	7.607E-03
DT02	January	8.036E-03	1.259E-02	2.761E-03	2.936E-03	4.315E-03	7.831E-03	7.693E-03
	February	8.552E-03	1.338E-02	2.939E-03	3.119E-03	4.594E-03	8.328E-03	8.174E-03
	March	7.607E-03	1.176E-02	2.616E-03	2.752E-03	4.095E-03	7.378E-03	7.208E-03
	April	7.240E-03	1.091E-02	2.494E-03	2.570E-03	3.915E-03	6.959E-03	6.727E-03
	May	6.423E-03	9.411E-03	2.217E-03	2.234E-03	3.490E-03	6.112E-03	5.840E-03
	June	6.180E-03	8.874E-03	2.136E-03	2.118E-03	3.370E-03	5.839E-03	5.533E-03
	July	5.991E-03	8.541E-03	2.072E-03	2.043E-03	3.272E-03	5.647E-03	5.335E-03
	August	6.370E-03	9.206E-03	2.201E-03	2.194E-03	3.470E-03	6.033E-03	5.732E-03
	September	7.034E-03	1.038E-02	2.427E-03	2.458E-03	3.818E-03	6.710E-03	6.429E-03
	October	7.336E-03	1.107E-02	2.527E-03	2.608E-03	3.966E-03	7.055E-03	6.825E-03
	November	7.891E-03	1.211E-02	2.715E-03	2.839E-03	4.253E-03	7.632E-03	7.434E-03
	December	7.984E-03	1.244E-02	2.745E-03	2.903E-03	4.293E-03	7.763E-03	7.607E-03
DT03	January	8.036E-03	1.259E-02	2.761E-03	2.936E-03	4.315E-03	7.831E-03	7.693E-03
	February	8.552E-03	1.338E-02	2.939E-03	3.119E-03	4.594E-03	8.328E-03	8.174E-03
	March	7.607E-03	1.176E-02	2.616E-03	2.752E-03	4.095E-03	7.378E-03	7.208E-03
	April	7.240E-03	1.091E-02	2.494E-03	2.570E-03	3.915E-03	6.959E-03	6.727E-03
	May	6.423E-03	9.411E-03	2.217E-03	2.234E-03	3.490E-03	6.112E-03	5.840E-03
	June	6.180E-03	8.874E-03	2.136E-03	2.118E-03	3.370E-03	5.839E-03	5.533E-03
	July	5.991E-03	8.541E-03	2.072E-03	2.043E-03	3.272E-03	5.647E-03	5.335E-03
	August	6.370E-03	9.206E-03	2.201E-03	2.194E-03	3.470E-03	6.033E-03	5.732E-03

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	September	7.034E-03	1.038E-02	2.427E-03	2.458E-03	3.818E-03	6.710E-03	6.429E-03
	October	7.336E-03	1.107E-02	2.527E-03	2.608E-03	3.966E-03	7.055E-03	6.825E-03
	November	7.891E-03	1.211E-02	2.715E-03	2.839E-03	4.253E-03	7.632E-03	7.434E-03
	December	7.984E-03	1.244E-02	2.745E-03	2.903E-03	4.293E-03	7.763E-03	7.607E-03
GT04	January	7.325E-04	8.022E-06	6.166E-04	1.825E-04	2.252E-03	1.473E-03	8.263E-04
	February	7.959E-04	8.778E-06	6.702E-04	1.990E-04	2.448E-03	1.601E-03	9.017E-04
	March	6.881E-04	7.718E-06	5.799E-04	1.735E-04	2.120E-03	1.386E-03	7.879E-04
	April	6.444E-04	7.527E-06	5.440E-04	1.660E-04	1.991E-03	1.303E-03	7.575E-04
	May	5.610E-04	6.876E-06	4.745E-04	1.484E-04	1.738E-03	1.141E-03	6.810E-04
	June	5.418E-04	6.863E-06	4.587E-04	1.461E-04	1.681E-03	1.107E-03	6.728E-04
	July	5.140E-04	6.578E-06	4.354E-04	1.394E-04	1.596E-03	1.052E-03	6.428E-04
	August	5.460E-04	6.780E-06	4.620E-04	1.455E-04	1.693E-03	1.112E-03	6.687E-04
	September	6.102E-04	7.302E-06	5.156E-04	1.593E-04	1.888E-03	1.237E-03	7.289E-04
	October	6.447E-04	7.425E-06	5.440E-04	1.648E-04	1.990E-03	1.302E-03	7.509E-04
	November	7.083E-04	7.956E-06	5.969E-04	1.788E-04	2.182E-03	1.427E-03	8.118E-04
	December	7.195E-04	7.933E-06	6.059E-04	1.799E-04	2.213E-03	1.448E-03	8.150E-04
GT05	January	7.325E-04	8.022E-06	6.166E-04	1.825E-04	2.252E-03	1.473E-03	8.263E-04
	February	7.959E-04	8.778E-06	6.702E-04	1.990E-04	2.448E-03	1.601E-03	9.017E-04
	March	6.881E-04	7.718E-06	5.799E-04	1.735E-04	2.120E-03	1.386E-03	7.879E-04
	April	6.444E-04	7.527E-06	5.440E-04	1.660E-04	1.991E-03	1.303E-03	7.575E-04
	May	5.610E-04	6.876E-06	4.745E-04	1.484E-04	1.738E-03	1.141E-03	6.810E-04
	June	5.418E-04	6.863E-06	4.587E-04	1.461E-04	1.681E-03	1.107E-03	6.728E-04
	July	5.140E-04	6.578E-06	4.354E-04	1.394E-04	1.596E-03	1.052E-03	6.428E-04
	August	5.460E-04	6.780E-06	4.620E-04	1.455E-04	1.693E-03	1.112E-03	6.687E-04
	September	6.102E-04	7.302E-06	5.156E-04	1.593E-04	1.888E-03	1.237E-03	7.289E-04
	October	6.447E-04	7.425E-06	5.440E-04	1.648E-04	1.990E-03	1.302E-03	7.509E-04
	November	7.083E-04	7.956E-06	5.969E-04	1.788E-04	2.182E-03	1.427E-03	8.118E-04
	December	7.195E-04	7.933E-06	6.059E-04	1.799E-04	2.213E-03	1.448E-03	8.150E-04
GT06	January	4.804E-04	5.577E-06	4.043E-04	1.243E-04	1.473E-03	9.792E-04	5.654E-04
	February	5.220E-04	6.106E-06	4.395E-04	1.356E-04	1.602E-03	1.065E-03	6.175E-04
	March	4.515E-04	5.378E-06	3.804E-04	1.184E-04	1.387E-03	9.227E-04	5.404E-04
	April	4.231E-04	5.266E-06	3.571E-04	1.137E-04	1.303E-03	8.691E-04	5.215E-04
	May	3.687E-04	4.830E-06	3.117E-04	1.021E-04	1.138E-03	7.627E-04	4.708E-04

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	June	3.563E-04	4.834E-06	3.016E-04	1.007E-04	1.102E-03	7.411E-04	4.664E-04
	July	3.381E-04	4.636E-06	2.863E-04	9.622E-05	1.046E-03	7.046E-04	4.459E-04
	August	3.589E-04	4.767E-06	3.036E-04	1.002E-04	1.109E-03	7.441E-04	4.628E-04
	September	4.008E-04	5.120E-06	3.386E-04	1.093E-04	1.236E-03	8.262E-04	5.029E-04
	October	4.232E-04	5.188E-06	3.570E-04	1.128E-04	1.302E-03	8.677E-04	5.163E-04
	November	4.647E-04	5.545E-06	3.916E-04	1.220E-04	1.428E-03	9.499E-04	5.569E-04
	December	4.719E-04	5.518E-06	3.973E-04	1.226E-04	1.448E-03	9.627E-04	5.581E-04
GT07	January	4.804E-04	5.577E-06	4.043E-04	1.243E-04	1.473E-03	9.792E-04	5.654E-04
	February	5.220E-04	6.106E-06	4.395E-04	1.356E-04	1.602E-03	1.065E-03	6.175E-04
	March	4.515E-04	5.378E-06	3.804E-04	1.184E-04	1.387E-03	9.227E-04	5.404E-04
	April	4.231E-04	5.266E-06	3.571E-04	1.137E-04	1.303E-03	8.691E-04	5.215E-04
	May	3.687E-04	4.830E-06	3.117E-04	1.021E-04	1.138E-03	7.627E-04	4.708E-04
	June	3.563E-04	4.834E-06	3.016E-04	1.007E-04	1.102E-03	7.411E-04	4.664E-04
	July	3.381E-04	4.636E-06	2.863E-04	9.622E-05	1.046E-03	7.046E-04	4.459E-04
	August	3.589E-04	4.767E-06	3.036E-04	1.002E-04	1.109E-03	7.441E-04	4.628E-04
	September	4.008E-04	5.120E-06	3.386E-04	1.093E-04	1.236E-03	8.262E-04	5.029E-04
	October	4.232E-04	5.188E-06	3.570E-04	1.128E-04	1.302E-03	8.677E-04	5.163E-04
	November	4.647E-04	5.545E-06	3.916E-04	1.220E-04	1.428E-03	9.499E-04	5.569E-04
	December	4.719E-04	5.518E-06	3.973E-04	1.226E-04	1.448E-03	9.627E-04	5.581E-04
T101	January	3.091E-04	1.711E-04	1.038E-03	5.352E-05	6.213E-03	4.735E-05	1.688E-04
	February	3.366E-04	1.865E-04	1.131E-03	5.825E-05	6.772E-03	5.152E-05	1.838E-04
	March	2.926E-04	1.626E-04	9.842E-04	5.057E-05	5.898E-03	4.467E-05	1.597E-04
	April	2.770E-04	1.553E-04	9.336E-04	4.779E-05	5.610E-03	4.208E-05	1.513E-04
	May	2.436E-04	1.384E-04	8.227E-04	4.204E-05	4.957E-03	3.683E-05	1.335E-04
	June	2.366E-04	1.359E-04	8.001E-04	4.089E-05	4.829E-03	3.567E-05	1.302E-04
	July	2.248E-04	1.296E-04	7.606E-04	3.888E-05	4.593E-03	3.387E-05	1.238E-04
	August	2.376E-04	1.356E-04	8.030E-04	4.103E-05	4.842E-03	3.589E-05	1.304E-04
	September	2.637E-04	1.488E-04	8.898E-04	4.550E-05	5.354E-03	3.996E-05	1.443E-04
	October	2.762E-04	1.543E-04	9.302E-04	4.767E-05	5.584E-03	4.203E-05	1.508E-04
	November	3.013E-04	1.675E-04	1.014E-03	5.207E-05	6.075E-03	4.599E-05	1.644E-04
	December	3.043E-04	1.686E-04	1.023E-03	5.266E-05	6.122E-03	4.657E-05	1.661E-04

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
T102	January	2.119E-04	1.335E-04	7.117E-04	3.950E-05	4.243E-03	3.323E-05	1.261E-04
	February	2.308E-04	1.459E-04	7.756E-04	4.305E-05	4.625E-03	3.617E-05	1.375E-04
	March	2.007E-04	1.278E-04	6.750E-04	3.750E-05	4.029E-03	3.141E-05	1.199E-04
	April	1.902E-04	1.234E-04	6.409E-04	3.572E-05	3.834E-03	2.969E-05	1.146E-04
	May	1.675E-04	1.114E-04	5.654E-04	3.171E-05	3.391E-03	2.609E-05	1.022E-04
	June	1.628E-04	1.102E-04	5.503E-04	3.104E-05	3.305E-03	2.534E-05	1.003E-04
	July	1.547E-04	1.054E-04	5.233E-04	2.957E-05	3.144E-03	2.409E-05	9.563E-05
	August	1.634E-04	1.095E-04	5.521E-04	3.103E-05	3.313E-03	2.545E-05	1.001E-04
	September	1.812E-04	1.190E-04	6.112E-04	3.416E-05	3.661E-03	2.826E-05	1.099E-04
	October	1.896E-04	1.222E-04	6.383E-04	3.553E-05	3.816E-03	2.962E-05	1.139E-04
	November	2.067E-04	1.317E-04	6.951E-04	3.862E-05	4.150E-03	3.235E-05	1.236E-04
	December	2.086E-04	1.319E-04	7.010E-04	3.891E-05	4.181E-03	3.270E-05	1.243E-04
T103	January	2.119E-04	1.335E-04	7.117E-04	3.950E-05	4.243E-03	3.323E-05	1.261E-04
	February	2.308E-04	1.459E-04	7.756E-04	4.305E-05	4.625E-03	3.617E-05	1.375E-04
	March	2.007E-04	1.278E-04	6.750E-04	3.750E-05	4.029E-03	3.141E-05	1.199E-04
	April	1.902E-04	1.234E-04	6.409E-04	3.572E-05	3.834E-03	2.969E-05	1.146E-04
	May	1.675E-04	1.114E-04	5.654E-04	3.171E-05	3.391E-03	2.609E-05	1.022E-04
	June	1.628E-04	1.102E-04	5.503E-04	3.104E-05	3.305E-03	2.534E-05	1.003E-04
	July	1.547E-04	1.054E-04	5.233E-04	2.957E-05	3.144E-03	2.409E-05	9.563E-05
	August	1.634E-04	1.095E-04	5.521E-04	3.103E-05	3.313E-03	2.545E-05	1.001E-04
	September	1.812E-04	1.190E-04	6.112E-04	3.416E-05	3.661E-03	2.826E-05	1.099E-04
	October	1.896E-04	1.222E-04	6.383E-04	3.553E-05	3.816E-03	2.962E-05	1.139E-04
	November	2.067E-04	1.317E-04	6.951E-04	3.862E-05	4.150E-03	3.235E-05	1.236E-04
	December	2.086E-04	1.319E-04	7.010E-04	3.891E-05	4.181E-03	3.270E-05	1.243E-04
T104	January	1.524E-04	8.757E-05	5.121E-04	2.695E-05	3.061E-03	2.350E-05	8.527E-05
	February	1.660E-04	9.554E-05	5.580E-04	2.934E-05	3.337E-03	2.558E-05	9.290E-05
	March	1.443E-04	8.341E-05	4.855E-04	2.550E-05	2.906E-03	2.219E-05	8.082E-05
	April	1.367E-04	7.994E-05	4.606E-04	2.415E-05	2.765E-03	2.092E-05	7.677E-05
	May	1.202E-04	7.151E-05	4.061E-04	2.130E-05	2.444E-03	1.833E-05	6.795E-05

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	June	1.168E-04	7.037E-05	3.950E-04	2.076E-05	2.381E-03	1.777E-05	6.637E-05
	July	1.110E-04	6.715E-05	3.755E-04	1.975E-05	2.264E-03	1.688E-05	6.319E-05
	August	1.173E-04	7.011E-05	3.964E-04	2.081E-05	2.387E-03	1.787E-05	6.643E-05
	September	1.302E-04	7.674E-05	4.391E-04	2.302E-05	2.639E-03	1.988E-05	7.331E-05
	October	1.363E-04	7.934E-05	4.589E-04	2.407E-05	2.752E-03	2.089E-05	7.644E-05
	November	1.486E-04	8.593E-05	5.000E-04	2.626E-05	2.994E-03	2.285E-05	8.323E-05
	December	1.501E-04	8.636E-05	5.044E-04	2.653E-05	3.016E-03	2.312E-05	8.397E-05
T105	January	3.206E-04	5.689E-06	3.595E-04	8.873E-05	1.009E-03	2.108E-03	4.295E-04
	February	3.486E-04	6.229E-06	3.910E-04	9.683E-05	1.098E-03	2.294E-03	4.691E-04
	March	3.019E-04	5.486E-06	3.389E-04	8.459E-05	9.523E-04	1.990E-03	4.107E-04
	April	2.838E-04	5.368E-06	3.191E-04	8.124E-05	8.977E-04	1.878E-03	3.963E-04
	May	2.480E-04	4.919E-06	2.794E-04	7.291E-05	7.867E-04	1.650E-03	3.576E-04
	June	2.400E-04	4.919E-06	2.708E-04	7.192E-05	7.628E-04	1.604E-03	3.540E-04
	July	2.279E-04	4.717E-06	2.572E-04	6.869E-05	7.245E-04	1.525E-03	3.385E-04
	August	2.416E-04	4.854E-06	2.723E-04	7.155E-05	7.669E-04	1.610E-03	3.514E-04
	September	2.693E-04	5.216E-06	3.031E-04	7.811E-05	8.530E-04	1.786E-03	3.821E-04
	October	2.836E-04	5.290E-06	3.187E-04	8.056E-05	8.962E-04	1.873E-03	3.924E-04
	November	3.108E-04	5.656E-06	3.489E-04	8.715E-05	9.804E-04	2.048E-03	4.232E-04
	December	3.151E-04	5.629E-06	3.535E-04	8.752E-05	9.926E-04	2.074E-03	4.240E-04
T206	January	4.878E-04	5.597E-06	4.944E-04	1.249E-04	1.162E-03	1.139E-03	5.669E-04
	February	5.300E-04	6.119E-06	5.374E-04	1.361E-04	1.263E-03	1.238E-03	6.182E-04
	March	4.582E-04	5.370E-06	4.650E-04	1.185E-04	1.093E-03	1.071E-03	5.393E-04
	April	4.291E-04	5.215E-06	4.361E-04	1.130E-04	1.027E-03	1.005E-03	5.165E-04
	May	3.734E-04	4.742E-06	3.803E-04	1.006E-04	8.969E-04	8.780E-04	4.623E-04
	June	3.605E-04	4.720E-06	3.676E-04	9.874E-05	8.677E-04	8.505E-04	4.554E-04
	July	3.420E-04	4.519E-06	3.489E-04	9.416E-05	8.236E-04	8.077E-04	4.348E-04
	August	3.634E-04	4.670E-06	3.703E-04	9.852E-05	8.735E-04	8.555E-04	4.535E-04
	September	4.062E-04	5.047E-06	4.133E-04	1.082E-04	9.742E-04	9.533E-04	4.959E-04
	October	4.293E-04	5.152E-06	4.361E-04	1.123E-04	1.027E-03	1.005E-03	5.127E-04

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	November	4.717E-04	5.535E-06	4.786E-04	1.221E-04	1.126E-03	1.102E-03	5.556E-04
	December	4.792E-04	5.530E-06	4.858E-04	1.231E-04	1.142E-03	1.119E-03	5.588E-04
T207	January	3.295E-04	4.648E-06	3.338E-04	9.644E-05	7.778E-04	8.075E-04	4.454E-04
	February	3.582E-04	5.095E-06	3.630E-04	1.053E-04	8.459E-04	8.788E-04	4.869E-04
	March	3.101E-04	4.499E-06	3.144E-04	9.221E-05	7.329E-04	7.627E-04	4.273E-04
	April	2.911E-04	4.429E-06	2.956E-04	8.903E-05	6.896E-04	7.211E-04	4.146E-04
	May	2.541E-04	4.085E-06	2.586E-04	8.039E-05	6.033E-04	6.354E-04	3.765E-04
	June	2.459E-04	4.102E-06	2.505E-04	7.965E-05	5.845E-04	6.191E-04	3.744E-04
	July	2.335E-04	3.938E-06	2.379E-04	7.616E-05	5.550E-04	5.891E-04	3.584E-04
	August	2.475E-04	4.037E-06	2.520E-04	7.903E-05	5.879E-04	6.206E-04	3.707E-04
	September	2.760E-04	4.318E-06	2.806E-04	8.587E-05	6.547E-04	6.869E-04	4.010E-04
	October	2.910E-04	4.355E-06	2.954E-04	8.813E-05	6.889E-04	7.190E-04	4.097E-04
	November	3.192E-04	4.639E-06	3.236E-04	9.502E-05	7.545E-04	7.853E-04	4.404E-04
	December	3.238E-04	4.604E-06	3.281E-04	9.520E-05	7.647E-04	7.944E-04	4.401E-04
T208	January	4.741E-04	8.195E-06	5.317E-04	1.290E-04	1.494E-03	3.099E-03	6.232E-04
	February	5.155E-04	8.970E-06	5.783E-04	1.408E-04	1.626E-03	3.372E-03	6.804E-04
	March	4.464E-04	7.893E-06	5.012E-04	1.229E-04	1.410E-03	2.923E-03	5.952E-04
	April	4.195E-04	7.710E-06	4.718E-04	1.178E-04	1.329E-03	2.756E-03	5.734E-04
	May	3.665E-04	7.052E-06	4.129E-04	1.056E-04	1.164E-03	2.420E-03	5.165E-04
	June	3.546E-04	7.044E-06	4.000E-04	1.040E-04	1.129E-03	2.351E-03	5.107E-04
	July	3.366E-04	6.752E-06	3.799E-04	9.929E-05	1.072E-03	2.235E-03	4.881E-04
	August	3.569E-04	6.956E-06	4.024E-04	1.035E-04	1.135E-03	2.360E-03	5.073E-04
	September	3.980E-04	7.486E-06	4.480E-04	1.132E-04	1.262E-03	2.621E-03	5.523E-04
	October	4.193E-04	7.602E-06	4.713E-04	1.169E-04	1.327E-03	2.751E-03	5.681E-04
	November	4.596E-04	8.138E-06	5.160E-04	1.266E-04	1.451E-03	3.010E-03	6.133E-04
	December	4.660E-04	8.106E-06	5.228E-04	1.272E-04	1.470E-03	3.048E-03	6.150E-04
T309	January	1.325E-04	2.889E-06	1.485E-04	4.207E-05	4.131E-04	9.175E-04	2.072E-04
	February	1.442E-04	3.170E-06	1.616E-04	4.601E-05	4.496E-04	9.996E-04	2.268E-04

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	March	1.250E-04	2.807E-06	1.402E-04	4.040E-05	3.902E-04	8.697E-04	1.996E-04
	April	1.178E-04	2.780E-06	1.324E-04	3.927E-05	3.685E-04	8.270E-04	1.949E-04
	May	1.033E-04	2.579E-06	1.163E-04	3.570E-05	3.236E-04	7.332E-04	1.782E-04
	June	1.002E-04	2.599E-06	1.129E-04	3.552E-05	3.142E-04	7.171E-04	1.779E-04
	July	9.523E-05	2.498E-06	1.073E-04	3.400E-05	2.986E-04	6.830E-04	1.705E-04
	August	1.007E-04	2.553E-06	1.134E-04	3.516E-05	3.156E-04	7.171E-04	1.757E-04
	September	1.120E-04	2.719E-06	1.259E-04	3.801E-05	3.505E-04	7.903E-04	1.892E-04
	October	1.176E-04	2.728E-06	1.321E-04	3.878E-05	3.677E-04	8.230E-04	1.922E-04
	November	1.287E-04	2.896E-06	1.444E-04	4.164E-05	4.018E-04	8.957E-04	2.057E-04
	December	1.303E-04	2.865E-06	1.461E-04	4.158E-05	4.064E-04	9.035E-04	2.049E-04
T310	January	6.245E-06	1.654E-05	2.138E-06	3.025E-06	3.290E-06	6.652E-06	8.325E-06
	February	6.804E-06	1.807E-05	2.331E-06	3.297E-06	3.587E-06	7.242E-06	9.080E-06
	March	5.918E-06	1.583E-05	2.029E-06	2.872E-06	3.126E-06	6.291E-06	7.921E-06
	April	5.613E-06	1.529E-05	1.928E-06	2.737E-06	2.977E-06	5.950E-06	7.573E-06
	May	4.945E-06	1.380E-05	1.702E-06	2.430E-06	2.634E-06	5.231E-06	6.752E-06
	June	4.809E-06	1.366E-05	1.657E-06	2.379E-06	2.569E-06	5.082E-06	6.627E-06
	July	4.571E-06	1.305E-05	1.576E-06	2.266E-06	2.444E-06	4.830E-06	6.319E-06
	August	4.827E-06	1.356E-05	1.662E-06	2.378E-06	2.574E-06	5.104E-06	6.614E-06
	September	5.349E-06	1.474E-05	1.839E-06	2.618E-06	2.843E-06	5.664E-06	7.259E-06
	October	5.593E-06	1.513E-05	1.920E-06	2.722E-06	2.962E-06	5.934E-06	7.523E-06
	November	6.095E-06	1.631E-05	2.090E-06	2.958E-06	3.220E-06	6.478E-06	8.159E-06
	December	6.150E-06	1.633E-05	2.107E-06	2.980E-06	3.242E-06	6.547E-06	8.207E-06
T311	January	1.325E-04	2.889E-06	1.485E-04	4.207E-05	4.131E-04	9.175E-04	2.072E-04
	February	1.442E-04	3.170E-06	1.616E-04	4.601E-05	4.496E-04	9.996E-04	2.268E-04
	March	1.250E-04	2.807E-06	1.402E-04	4.040E-05	3.902E-04	8.697E-04	1.996E-04
	April	1.178E-04	2.780E-06	1.324E-04	3.927E-05	3.685E-04	8.270E-04	1.949E-04
	May	1.033E-04	2.579E-06	1.163E-04	3.570E-05	3.236E-04	7.332E-04	1.782E-04
	June	1.002E-04	2.599E-06	1.129E-04	3.552E-05	3.142E-04	7.171E-04	1.779E-04
	July	9.523E-05	2.498E-06	1.073E-04	3.400E-05	2.986E-04	6.830E-04	1.705E-04

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	August	1.007E-04	2.553E-06	1.134E-04	3.516E-05	3.156E-04	7.171E-04	1.757E-04
	September	1.120E-04	2.719E-06	1.259E-04	3.801E-05	3.505E-04	7.903E-04	1.892E-04
	October	1.176E-04	2.728E-06	1.321E-04	3.878E-05	3.677E-04	8.230E-04	1.922E-04
	November	1.287E-04	2.896E-06	1.444E-04	4.164E-05	4.018E-04	8.957E-04	2.057E-04
	December	1.303E-04	2.865E-06	1.461E-04	4.158E-05	4.064E-04	9.035E-04	2.049E-04
T312	January	1.265E-04	1.548E-06	1.064E-04	3.387E-05	3.869E-04	2.611E-04	1.548E-04
	February	1.375E-04	1.696E-06	1.157E-04	3.697E-05	4.207E-04	2.840E-04	1.691E-04
	March	1.189E-04	1.496E-06	1.002E-04	3.234E-05	3.644E-04	2.463E-04	1.483E-04
	April	1.115E-04	1.469E-06	9.409E-05	3.115E-05	3.425E-04	2.325E-04	1.435E-04
	May	9.725E-05	1.352E-06	8.221E-05	2.806E-05	2.994E-04	2.045E-04	1.300E-04
	June	9.403E-05	1.356E-06	7.958E-05	2.776E-05	2.898E-04	1.990E-04	1.291E-04
	July	8.925E-05	1.302E-06	7.556E-05	2.653E-05	2.752E-04	1.893E-04	1.235E-04
	August	9.469E-05	1.336E-06	8.008E-05	2.757E-05	2.916E-04	1.996E-04	1.279E-04
	September	1.057E-04	1.431E-06	8.926E-05	3.001E-05	3.250E-04	2.213E-04	1.387E-04
	October	1.115E-04	1.446E-06	9.404E-05	3.086E-05	3.423E-04	2.319E-04	1.419E-04
	November	1.224E-04	1.542E-06	1.031E-04	3.332E-05	3.751E-04	2.536E-04	1.528E-04
	December	1.243E-04	1.532E-06	1.046E-04	3.342E-05	3.803E-04	2.568E-04	1.529E-04
T621	January	3.431E-05	9.637E-05	1.175E-05	1.720E-05	1.804E-05	3.696E-05	4.762E-05
	February	3.738E-05	1.054E-04	1.280E-05	1.877E-05	1.967E-05	4.026E-05	5.197E-05
	March	3.252E-05	9.250E-05	1.115E-05	1.637E-05	1.714E-05	3.499E-05	4.541E-05
	April	3.086E-05	8.976E-05	1.060E-05	1.566E-05	1.633E-05	3.315E-05	4.358E-05
	May	2.721E-05	8.141E-05	9.362E-06	1.396E-05	1.446E-05	2.920E-05	3.902E-05
	June	2.647E-05	8.083E-05	9.119E-06	1.370E-05	1.410E-05	2.841E-05	3.841E-05
	July	2.516E-05	7.734E-05	8.673E-06	1.306E-05	1.342E-05	2.701E-05	3.665E-05
	August	2.656E-05	8.010E-05	9.143E-06	1.367E-05	1.413E-05	2.850E-05	3.827E-05
	September	2.942E-05	8.678E-05	1.011E-05	1.501E-05	1.560E-05	3.158E-05	4.186E-05
	October	3.074E-05	8.871E-05	1.055E-05	1.555E-05	1.625E-05	3.304E-05	4.324E-05
	November	3.350E-05	9.534E-05	1.148E-05	1.686E-05	1.766E-05	3.603E-05	4.678E-05
	December	3.379E-05	9.524E-05	1.157E-05	1.696E-05	1.778E-05	3.639E-05	4.697E-05

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
T622	January	3.431E-05	9.637E-05	1.175E-05	1.720E-05	1.804E-05	3.696E-05	4.762E-05
	February	3.738E-05	1.054E-04	1.280E-05	1.877E-05	1.967E-05	4.026E-05	5.197E-05
	March	3.252E-05	9.250E-05	1.115E-05	1.637E-05	1.714E-05	3.499E-05	4.541E-05
	April	3.086E-05	8.976E-05	1.060E-05	1.566E-05	1.633E-05	3.315E-05	4.358E-05
	May	2.721E-05	8.141E-05	9.362E-06	1.396E-05	1.446E-05	2.920E-05	3.902E-05
	June	2.647E-05	8.083E-05	9.119E-06	1.370E-05	1.410E-05	2.841E-05	3.841E-05
	July	2.516E-05	7.734E-05	8.673E-06	1.306E-05	1.342E-05	2.701E-05	3.665E-05
	August	2.656E-05	8.010E-05	9.143E-06	1.367E-05	1.413E-05	2.850E-05	3.827E-05
	September	2.942E-05	8.678E-05	1.011E-05	1.501E-05	1.560E-05	3.158E-05	4.186E-05
	October	3.074E-05	8.871E-05	1.055E-05	1.555E-05	1.625E-05	3.304E-05	4.324E-05
	November	3.350E-05	9.534E-05	1.148E-05	1.686E-05	1.766E-05	3.603E-05	4.678E-05
	December	3.379E-05	9.524E-05	1.157E-05	1.696E-05	1.778E-05	3.639E-05	4.697E-05
T623	January	3.382E-04	2.006E-04	1.136E-03	6.088E-05	6.785E-03	5.245E-05	1.932E-04
	February	3.684E-04	2.190E-04	1.238E-03	6.631E-05	7.397E-03	5.708E-05	2.106E-04
	March	3.203E-04	1.914E-04	1.077E-03	5.767E-05	6.443E-03	4.954E-05	1.834E-04
	April	3.034E-04	1.839E-04	1.022E-03	5.473E-05	6.129E-03	4.675E-05	1.746E-04
	May	2.670E-04	1.651E-04	9.015E-04	4.839E-05	5.419E-03	4.100E-05	1.549E-04
	June	2.594E-04	1.628E-04	8.770E-04	4.722E-05	5.280E-03	3.977E-05	1.515E-04
	July	2.465E-04	1.554E-04	8.338E-04	4.494E-05	5.022E-03	3.778E-05	1.443E-04
	August	2.605E-04	1.620E-04	8.800E-04	4.729E-05	5.293E-03	3.997E-05	1.515E-04
	September	2.889E-04	1.769E-04	9.747E-04	5.224E-05	5.851E-03	4.444E-05	1.669E-04
	October	3.024E-04	1.824E-04	1.018E-03	5.451E-05	6.101E-03	4.665E-05	1.737E-04
	November	3.298E-04	1.972E-04	1.109E-03	5.939E-05	6.636E-03	5.100E-05	1.888E-04
	December	3.330E-04	1.979E-04	1.119E-03	5.994E-05	6.686E-03	5.160E-05	1.903E-04
T726	January	6.659E-04	7.253E-06	5.606E-04	1.654E-04	2.048E-03	1.338E-03	7.482E-04
	February	7.236E-04	7.936E-06	6.093E-04	1.803E-04	2.226E-03	1.454E-03	8.165E-04
	March	6.256E-04	6.976E-06	5.272E-04	1.572E-04	1.927E-03	1.259E-03	7.133E-04
	April	5.857E-04	6.802E-06	4.945E-04	1.503E-04	1.810E-03	1.183E-03	6.855E-04

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	May	5.099E-04	6.210E-06	4.313E-04	1.343E-04	1.580E-03	1.035E-03	6.161E-04
	June	4.924E-04	6.198E-06	4.170E-04	1.322E-04	1.529E-03	1.004E-03	6.085E-04
	July	4.672E-04	5.939E-06	3.957E-04	1.262E-04	1.451E-03	9.540E-04	5.813E-04
	August	4.962E-04	6.123E-06	4.199E-04	1.317E-04	1.539E-03	1.009E-03	6.049E-04
	September	5.546E-04	6.597E-06	4.687E-04	1.442E-04	1.716E-03	1.123E-03	6.596E-04
	October	5.861E-04	6.710E-06	4.945E-04	1.493E-04	1.809E-03	1.182E-03	6.797E-04
	November	6.439E-04	7.192E-06	5.426E-04	1.619E-04	1.984E-03	1.296E-03	7.349E-04
	December	6.541E-04	7.172E-06	5.508E-04	1.630E-04	2.013E-03	1.314E-03	7.380E-04
T727	January	4.346E-04	4.963E-06	3.658E-04	1.112E-04	1.334E-03	8.825E-04	5.054E-04
	February	4.723E-04	5.433E-06	3.976E-04	1.213E-04	1.450E-03	9.596E-04	5.518E-04
	March	4.084E-04	4.783E-06	3.441E-04	1.059E-04	1.256E-03	8.312E-04	4.827E-04
	April	3.827E-04	4.678E-06	3.230E-04	1.016E-04	1.180E-03	7.825E-04	4.654E-04
	May	3.333E-04	4.286E-06	2.819E-04	9.110E-05	1.030E-03	6.863E-04	4.196E-04
	June	3.221E-04	4.286E-06	2.727E-04	8.985E-05	9.970E-04	6.665E-04	4.153E-04
	July	3.056E-04	4.110E-06	2.588E-04	8.580E-05	9.465E-04	6.335E-04	3.971E-04
	August	3.245E-04	4.229E-06	2.745E-04	8.940E-05	1.004E-03	6.693E-04	4.123E-04
	September	3.625E-04	4.545E-06	3.062E-04	9.764E-05	1.119E-03	7.436E-04	4.485E-04
	October	3.828E-04	4.610E-06	3.229E-04	1.008E-04	1.179E-03	7.814E-04	4.609E-04
	November	4.204E-04	4.931E-06	3.542E-04	1.091E-04	1.293E-03	8.557E-04	4.974E-04
	December	4.270E-04	4.910E-06	3.595E-04	1.097E-04	1.311E-03	8.675E-04	4.987E-04
T728	January	4.545E-04	9.195E-06	5.094E-04	1.371E-04	1.422E-03	3.086E-03	6.712E-04
	February	4.943E-04	1.008E-05	5.543E-04	1.499E-04	1.548E-03	3.360E-03	7.341E-04
	March	4.285E-04	8.911E-06	4.808E-04	1.313E-04	1.343E-03	2.920E-03	6.449E-04
	April	4.035E-04	8.789E-06	4.534E-04	1.271E-04	1.267E-03	2.769E-03	6.273E-04
	May	3.533E-04	8.121E-06	3.978E-04	1.151E-04	1.112E-03	2.447E-03	5.709E-04
	June	3.424E-04	8.163E-06	3.860E-04	1.141E-04	1.079E-03	2.388E-03	5.683E-04
	July	3.253E-04	7.839E-06	3.667E-04	1.092E-04	1.025E-03	2.273E-03	5.442E-04
	August	3.443E-04	8.030E-06	3.879E-04	1.132E-04	1.084E-03	2.391E-03	5.623E-04
	September	3.832E-04	8.578E-06	4.311E-04	1.228E-04	1.205E-03	2.642E-03	6.074E-04

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	October	4.029E-04	8.638E-06	4.526E-04	1.257E-04	1.265E-03	2.758E-03	6.194E-04
	November	4.411E-04	9.191E-06	4.950E-04	1.354E-04	1.383E-03	3.007E-03	6.647E-04
	December	4.469E-04	9.112E-06	5.010E-04	1.354E-04	1.399E-03	3.037E-03	6.635E-04
T729	January	6.659E-04	7.253E-06	5.606E-04	1.654E-04	2.048E-03	1.338E-03	7.482E-04
	February	7.236E-04	7.936E-06	6.093E-04	1.803E-04	2.226E-03	1.454E-03	8.165E-04
	March	6.256E-04	6.976E-06	5.272E-04	1.572E-04	1.927E-03	1.259E-03	7.133E-04
	April	5.857E-04	6.802E-06	4.945E-04	1.503E-04	1.810E-03	1.183E-03	6.855E-04
	May	5.099E-04	6.210E-06	4.313E-04	1.343E-04	1.580E-03	1.035E-03	6.161E-04
	June	4.924E-04	6.198E-06	4.170E-04	1.322E-04	1.529E-03	1.004E-03	6.085E-04
	July	4.672E-04	5.939E-06	3.957E-04	1.262E-04	1.451E-03	9.540E-04	5.813E-04
	August	4.962E-04	6.123E-06	4.199E-04	1.317E-04	1.539E-03	1.009E-03	6.049E-04
	September	5.546E-04	6.597E-06	4.687E-04	1.442E-04	1.716E-03	1.123E-03	6.596E-04
	October	5.861E-04	6.710E-06	4.945E-04	1.493E-04	1.809E-03	1.182E-03	6.797E-04
	November	6.439E-04	7.192E-06	5.426E-04	1.619E-04	1.984E-03	1.296E-03	7.349E-04
	December	6.541E-04	7.172E-06	5.508E-04	1.630E-04	2.013E-03	1.314E-03	7.380E-04
T730	January	2.593E-04	5.466E-06	2.907E-04	8.046E-05	8.099E-04	1.780E-03	3.951E-04
	February	2.821E-04	5.997E-06	3.163E-04	8.796E-05	8.815E-04	1.938E-03	4.323E-04
	March	2.446E-04	5.306E-06	2.744E-04	7.717E-05	7.649E-04	1.686E-03	3.802E-04
	April	2.305E-04	5.245E-06	2.590E-04	7.486E-05	7.221E-04	1.601E-03	3.706E-04
	May	2.019E-04	4.857E-06	2.273E-04	6.793E-05	6.339E-04	1.417E-03	3.382E-04
	June	1.958E-04	4.889E-06	2.207E-04	6.749E-05	6.154E-04	1.385E-03	3.372E-04
	July	1.860E-04	4.697E-06	2.097E-04	6.459E-05	5.847E-04	1.319E-03	3.230E-04
	August	1.969E-04	4.805E-06	2.217E-04	6.686E-05	6.183E-04	1.386E-03	3.333E-04
	September	2.190E-04	5.125E-06	2.463E-04	7.239E-05	6.868E-04	1.529E-03	3.594E-04
	October	2.301E-04	5.150E-06	2.584E-04	7.399E-05	7.206E-04	1.594E-03	3.657E-04
	November	2.518E-04	5.472E-06	2.825E-04	7.954E-05	7.876E-04	1.736E-03	3.919E-04
	December	2.550E-04	5.419E-06	2.859E-04	7.949E-05	7.968E-04	1.752E-03	3.907E-04
T940	January	3.050E-05	8.839E-05	1.044E-05	1.558E-05	1.602E-05	3.307E-05	4.326E-05

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	February	3.324E-05	9.669E-05	1.138E-05	1.700E-05	1.747E-05	3.602E-05	4.723E-05
	March	2.892E-05	8.495E-05	9.912E-06	1.485E-05	1.523E-05	3.132E-05	4.130E-05
	April	2.745E-05	8.263E-05	9.425E-06	1.422E-05	1.451E-05	2.970E-05	3.971E-05
	May	2.421E-05	7.512E-05	8.329E-06	1.271E-05	1.285E-05	2.619E-05	3.564E-05
	June	2.355E-05	7.471E-05	8.114E-06	1.249E-05	1.253E-05	2.550E-05	3.513E-05
	July	2.239E-05	7.151E-05	7.718E-06	1.191E-05	1.192E-05	2.425E-05	3.354E-05
	August	2.363E-05	7.397E-05	8.135E-06	1.245E-05	1.255E-05	2.557E-05	3.497E-05
	September	2.617E-05	7.998E-05	8.996E-06	1.365E-05	1.386E-05	2.831E-05	3.819E-05
	October	2.734E-05	8.160E-05	9.383E-06	1.412E-05	1.443E-05	2.959E-05	3.937E-05
	November	2.978E-05	8.757E-05	1.021E-05	1.529E-05	1.568E-05	3.225E-05	4.255E-05
	December	3.004E-05	8.738E-05	1.029E-05	1.537E-05	1.579E-05	3.256E-05	4.268E-05
T941	January	3.067E-04	3.595E-06	2.581E-04	7.984E-05	9.401E-04	6.266E-04	3.635E-04
	February	3.333E-04	3.937E-06	2.806E-04	8.712E-05	1.022E-03	6.814E-04	3.970E-04
	March	2.883E-04	3.468E-06	2.429E-04	7.610E-05	8.851E-04	5.905E-04	3.476E-04
	April	2.702E-04	3.398E-06	2.280E-04	7.312E-05	8.317E-04	5.565E-04	3.357E-04
	May	2.354E-04	3.119E-06	1.991E-04	6.568E-05	7.266E-04	4.885E-04	3.032E-04
	June	2.275E-04	3.122E-06	1.926E-04	6.485E-05	7.033E-04	4.748E-04	3.005E-04
	July	2.159E-04	2.995E-06	1.829E-04	6.195E-05	6.677E-04	4.514E-04	2.873E-04
	August	2.292E-04	3.079E-06	1.939E-04	6.448E-05	7.078E-04	4.766E-04	2.981E-04
	September	2.560E-04	3.305E-06	2.162E-04	7.033E-05	7.890E-04	5.291E-04	3.238E-04
	October	2.702E-04	3.347E-06	2.279E-04	7.250E-05	8.312E-04	5.555E-04	3.322E-04
	November	2.967E-04	3.576E-06	2.500E-04	7.841E-05	9.112E-04	6.080E-04	3.582E-04
	December	3.013E-04	3.558E-06	2.537E-04	7.874E-05	9.240E-04	6.160E-04	3.589E-04
T942	January	6.259E-04	6.856E-06	5.269E-04	1.560E-04	1.924E-03	1.259E-03	7.061E-04
	February	6.800E-04	7.502E-06	5.726E-04	1.701E-04	2.092E-03	1.368E-03	7.706E-04
	March	5.880E-04	6.596E-06	4.955E-04	1.483E-04	1.811E-03	1.185E-03	6.733E-04
	April	5.506E-04	6.433E-06	4.648E-04	1.419E-04	1.701E-03	1.114E-03	6.474E-04
	May	4.793E-04	5.876E-06	4.054E-04	1.268E-04	1.485E-03	9.748E-04	5.820E-04
	June	4.629E-04	5.866E-06	3.920E-04	1.249E-04	1.437E-03	9.456E-04	5.750E-04

TANK	Month	Monthly Emission Rate g/s						
		Benzene	Cumene	Cyclohexane	Ethylbenzene	Hexane	Toluene	Xylene
	July	4.392E-04	5.622E-06	3.720E-04	1.192E-04	1.364E-03	8.985E-04	5.494E-04
	August	4.665E-04	5.794E-06	3.947E-04	1.244E-04	1.446E-03	9.503E-04	5.715E-04
	September	5.214E-04	6.241E-06	4.405E-04	1.361E-04	1.613E-03	1.057E-03	6.229E-04
	October	5.509E-04	6.346E-06	4.648E-04	1.409E-04	1.700E-03	1.113E-03	6.417E-04
	November	6.052E-04	6.800E-06	5.100E-04	1.528E-04	1.864E-03	1.219E-03	6.937E-04
	December	6.148E-04	6.780E-06	5.177E-04	1.537E-04	1.891E-03	1.237E-03	6.965E-04
T943	January	3.157E-05	9.111E-05	1.081E-05	1.609E-05	1.659E-05	3.420E-05	4.465E-05
	February	3.440E-05	9.966E-05	1.178E-05	1.756E-05	1.809E-05	3.725E-05	4.874E-05
	March	2.994E-05	8.756E-05	1.026E-05	1.533E-05	1.576E-05	3.239E-05	4.262E-05
	April	2.841E-05	8.513E-05	9.756E-06	1.468E-05	1.502E-05	3.071E-05	4.097E-05
	May	2.506E-05	7.738E-05	8.621E-06	1.311E-05	1.330E-05	2.708E-05	3.676E-05
	June	2.438E-05	7.693E-05	8.398E-06	1.288E-05	1.297E-05	2.636E-05	3.623E-05
	July	2.318E-05	7.364E-05	7.988E-06	1.229E-05	1.234E-05	2.507E-05	3.458E-05
	August	2.446E-05	7.618E-05	8.420E-06	1.285E-05	1.299E-05	2.644E-05	3.606E-05
	September	2.709E-05	8.239E-05	9.311E-06	1.408E-05	1.435E-05	2.927E-05	3.939E-05
	October	2.830E-05	8.408E-05	9.712E-06	1.457E-05	1.494E-05	3.060E-05	4.062E-05
	November	3.083E-05	9.025E-05	1.057E-05	1.579E-05	1.624E-05	3.336E-05	4.391E-05
	December	3.110E-05	9.007E-05	1.065E-05	1.587E-05	1.635E-05	3.367E-05	4.405E-05

Appendix D

Predicted Concentration Isopleths

Appendix D Predicted Concentration Isopleths

