

STOLTHAVEN TERMINAL

Bimonthly Report: SEPTEMBER & OCTOBER 2015

Lot 2 Steelworks Road, Mayfield 2304



DOCUMENT CONTROL

Issue	Date	Description of Revision	Reviewed	Approved
0	Nov 15	Draft Report	LBU	RDK
1	Nov 15	Revised	LBU	RDK
2				
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1 NOISE MONITORING

In accordance with the conditions stipulated in the development approval SSD 6664 MOD1, Noise monitoring (NME) is an annual requirement. Therefore the most recent report (29 October 2015) will be represented within the September/ October bimonthly report.

See Appendix A for attached AECOM report.



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2 AIR QUALITY MONITORING

AECOM conducted an assessment (21 August 2015) of the potential effects on air quality with the operation of Stolthaven Newcastle. The assessment investigated the air quality impacts of the increased throughput (SSD 6664 MOD 1) on the surrounding environment. The assessment of air emissions was limited to VOC's during operation at the facility. VOC concentrations at sensitive receptor locations were estimated through dispersion modelling using the CALPUFF program.

The emissions inventory for the facility was prepared using site-specific measured data for storage tank liquid composition and gantry vapour composition for all pollutants of concern.

The impact assessment reviewed both typical and maximum operations and confirmed that both scenarios resulted in compliance with the NSW EPA criteria at all sensitive receptor locations, as well as, meeting all criteria stipulated within the Mayfield concept plan.

See Appendix B for attached AECOM report.



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3 GROUNDWATER SUMMARY

3.1 MONITORING CONDITIONS

Groundwater quality at the site is managed in accordance with a groundwater monitoring program, adherence to the sites Groundwater Management Plan and conditions of the Environmental Protection Licence (No. 20193). Groundwater beneath the site discharges into the Hunter River via groundwater mitigation.

Four groundwater monitoring wells were installed in October 2013 (identified as Monitoring Points 1-4 in the EPL) and are subsequently identified as MW01, MW02, MW03 and MW04 in this report. The groundwater monitoring program consists of quarterly collection of data and samples from the groundwater wells. Monitoring events are scheduled so that groundwater conditions beneath the site are investigated during both 'wet' and 'dry' seasons.

EPA Identification Number	Type of Monitoring Point
1	Groundwater
2	Groundwater
3	Groundwater
4	Groundwater

3.2 MONITORING RESULTS

3.2.1 MONITORING POINT 1 (MW01)

Table 1: GME Results Summary for MW01

	LOR	7/11/2014	26/02/2015	13/05/2015	27/08/2015
pH	0.01	9.41	8.01	8.79	9.39
Benzene	1	< 1	< 1	< 1	< 1
Ethylbenzene	2	< 2	< 2	< 2	< 2
Toluene	2	< 2	< 2	< 2	< 2
Xylene	2	< 2	< 2	< 2	< 2
C6-C10	20	< 20	< 20	< 20	< 20
C6-C10-BTEX	20	< 20	< 20	< 20	< 20
>C10-C16 Fraction	100	< 100	< 100	< 100	< 100
>C16-C34 Fraction	100	< 100	< 100	< 100	< 100
>C34-C40 Fraction	100	< 100	< 100	< 100	< 100



>C10-C16 Fraction – Naphthalene	100	< 100	< 100	< 100	< 100
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MW01 recorded a pH value of 9.39 and is within Site background conditions. Previous pH values at this location ranged from 8.33 to 9.79. Mann-Kendall analysis (MKA) concluded there was statistically significant evidence of a decreasing trend at the 95% confidence level.

TRH concentrations at MW01 were below the LOR for this GME and are in line with historical data trends at this location. TRH concentrations at MW01 have been consistently below the laboratory LOR since monitoring records began in October 2013.

Analytical results for all BTEX compounds were below LOR at the above monitoring locations and as such trend analysis was not undertaken. These results are generally consistent with background monitoring data and it appears that BTEX concentrations are typically stable at below LOR concentrations.

3.2.2 MONITORING POINT 2 (MW02)

Table 2: GME Results Summary for MW02

	LOR	7/11/2014	26/02/2015	13/05/2015	27/08/2015
pH	0.01	7.85	7.73	7.61	7.68
Benzene	1	1	< 1	2	< 1
Ethylbenzene	2	< 2	< 2	< 2	< 2
Toluene	2	< 2	< 2	< 2	< 2
Xylene	2	< 2	< 2	< 2	< 2
C6-C10	20	< 20	< 20	< 20	< 20
C6-C10-BTEX	20	< 20	< 20	< 20	< 20
>C10-C16 Fraction	100	< 100	< 100	< 100	< 100
>C16-C34 Fraction	100	< 100	< 100	< 100	< 100
>C34-C40 Fraction	100	< 100	< 100	< 100	< 100
>C10-C16 Fraction –Naphthalene	100	< 100	< 100	< 100	< 100

A pH value of 7.68 was recorded at MW02 and is within Site background conditions. MKA determined statistically significant evidence of a decreasing trend was present within the dataset. It is noted that a limited dataset exists for MW02 and further data will be required to add confidence of the reliability of this trend.

TRH concentrations at MW02 were below the LOR for this GME and are typical of concentrations recorded during background monitoring. TRH fractions have not been recorded at MW02 since records began, apart from one recorded concentration in the >C16-C34 fraction (380µg/L) in an October 2013 background monitoring event. Overall, TRH concentrations appear to be stable at below LOR concentrations.



Benzene was recorded at below the LOR during this GME, consistent with the GME undertaken in May 2015, which are below concentrations (typically 1 to 5µg/L) recorded in previous GMEs. It is noted that the LOR (1µg/L) was adopted as a default concentration for this monitoring program and previous GMEs to allow a meaningful statistical interpretation of the data. MKA determined that statistically significant evidence of a decreasing trend was evident in the dataset. Owing to the small dataset, further data is required to confirm the reliability of this trend.

3.2.3 MONITORING POINT 3 (MW03)

Table 3: GME Results Summary for MW03

	LOR	7/11/2014	26/02/2015	13/05/2015	27/08/2015
pH	0.01	8.43	7.47	8.31	8.57
Benzene	1	1	< 1	< 1	< 1
Ethylbenzene	2	< 2	< 2	< 2	< 2
Toluene	2	< 2	< 2	< 2	< 2
Xylene	2	< 2	< 2	< 2	< 2
C6-C10	20	< 20	< 20	< 20	< 20
C6-C10-BTEX	20	< 20	< 20	< 20	< 20
>C10-C16 Fraction	100	< 100	< 100	< 100	< 100
>C16-C34 Fraction	100	< 100	< 100	< 100	< 100
>C34-C40 Fraction	100	< 100	< 100	< 100	< 100
>C10-C16 Fraction -Naphthalene	100	< 100	< 100	< 100	< 100

MW03 recorded a pH value of 8.57 which is slightly above readings from previous quarterly monitoring events but within the Site background range. The pH values at this location have increased steadily since records began.

TRH concentrations at MW03 were below the LOR for this GME and are typical of concentrations recorded during background monitoring. TRH fractions have not been recorded at MW03 since records began, apart from one recorded concentration in the >C16-C34 fraction (180 µg/L) in an October 2013 background monitoring event.

Overall, TRH concentrations appear to be stable at below LOR since October 2013.

Analytical results for all BTEX compounds were below LOR at the above monitoring locations and as such trend analysis was not undertaken. These results are generally consistent with background monitoring data and it appears that BTEX concentrations are typically stable at below LOR concentrations.



3.2.4 MONITORING POINT 4 (MW04)

Table 4: GME Results Summary for MW04

	LOR	7/11/2014	26/02/2015	13/05/2015	27/08/2015
pH	0.01	8.63	8.81	8.29	8.29
Benzene	1	< 1	< 1	< 1	< 1
Ethylbenzene	2	< 2	< 2	< 2	< 2
Toluene	2	< 2	< 2	< 2	< 2
Xylene	2	< 2	< 2	< 2	< 2
C6-C10	20	< 20	< 20	< 20	< 20
C6-C10-BTEX	20	< 20	< 20	< 20	< 20
>C10-C16 Fraction	100	< 100	< 100	< 100	< 100
>C16-C34 Fraction	100	< 100	< 100	< 100	< 100
>C34-C40 Fraction	100	< 100	< 100	< 100	< 100
>C10-C16 Fraction -Naphthalene	100	< 100	< 100	< 100	< 100

A pH value of 8.29 was recorded at MW04, which is within the Site background range. The pH at MW04 has decreased overall, showing a downward trend since monitoring began in October 2013.

TRH concentrations at MW04 were below the LOR for this GME and are typical of historic concentrations at this location.

Analytical results for all BTEX compounds were below LOR at the above monitoring locations and as such trend analysis was not undertaken. These results are generally consistent with background monitoring data and it appears that BTEX concentrations are typically stable at below LOR concentrations.

3.3 SUMMARY

Where appropriate, statistical trend analysis was undertaken on analytes using the MKA trend test with an upper confidence level of 95% at selected monitoring well locations. Trends in BTEX and TRH concentrations were largely non-calculable given the small dataset available and the high proportion of Non-Detect values in the data (caused by data points with results below LOR concentrations). Some preliminary trends were identified for pH at MW01 - MW04, and Benzene at MW02. However given the small dataset these trends are not considered scientifically robust at this stage of assessment and will continue to be assessed throughout the 2015 monitoring program.

While statistically significant trends were not available for TRH and BTEX results for MW01 - MW04, it is noted that all results for these analytes are well below the GAC (where adopted) and in most cases, below the LOR. These results are also consistent with historic TRH and BTEX data recorded by AECOM at the Site.



Further data from future monitoring events will be required to give credence to the preliminary trends identified above. While statistically significant trends were not available for TRH and BTEX results at MW01 - MW04, it is noted that all results for these analytes are below the GAC for the Site and in most cases, below the LOR. These results are also consistent with historic TRH and BTEX data at the Site. All parameters analysed were compliant with GAC criteria.

- 1) Groundwater level monitoring and groundwater sampling was conducted at the Site by AECOM on 12 May 2015. The analytical results of the groundwater quality monitoring indicate that there were no exceedances of the adopted GAC, or breaches of EPL conditions, relating to groundwater monitoring at Points 1 to 4;
- 2) Corrective action was not therefore required during this GME indicating that the operational facility has not had an impact on the quality of groundwater beneath the Site;
- 3) MW02 recorded a Benzene concentration below the LOR. In previous quarterly monitoring events, and during background monitoring, higher concentrations of Benzene were recorded at MW02. While Benzene has been identified in groundwater at MW02 prior to this GME, the concentrations recorded were appreciably low and below the GAC (500µg/L);
- 4) Trend analysis determined some preliminary trends were present in the dataset, however further monitoring data is required before reliable statistical trends in most analyte concentrations can be determined;
- 5) Comparison to historical analytical data confirmed that groundwater quality from this GME is comparable to pre-operational background conditions; and
- 6) On the whole it is considered that Stolthaven has complied with the groundwater monitoring requirements of their EPL and GMP. The next groundwater monitoring event is scheduled for August 2015.

It should be noted that Stolthaven carry out routine monitoring of surface water discharges emanating from the Site for compliance against the EPL.

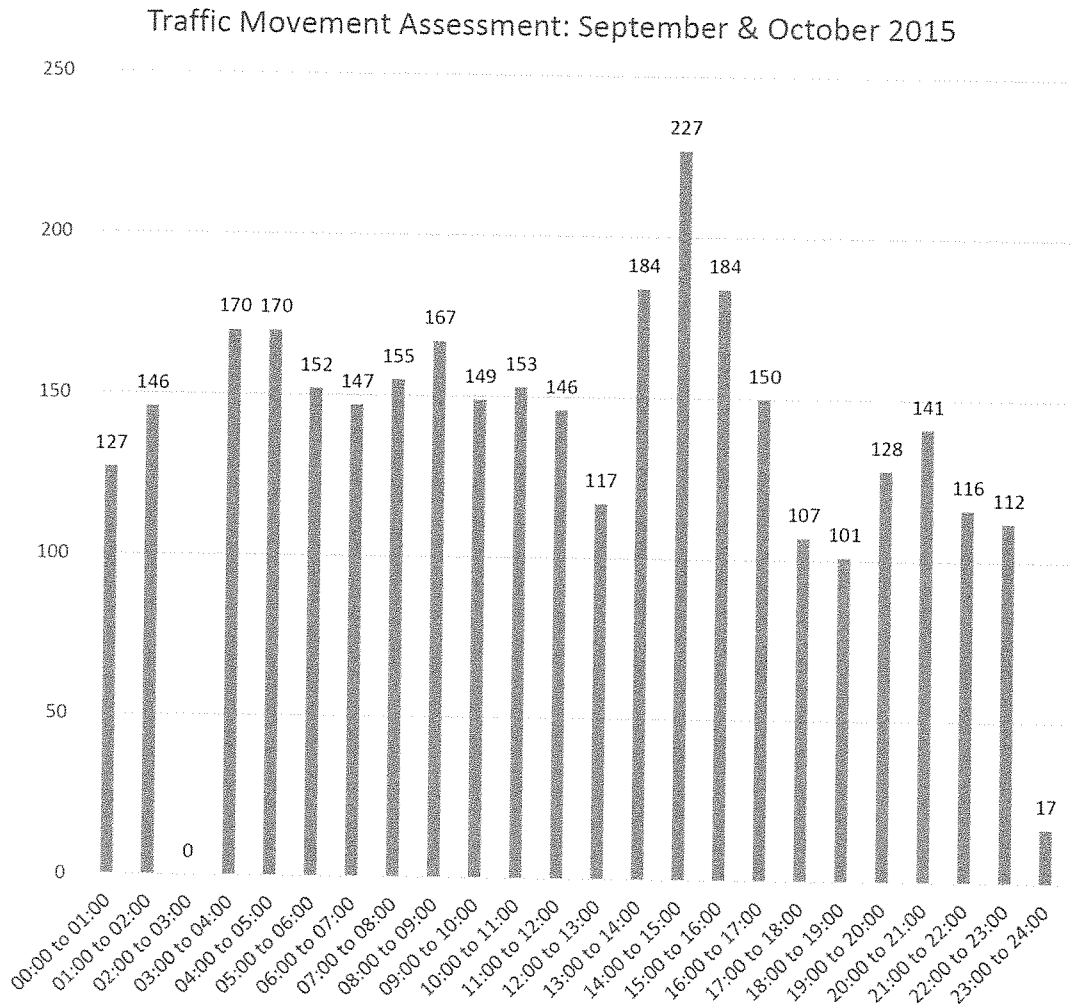


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4 TRAFFIC MOVEMENT ASSESSMENT

The traffic movement assessment is the collation of all the transactions made at Stolthaven Newcastle. This is displayed in hourly intervals shown in the table below.



The data above indicates that there were 3,266 transactions that took place in the months of September and October 2015. This can be extrapolated into 6,352 truck movements.

The peak loading period have been identified to reside between the hours of 14:00 and 15:00.



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APPENDIX A: NOISE MONITORING EVENT (AECOM)



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APPENDIX B: AIR QUALITY IMPACT ASSESSMENT (AECOM)