ACOUSTICS AND AIR

PORT KEMBLA COAL TERMINAL

SEPTEMBER 2012 COMPLIANCE MONITORING

REPORT NO. 07355-NM-6
VERSION A

SEPTEMBER 2012

PREPARED FOR

PORT KEMBLA COAL TERMINAL
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DOCUMENT CONTROL

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GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

Maximum Noise Level (L_{Amax}) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

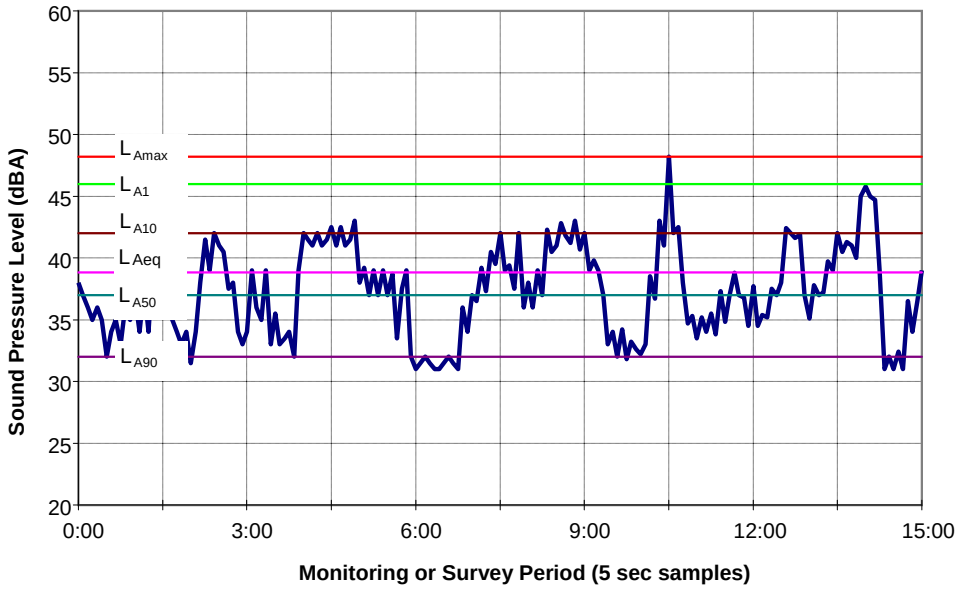
L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.

Typical Graph of Sound Pressure Level vs Time



1 INTRODUCTION

This report details the half-yearly noise compliance monitoring of operations at Port Kembla Coal Terminal (PKCT), conducted on Thursday, 20 September and Friday, 21 September, 2012.

The results of this monitoring are compared to the noise limits as outlined in Department of Planning (DoP) Conditions of Approval (CoA) 08/0009, dated 12 June 2009.

These measurements occurred during typical operations and are therefore considered to appropriately represent any impacts on nearby residential receivers.

2 SITE DESCRIPTION

The Port Kembla Coal Terminal (PKCT) is a major coal intermodal facility that receives coal by road and rail for loading onto ships for export.

Currently PKCT site operations are permitted 24 hours per day, 7 days per week. The site operations typically include:

- delivery of material by road and rail to receival hoppers;
- transfer of received coal via conveyor to stackers to be stockpiled prior to arrival of ship;
- transfer of products received to Bulk Product Berth to stockpile via front end loader;
- movement of stockpiled coal to the ship loader using bucket wheel reclaimers and conveyors;
- loading of coal to ship using the ship loader at Berth 2; and
- loading of product received at Bulk Product Berth to ship via ship loader at Berth 1.

Figure 2-1 and **Figure 2-2** shows the site plan of the PKCT site and its location relative to the surrounding receivers, respectively.

Figure 2-1 Site Plan for PKCT

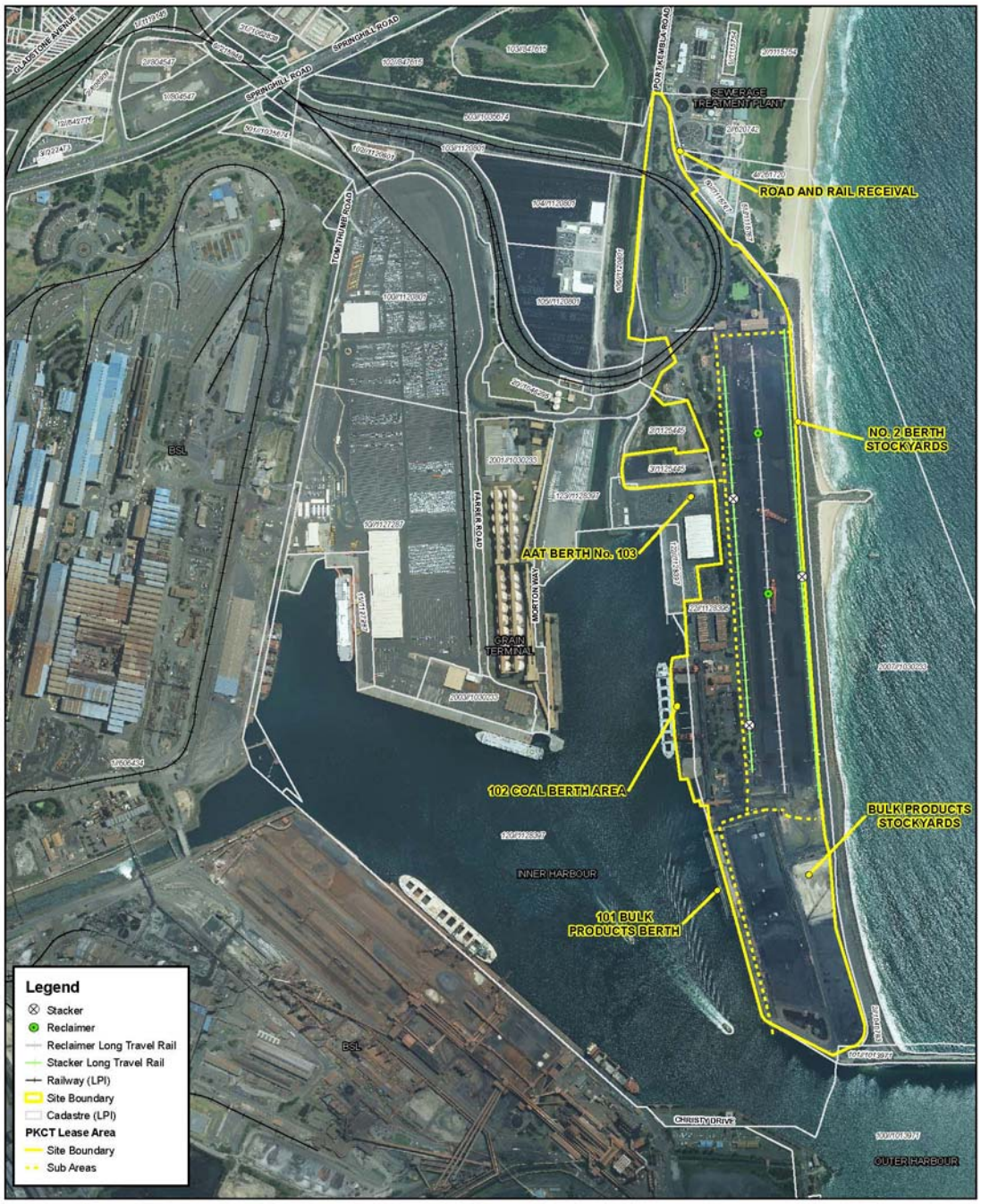


Figure 2-2 PKCT and Surrounding Receivers

3 LEGISLATIVE & OTHER REQUIREMENTS

3.1 Legislative Requirements

Legislation relating to the management of noise includes:

- Protection of the Environment Operations Act 1997 (POEO Act);
- Protection of the Environment Operations (General) Regulation 1998; and
- Protection of the Environment Operations (Noise Control) Regulation 2000.

3.2 Conditions of Approval

The CoA specifies the requirements with which PKCT must comply during its operations, with respect to noise. The CoA conditions for noise include the following:

NOISE

Impact Assessment Criteria

1. *The Proponent shall ensure that the noise generated by the project at any privately-owned residence does not exceed the criteria specified in Table 1 for the location nearest to that residence.*

Table 1 Noise impact assessment criteria dB(A) $L_{Aeq,(15min)}$

Location	***Time Period***	***Noise Criteria $L_{Aeq,(15min)}$ (dBA)***
Cnr Swan & Kembla Streets	*Day*	*51*
	Evening	*50*
	Night	*49*
Cnr Swan & Corrimal Streets	*Day*	*51*
	Evening	*50*
	Night	*49*
Cnr Keira & Fox Streets	*Day*	*55*
	Evening	*49*
	Night	*45*

Notes:

a) To determine compliance with the $L_{Aeq,(15min)}$ noise level limits in the above table, noise from the project is to be measured at the most affected point within the residential boundary. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured nois levels were applicable.

b) The noise emission limits identified in the above table apply under meteorological conditions of:

- wind speecs of up to 3m/s at 10m above ground level; or

- temperature inversion conditions of up to 3ºC/100m, plus a 2m/s source-to-receiver component drainage flow wind at 10m above ground level for those receivers where applicable in accordance with the NSW Industrial Noise Policy.

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forward to the Department and DECC, then the Proponent may exceed the noise limits in Table 1 in accordance with the negotiated noise agreement.

Noise Monitoring Program

2. *The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. This program must:*

   a) *be developed in consultation with DECC.*

   b) *be submitted to the Director-General for approval within 6 months from the date of this approval, or as otherwise agreed by the Director-General; and*

   c) *include a:*

      - combination of attended and unattended noise monitoring measures;

      - noise monitoring protocol for evaluating compliance with the noise impact assessment criteria in this approval; and

      - reasonable and feasible best practice noise mitigation measures to ensure project specific noise criteria are met.

4 MONITORING INSTRUMENTATION & METHODOLOGY

Due to the complex nature of the noise environment, which involves numerous industrial sources, sub-arterial roadways and close proximity to the Wollongong town centre, traditional noise monitoring with a sound level meter cannot adequately measure the noise contribution from PKCT due to elevated background noise levels.

4.1 Monitoring Instrumentation

A BarnOwl® directional noise monitoring system was used to conduct the attended noise monitoring. Directional noise monitoring provides source detection and analysis of noise from the PKCT and excludes operator discretion in the attended monitoring.

BarnOwl® uses 3 microphones spaced 500mm apart. The microphone signals are digitised using 24-bit, state-of-the-art A-D conversion. Specially-developed, optimised signal analysis software allows inter-microphone time differences (and therefore source directions) to be evaluated for a ½-second noise sample while the next sample is being acquired. BarnOwl® can therefore provide real time tracking of noise sources, with source locations displayed on a monitor and/or saved for later analysis. The system can simultaneously record total noise, and a filtered signal excluding high-frequency sources such as insects. BarnOwl measures in 5 degree increments.

A traditional non-directional sound level meter (SLM) has been used in previous monitoring. This monitoring has demonstrated the validity of BarnOwl® as a standalone monitoring system for this application and therefore an SLM is not required. On this occasion, a SLM (Bruel and Kjaer 2236) was used in conjunction with BarnOwl® for the convenience of multiple noise descriptors in real-time.

Field calibration of all three BarnOwl® microphones and the SLM was undertaken using a Bruel and Kjaer 4230 Portable Acoustic Calibrator. The levels measured were all in specification and no drift occurred.

4.2 Monitoring Locations

Monitoring was conducted as close as possible to the three locations detailed in the CoA, namely:

- Corner Swan & Kembla Streets – In the park on the southern side of Swan Street, opposite Kembla Street. This location is at the same height as nearby residences which are on the northern side of Swan Street;
- Corner Swan & Corrimal Streets – Previous measurements were undertaken just off the Golf Course Tee on the southern side of Swan Street. This location was again used for some measurements during this survey. An alternative measurement location, near the eastern end of Swan Street, was also used so as to minimize the influence of traffic noise (primarily from Corrimal Street and Springhill Road); and
- Corner Keira & Fox Streets – On the oval on the eastern side of Keira Street, opposite 392 Keira Street. This location is slightly below (-2m) nearby residences which are on the opposite side of Keira Street.

These noise monitoring locations were chosen to cause the least possible disturbance to nearby residents, particularly during late night monitoring, and also to differentiate local noise sources, typically traffic, from the PKCT direction.

During these measurements, Wilkinson Murray was also present at the receival area to observe the events occurring on-site during measurements at the three monitoring locations.

Figure 4-1 to **Figure 4-3** show the monitoring locations and the relative angular exposure to the PKCT operations. **Figure 4-4** shows the approximate locations where observations and measurements where taken in the vicinity of the receival area.

Figure 4-1 Monitoring Location 1 – Corner Swan & Kembla Streets

Figure 4-2 Monitoring Location 2 – Corner Swan & Corrimal Streets

Figure 4-3 Monitoring Location 3 – Corner Keira & Fox Streets

Figure 4-4 Monitoring Location – Receivals

5 MONITORING RESULTS

The results of the survey are summarised in **Table 5-1** to **Table 5-3**. Each field is defined as follows:

- **Start Date & Time** – The time and date that the measurement was started. All measurements were 15 minutes in duration (unless otherwise noted).
- **Period** – The *INP* time period for that measurement, Day (7.00am – 6.00pm), Evening (6.00pm – 10.00pm) or Night (10.00pm – 7.00am). Note that on Sundays and Public Holidays that the night ends/day begins at 8.00am.
- **Criteria** – As per CoA detailed in Section 3.2 of this report.
- **BarnOwl® All Noise L_{Aeq}** – The total L_{Aeq} averaged over the three microphones – this level is equivalent to that reported for a traditional sound level meter.

BarnOwl® PKCT Direction L_{Aeq} – The total L_{Aeq} for the segment (arc) capturing the PKCT site (may include some traffic noise or other noise also in that segment). In addition, the BarnOwl® operator estimates the contribution directly from PKCT during times when traffic noise or other noise is minimised. This is done by observing the L_{Aeq} regularly within the 15minute measurement period. Compliance is demonstrated when the Noise Limits are shown to be below BarnOwl PKCT Direction L_{Aeq}, in particular the operator estimated contribution. It is noted that this is limited to no more than 15dB below BarnOwl® All Noise L_{Aeq}.

- **SLM L_{A90}** – The sound pressure level exceeded for 90% of the measurement. This is commonly used to determine the background noise level in the environment.
- **Wind Speed and Direction** – Obtained from PKCT northern weather station.
- **Stability Class** – Pascal stability class derived from Bluescope Steel weather station.
- **Observations** – This field contains any comments regarding the noise environment, the relative audibility of noise from PKCT and any information of the site activities.

Table 5-1 Summary of Monitoring Results – Location 1 – Corner Swan & Kembla Streets

Date & Start Time	Period	Criteria (dBA)	BarnOwl® PKCT Direction (contribution) L_{Aeq} (dBA)	BarnOwl® All Noise L_{Aeq} (dBA)	SLM L_{A90} (dBA)	Wind Speed (m/s) and Direction	Stability Class	Compliance	Observations
20 Sept 2012 16.40 – 16.55	Day	51	<44	59	49	2.7 - 2.9 m/s; NE	C to D	YES Not Audible	At measurement location noise primarily from road traffic noise. PKCT activities not audible. On-site typically 16 truck movements witnessed and a train unloading.
20 Sept 2012 21.00 – 21.15	Evening	50	<40	55	41	0.9 – 1.3m/s; NbW to N	D	YES Not Audible	At measurement location noise primarily from road traffic noise. PKCT activities not audible. On-site typically 8 truck movements witnessed and a train arrival.
20 Sept 2012 21:15 –21:30	Evening	50	<41	56	40	0.9 – 1.3m/s; NbW to N	D	YES Not Audible	At measurement location noise primarily from road traffic noise. PKCT activities not audible. On-site typically 5 truck movements witnessed and a train idling.
20 Sept 2012 23:20 – 23:35	Night	49	<33	48	38	1.8 – 2.5m/s; NbE to NNE	D	YES Not Audible	At measurement location noise primarily from road traffic noise. PKCT activities not audible. On-site typically 5 truck movements witnessed and a train idling.
20 Sept 2012 23:35 – 23:50	Night	49	<35	50	39	1.8 – 3.3m/s; NbE to WbN	D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible. On-site typically 3 truck movements witnessed and a train idling.

Table 5-2 Summary of Monitoring Results – Location 2 – Corner Swan & Corrimal Streets

Start Date & Time	Period	Criteria (dBA)	BarnOwl® PKCT Direction (contribution) L_{Aeq} (dBA)	BarnOwl® All Noise L_{Aeq} (dBA)	SLM L_{A90} (dBA)	Wind Speed (m/s) and Direction	Stability Class	Compliance	Observations
20 Sept 2012 16.10 – 16.25	Day	51	<45	60	51	2.6 - 3.2 m/s; NNE - ENE	C to D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible On-site typically 14 truck movements witnessed and a train idling in the dumping area.
20 Sept 2012 20.15 – 20.30	Evening	50	<38	53	44	1.0 – 1.5 m/s; NWbN - N	D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible On-site typically 5 truck movements witnessed and a train movement.
20 Sept 2012 20.30 – 20.45	Evening	50	<40	55	44	1.0 – 1.5 m/s; NNW - N	D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible On-site typically 5 truck movements witnessed and a train departure.
20 Sept 2012 22.20 – 22.35	Night	49	<41	56	45	1.0 – 2.5 m/s; NBe - N	D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible On-site typically 9 truck movements witnessed and a train idling.
20 Sept 2012 22.35 – 22.50	Night	49	<41	56	44	1.3 – 2.5 m/s; NBe - N	D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible On-site typically 8 truck movements witnessed and a train idling.

Table 5-3 Summary of Monitoring Results – Location 3 – Corner Keira & Fox Streets

Start Date & Time	Period	Criteria (dBA)	BarnOwl® PKCT Direction (contribution) L_{Aeq} (dBA)	BarnOwl® All Noise L_{Aeq} (dBA)	SLM L_{A90} (dBA)	Wind Speed (m/s) and Direction	Stability Class	Compliance	Observations
20 Sept 2012 17:15 – 17:30	Day	51	<49	64	56	2.4 – 2.8 m/s; NE - NNE	C to D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible On-site typically 17 truck movements witnessed.
20 Sept 2012 21.35 – 21:50	Evening	50	<44	59	44	0.7 – 1.1 m/s; NW - N	D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible On-site typically 8 truck movements witnessed.
20 Sept 2012 21:50 – 22:05	Evening	50	<44	59	44	0.7 – 1.1 m/s; NW - NNW	D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible On-site typically 7 truck movements Witnessed.
21 Sept 2012 00:25 – 00:40	Night	49	<35	50	38	1.7 – 3.8 m/s; NbE - W	D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible. On-site typically 9 truck movements witnessed, a train stopping/starting engine periodically and a ship loading at berth 2 during the last 5 minutes of measurement.
21 Sept 2012 00:40 – 00:55	Night	49	<40	55	40	1.7 – 3.8 m/s; NbE - NNE	D	YES Not Audible	At measurement location noise primarily from road traffic. PKCT activities not audible On-site typically 7 truck movements witnessed, a train stopping/starting engine periodically and a ship loading at berth 2.

6 ASSESSMENT

6.1 PKCT Site Operations

The PKCT Operations Reports for the monitoring period are presented in Appendix A.

In addition to the above reports, during the measurements Wilkinson Murray personnel were located on-site and witnessed the specific road and rail movements.

A summary of the key acoustic points relevant to this assessment are summarised below:

6.1.1 Truck Movements

Over a period of 15minutes, truck movements in the receivals area during the monitoring ranged from:

Day	14 to 17
Evening	5 to 8
Night	3 to 9

The typical main noise sources as experienced whilst on-site included: trucks going over grids; trucks unloading; trucks moving up over the rail bridge and truck engine and exhaust noise. Truck engine and exhaust noise is considered to be the dominant constant noise source. With respect to typical maximum noise levels, such levels were noted to occur from trucks moving over grids and unloading.

Considering the monitoring at the residential locations, noise from trucks was inaudible.

These sources were included in the BarnOwl® measurement segment (see **Figure 4-1**, **Figure 4-2** and **Figure 4-3**) and as such have been included in the measurement contribution from the PKCT site.

6.1.2 Rail Movements

During each of the measurements periods, the following train movements have been noted:

Day	train unloading between 15:57 – 18:00
Evening	train unloading between 18:00 – 19:32 (same train during the day)
	train unloading between 20:02 – 20:39
	train unloading between 21:48 – 22:00
Night	train unloading between 22:00 – 23:05 (same train during the evening)
	train unloading between 23:55 – 01:42

The typical main noise sources as experienced whilst on-site included: noise from locomotives moving, at idle and unloading. Locomotive noise is considered to be the dominant constant noise source and also likely to result in the typical maximum levels when moving and unloading.

Considering the monitoring at the residential locations, noise from trains was inaudible.

These sources were included in the BarnOwl® measurement segment (see **Figure 4-1**, **Figure 4-2** and **Figure 4-3**) and as such have been included in the measurement contribution from the PKCT site.

6.1.3 Ship Loading

A single ship (Berth 1) was being loaded between 00:35 and 03:18 which coincided with the last 2 night noise measurements at Location 3. As such measurements during the day and evening exclude any contribution from ship loading.

These sources were included in the BarnOwl® measurement segment (see **Figure 4-1**, **Figure 4-2** and **Figure 4-3**) and as such have been included in the measurement contribution from the PKCT site.

Considering the monitoring at the residential locations, noise from ship loading was inaudible.

6.2 Review of Noise from PKCT Direction

The measured L_{Aeq} noise levels using BarnOwl® in the direction from PKCT varied as follows:

Day <44 to <49dBA

Evening <38 to <44dBA

Night <33 to <41dBA

The measured noise levels from the direction capturing PKCT were within criteria for all times at all locations.

We note that noise levels measured in the PKCT direction may have been influenced by extraneous sources in this direction that are not from the PKCT site, such as road/rail traffic noise. This is particularly the case for Measurement Locations 1 and 3.

In any case the measured noise levels are considered to be conservative.

7 CONCLUSION

Wilkinson Murray has conducted compliance noise monitoring for the Port Kembla Coal Terminal during the day, evening and night time periods on Thursday, 20 September and Friday, 21 September, 2012, during typical operations.

During the measurements, Wilkinson Murray personnel were located on-site and witnessed the specific road and rail movements. Furthermore, discussions with PKCT personnel and a review of The Operations Reports confirm that a ship was being loaded during the night-time measurement period.

The methodology used has been able to conclusively demonstrate compliance of the CoA noise limits for all measurements at all locations during all the monitoring periods.

Furthermore it can be concluded that the noise from PKCT was inaudible at all times during all measurements.

APPENDIX A

PKCT OPERATIONS REPORTS

Port Kembla Coal Terminal - Daily Operations Summary

For Period 20/09/2012 07:00 to 21/09/2012 07:00

Rail Receivals :

Stockpile	Brand	Trains	Tonnes	Ship
7	HELA	1	3256	IOLCOS DESTINY
15	CENC	3	10112	POS TUERKIS
19	NREA	4	6168	VOLUMNIA
	Totals:	8	19536	

Road Receivals :

Stockpile	Brand	Tonnes	Ship
4	BHPA	7012	MORNING CLOUD
5	BHPA	10511	SALDANHA
10	CENC	883	CORONA KINGDOM
17	NREA	4558	OCEANIS
	Totals:	22964	

Ship Loading:

Berth: 2

Current Ship:	SALDANHA
Period Tonnes:	11020
Tonnes On Ship:	74352
Tonnes To Go:	30
Completed At:	21-09-2012 05:16
Ship Status:	Complete

Next Vessels

Berth 2:	IOLCOS DESTINY	**Berth 1:**	STOVE TRANSPORT
Eta:	26-09-2012 02:30	**Eta:**	06-10-2012 02:00

Comments:

Signature (for Operations Manager):

Printed: 26-SEP-2012 06:31

Ship Loading Log Report: Berth 2

20/09/2012 07:00 **To** 21/09/2012 07:00

Vessel Name SALDANHA

Start Date 21/09/12 00:35

Berth Date 20/09/12 16:40

Complete Date 22/09/12 04:48

From	To	PASS	O1	O2	D1	D2	Equipment	Delay_Description	Min	Tonnage	Cat
16:40	17:30							MASTERS INSTRUCTIONS	50		V
								Opening Hatches : Rigging Gangway : Initial Survey			
17:30	19:00						NC11	MAINTAINANCE REPAIRS	90		O
								WAITING ON RECOMMISS ON NC11 AND RECLAIMERS & Equipment Delays			
19:00	22:48						NC11	MAINTAINANCE REPAIRS	229		E
								WAITING ON RECOMMISS ON NC11 AND RECLAIMERS & Equipment Delays			
22:48	23:00						RC1	MAINTAINANCE REPAIRS	12		E
								REMOVING SCAFFOLDING FROM RECLAIMER			
23:00	23:23						RC1	MAINTAINANCE REPAIRS	23		E
								MOVING RECLAIMER INTO POSITION S/P 5			
23:23	23:41						RC1	SLACK CABLE	18		E
23:41	00:23						SL1	SLACK CABLE	42		E
00:29	00:49						NC14_BELT	POSITION RECLAIMER	20		O
00:35	03:18	1	RC1	5	SL1	3			163	5564	
00:57	00:58							COAL GAP	1		O
01:03	01:06							COAL GAP	3		O

Ship Loading Log Report: Berth 2

20/09/2012 07:00 **To** 21/09/2012 07:00

Vessel Name SALDANHA

Start Date 21/09/12 00:35

Berth Date 20/09/12 16:40

Complete Date 22/09/12 04:48

From	To	PASS	O1	O2	D1	D2	Equipment	Delay_Description	Min	Tonnage	Cat
01:33	01:37							COAL GAP	3		O
01:38	01:50						SL1	SLACK CABLE	11		E
01:55	02:01							RECLAIMER REPOSITION	6		O
02:35	02:38							COAL GAP	3		O
02:47	02:52							POSITION RECLAIMER	5		O
03:18	03:26							HATCH CHANGE	8		O
03:23	05:16	2	RC1	5	SL2	5			113	5456	
03:34	03:40							RECLAIMER REPOSITION	6		O
04:15	04:19							RECLAIMER REPOSITION	4		O
05:06	05:10							RECLAIMER REPOSITION	4		O
05:16	05:32							HATCH CHANGE	16		O

Ship Loading Log Report: Berth 2

20/09/2012 07:00 **To** 21/09/2012 07:00

Vessel Name SALDANHA

Start Date 21/09/12 00:35

Berth Date 20/09/12 16:40

Complete Date 22/09/12 04:48

From	To	PASS	O1	O2	D1	D2	Equipment	Delay_Description	Min	Tonnage	Cat
05:27	07:35	3	RC1	5	SL1	2			128	5466	
05:54	06:07						NC14_BELT	BELT SLIP TRIP *Belt slip*	13		E
06:09	06:12							COAL GAP	2		O
06:15	06:17							COAL GAP	2		O
06:20	06:22							COAL GAP	3		O
06:22	06:39						RC1SL	FAULT	17		E
06:47	06:49							COAL GAP	2		O

Road Receival Log Report: 20/09/2012 07:00:00 To 21/09/2012 07:00:00 *26/09/2012 06:34:47*

From	To	O1	O2	D1	D2	Equipment	Delay_Description	Min	Tonnage	Cat
Log for Date :		**19/09/2012**								
06:34	07:03						WAIT ON CARGO *Filling Bins.*	29		X
Log for Date :		**20/09/2012**								
07:01	08:38	Z1&2	BHPA	STK2	5			97	2169	
08:38	08:51						CHANGING ZONES	13		O
08:49	09:21	Z3	NREA	STK4	17			32	837	
09:19	09:44						CHANGING ZONES	25		O
09:42	10:51	Z1&2	BHPA	STK2	5			69	2612	
10:51	11:02						CHANGING ZONES	10		O
11:00	11:23	Z3	NREA	STK4	17			23	751	
11:20	11:27						CHANGING ZONES	7		O
11:25	12:19	Z1&2	BHPA	STK2	5			54	1702	
12:19	12:25						CHANGING ZONES	7		O
12:24	12:41	Z3	NREA	STK4	17			17	535	
12:40	13:07						CHANGING ZONES	27		O
13:05	14:16	Z1&2	BHPA	STK2	5			71	2538	
14:17	14:28						CHANGING ZONES	11		O

From	To	O1	O2	D1	D2	Equipment	Delay_Description	Min	Tonnage	Cat
14:26	15:16	Z3	NREA	STK4	17			50	702	
14:46	15:20					NC1	LANYARD OPERATED	33		E
							electrician busy on high voltage isolation			
15:18	15:56	Z1&2	BHPA	STK2	5			38	1490	
15:56	16:06						CHANGING ZONES	10		O
16:04	16:56	Z3	NREA	STK4	17			52	1190	
16:45	16:51					STK2	IN POSITION	6		O
							Position from Stockpile(5) to Stockpile(4) For BHPA from Z1&2. Distance Travelled :121Mtrs			
16:56	17:06						CHANGING ZONES	10		O
17:05	18:08	Z1&2	BHPA	STK2	4			63	1500	
18:06	18:26						CHANGING ZONES	21		O
18:25	18:52	Z3	NREA	STK4	17			27	543	
18:47	19:09						CHANGING ZONES	22		O
19:05	02:08	Z1&2	BHPA	STK2	4			423	4393	
21:57	22:35						WAIT ON ROAD	38		X
							FILLING BINS			
23:52	00:32						WAIT ON ROAD	39		X
							FILLING BINS			
02:03	02:21					STK1	IN POSITION	18		O
							Position from Stockpile(15) to Stockpile(10) For CENC from Z3. Distance Travelled :264Mtrs			
02:30	03:01	Z3	CENC	STK1	10			31	337	
02:58	04:55						WAIT ON TRUCKS	117		X

From	To	O1	O2	D1	D2	Equipment	Delay_Description	Min	Tonnage	Cat
04:53	05:50	Z1&2	BHPA	STK2	4			57	1119	
05:13	05:45					STK1	POSITION FAULT	32		O
							Position from Stockpile(19) to Stockpile(10) For CENC from Z3. Distance Travelled :582Mtrs			
05:51	06:01						CHANGE ROAD FROM WEST TO EAS	11		O
05:59	06:21	Z3	CENC	STK1	10			22	546	
06:01	06:09					STK4	IN POSITION	8		O
							Position from Stockpile(17) to Stockpile(4) For BHPA from Z1&2. Distance Travelled :175Mtrs			
06:21	07:45	Z3	CENC	STK1	10			84	1052	

Rail Receival Log Report:

20/09/2012 07:00: **To** 1/09/2012 07:00:00 *26/09/2012 06:34:53*

From	To	O1	O2	D1	D2	Equipment	Delay_Description	Min	Tonnage	Cat
Log for Date :		**20/09/2012**								
07:03	07:16					STK1	IN POSITION	13		O
							Position From Stockpile(15) to Stockpile(19) For NREA from CG14. Distance Travelled :200Mtrs			
09:04	09:08						SYSTEM STARTUP	5		O
09:04	09:48	CG14	NREA	STK1	19			44	1664	
14:48	14:57						SYSTEM STARTUP	10		O
14:48	15:30	CG16	NREA	STK1	19			42	1548	
15:34	15:49					STK1	IN POSITION	15		O
							Position From Stockpile(19) to Stockpile(15) For CENC from CA64. Distance Travelled :209Mtrs			
15:57	19:32	CA64	CENC	STK1	15			215	3416	
16:06	17:32	LS98	CENC	STK1	15			86	3342	
16:17	16:23						CHANGING CREW	6		PN
18:14	18:21						SYSTEM STARTUP	6		O
18:34	18:37						CHANGING CREW	3		PN
19:42	19:56					STK1	IN POSITION	14		O
							Position From Stockpile(15) to Stockpile(19) For NREA from CG18. Distance Travelled :194Mtrs			
20:02	20:39	CG18	NREA	STK1	19			37	1576	
20:49	21:35					STK1	IN POSITION	46		O
							Position From Stockpile(19) to Stockpile(7) For HELA from MC86. Distance Travelled :800Mtrs			
21:48	21:54						SYSTEM STARTUP	6		O

From	To	O1	O2	D1	D2	Equipment	Delay_Description	Min	Tonnage	Cat
21:48	23:05	MC86	HELA	STK1	7			77	3256	
23:10	23:43					STK1	POSITION FAULT	33		O
							Position From Stockpile(7) to Stockpile(15) For CENC from CA70. Distance Travelled :602Mtrs			
23:55	00:04						SYSTEM STARTUP	9		O
23:55	01:42	CA70	CENC	STK1	15			107	3354	
00:41	00:47						POSITION STACKER	7		O
00:54	00:58						UNKNOWN	4		O
01:06	01:09					STK1BH	PILE DETECT TIMEOUT	3		E
01:12	01:15					STK1BH	PILE DETECT TIMEOUT	3		E
01:17	01:21					STK1BH	PILE DETECT TIMEOUT	4		E
01:30	01:33					NC6	OVERLOAD	3		E
							CONVEYOY 6 MOTOR OVERLOAD EARTH FAULT			
03:02	03:34					STK1	POSITION FAULT	32		O
							Position From Stockpile(10) to Stockpile(19) For NREA from CG20. Distance Travelled :578Mtrs			
04:19	04:39						SYSTEM STARTUP	20		O
04:34	05:08	CG20	NREA	STK1	19			34	1380	
05:54	06:18					STK2		24		O
							Position From Stockpile(4) to Stockpile(14) For CENC from LS88. Distance Travelled :538Mtrs			
06:20	06:33					NC7FWD_MOT	OVERTEMPERATURE TRIP	13		E
							Motor winding overtemp.			

From	To	O1	O2	D1	D2	Equipment	Delay_Description	Min	Tonnage	Cat
06:29	07:48	LS88	CENC	STK2	14			79	3326	
06:33	06:41						CHANGING CREW	7		PN