HEGGIES

REPORT 10-6815-R2

Revision 1

Clyde Waste Transfer Facility
Second Quarterly Truck Noise Monitoring
Truck Noise Measurement Report

PREPARED FOR

Veolia Environmental Services
Cnr Unwin & Shirley Street
ROSEHILL NSW 2142

30 JANUARY 2009

HEGGIES PTY LTD
ABN 29 001 584 612

Clyde Waste Transfer Facility
Second Quarterly Truck Noise Monitoring
Truck Noise Measurement Report

PREPARED BY:

Heggies Pty Ltd
2 Lincoln Street Lane Cove NSW 2066 Australia
(PO Box 176 Lane Cove NSW 1595 Australia)
Telephone 61 2 9427 8100 Facsimile 61 2 9427 8200
Email sydney@heggies.com Web www.heggies.com

DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
10-6815-R2	Revision 1	30 January 2009	Kenny Tsang	Andrew Parker	Andrew Parker
10-6815-R2	Revision 0	22 January 2009	Kenny Tsang	Dick Godson	Dick Godson

TABLE OF CONTENTS

1 INTRODUCTION 4

2 MEASUREMENT LOCATION AND INSTRUMENTATION 4

3 NOISE MEASUREMENT RESULTS 7

4 CONCLUSIONS 8

TABLE OF FIGURES

Figure 1 Measurement Location 5
Figure 2 Noise Measurement Location 5
Figure 3 Uphill Incline to Transfer Building 6
Figure 4 Operating Position away from Plane View 6
Figure 5 Noise Measurements on 13 January 2009 for Trucks Entering the Waste Transfer Facility 7

APPENDICES

Appendix A Results of Truck Noise Monitoring

1 INTRODUCTION

Heggies Pty Ltd (Heggies) has been engaged by Veolia Environmental Services (Veolia) to perform quarterly Truck Noise Monitoring reports to assist the monitoring and management of noise levels from heavy vehicles accessing the Clyde Waste Transfer Facility.

This report provides the results of the second quarterly noise measurement results conducted on the 13 January 2009 at 322 Parramatta Rd, Clyde. Results serve as part of a truck noise management program to ensure all trucks that utilise the Clyde Waste Transfer Facility complies with relevant Australia Standards.

Refer to Heggies report 10-6815R1 dated 23 October 2008, entitled *"Clyde Waste Transfer Facility Truck Noise Monitoring Truck Noise Measurement Report"* for background information.

Measurements are aligned with the requirements of Australian Design Rule (ADR) 28/01 as far as practical, allowing noise from truck passbys to be compared with the applicable noise limits.

2 MEASUREMENT LOCATION AND INSTRUMENTATION

The second quarterly Truck Noise Monitoring survey conducted on the 13 January 2009, followed the methodology previously adopted in the first Truck Noise Monitoring conducted on the 15 October 2008 at 322 Parramatta Road, Clyde.

Based on the success in capturing the minimum 25% of the daily truck movements in the first monitoring survey as required by DECC, the second monitoring survey was performed over the same time period (8.00 am to 12.00 noon).

In order for the measurements to be comparable with the noise limits of ADR 28/01, together with the measurements results obtained from the first quarterly Truck Noise Monitoring survey, the following conditions for equipment setup were maintained:

- Measurements were undertaken at a distance of 7.5 m from the path of the vehicle's centreline (ie at the same measurement distance identified in ADR 28/01).
- Measurements were undertaken at a height of 1.2 m above the test site surface (ie at the same height identified in ADR 28/01).
- Measurements were undertaken at the location illustrated in **Figure 1** and **Figure 2**. This location is positioned between the weighbridge and the transfer building on an uphill slope (see **Figure 3)**. Trucks were required to be accelerating at this location, consistent with the "Vehicles in Motion" test requirement for the vehicle to be operating under full throttle adjacent to the microphone. This measurement location (ie on an up slope with the vehicle accelerating) is considered to be representative of the ADR 28/01 test requirements.
- Measurements were undertaken using a Brüel & Kjær 2260 sound level meter using the A-weighting filter network and the fast response time constant, in accordance with the relevant standards.
- A 10 m microphone extension lead was used to enable the sound level meter to be operated from a hidden location surrounded by high growing plants to ensure that normal driving behaviour was not influenced by someone standing in full view (see **Figure 4**).
- The vehicle type of each truck was recorded in order to determine the relevant vehicle class and noise limits identified.
- The number plate and the owner company of the vehicles were recorded for each truck passby in order to fully identify vehicles that exceeded the specified noise limits.

Figure 1 Measurement Location

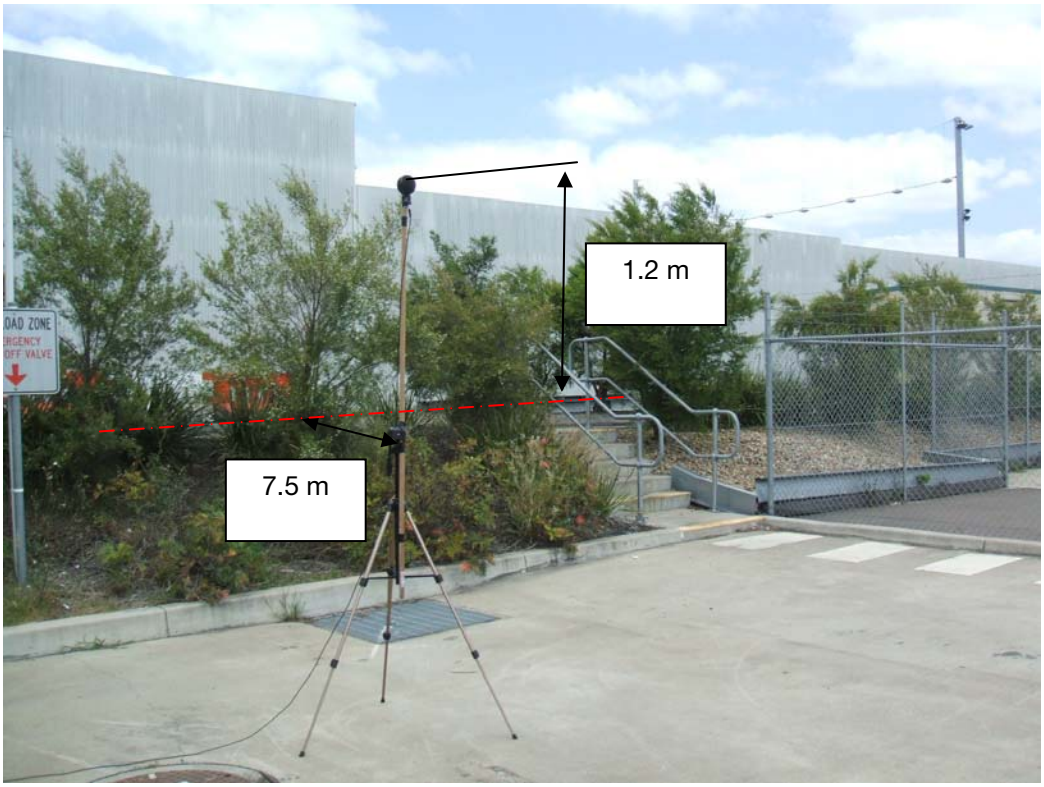


Figure 2 Noise Measurement Location

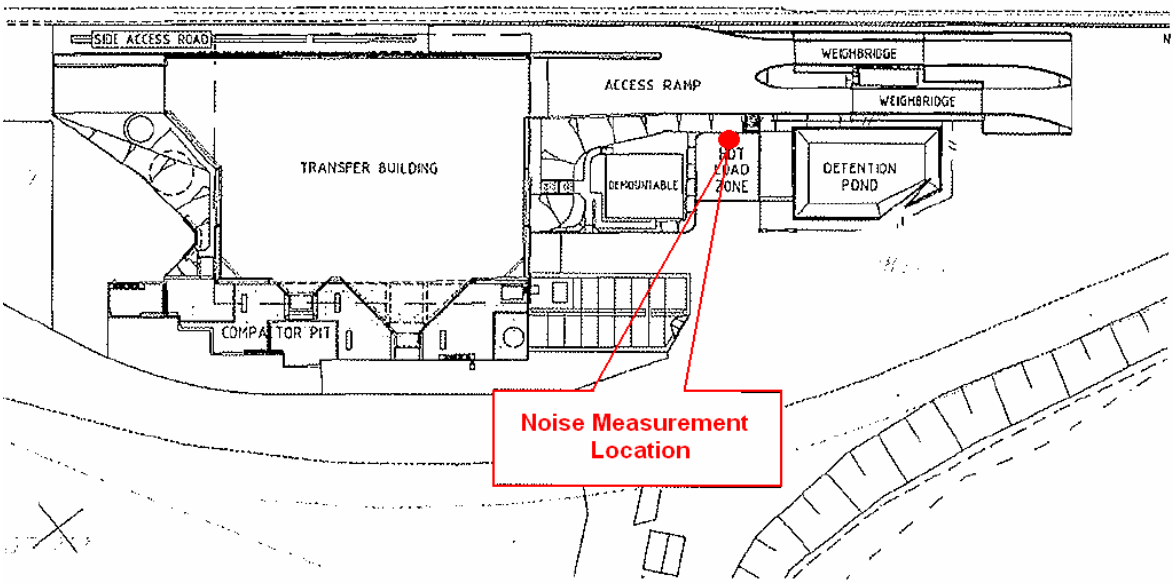


Figure 3 Uphill Incline to Transfer Building

Figure 4 Operating Position away from Plane View

3 NOISE MEASUREMENT RESULTS

To satisfy the intent of the ADR 28/01 test requirements, in Condition 112, a Noise Management Plan has been prepared by Veolia incorporating the recommendations provided in Heggies' Report 10-6815R1 dated 23 October 2008. The Noise Management Plan documents the management actions to be followed if the LAmax noise levels from truck passbys are found to exceed the noise limits.

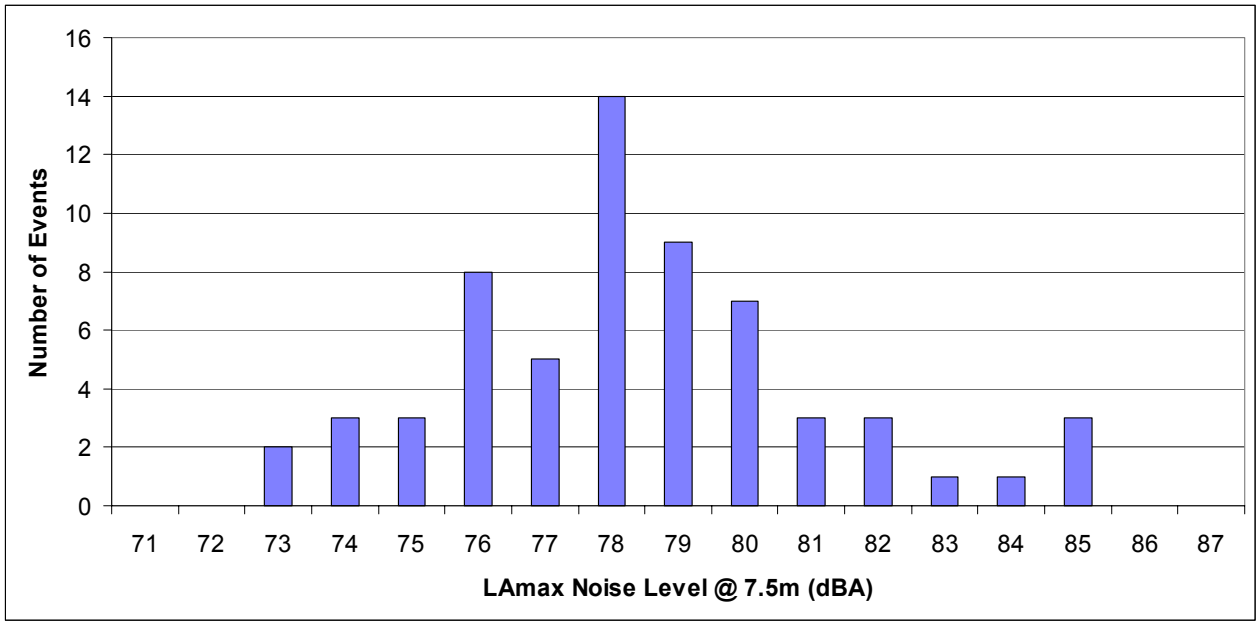
Appendix A is a summary of the vehicles that entered the Transfer Building on 13 January 2009. The LAmax noise levels from individual truck movements accelerating up the incline were recorded.

In order to ensure that vehicles can be identified in the case of noise exceedances, vehicle details such as the make, model and registration numbers were also recorded, wherever possible.

A total of 75 trucks movements were observed entering the transfer building on the subject day. Out of the 75 truck passbys measurements conducted, 62 were considered acceptable with proper acceleration up the incline. Ambient (non truck generated) noise was monitored throughout the day to ensure that the recorded LAmax noise levels were those contributed by the targeted vehicle only.

Figure 5 presents a plot of the acceptable monitoring results on a noise level distribution chart. The chart illustrates that the highest LAmax noise levels recorded for the day was 85 dBA with three occurrences. The majority of the vehicles had LAmax noise levels between 76 dBA and 80 dBA.

Figure 5 Noise Measurements on 13 January 2009 for Trucks Entering the Waste Transfer Facility



Noise levels from individual truck passbys were subsequently compared with the LAmax noise limits outlined in the ADR 28/01 in order to identify those trucks which exceed the noise limits. Vehicle make and model were recorded wherever possible and it indicated that the Net Engine Power (NEP) for the vehicles were above 150kW. This means the use of the upper noise levels from the ADR 28/01 are appropriate for each vehicle category.

The typical tare weight of a garbage truck is 13 tonnes. Based on this weight, the Gross Vehicle Weight (GVN) of all the vehicles monitored on the 13 January 2009 would exceed 12 tonnes. This would place the noise limits for all vehicles in the NC category of the ADR 28/01.

The results of the days' measurements indicated that the vehicles monitored were within the noise limits outlined in ADR 28/01. However, attention should be paid to the vehicles with a measured L_{Amax} above 84 dBA to ensure that a maintenance plan is in place in order to avoid future exceedances.

4 CONCLUSIONS

The truck noise monitoring, whilst not in strict accordance with the requirements of ADR 28/01, is considered to adhere to the requirements of ADR 28/01 as far as practical (given the site constraints) to enable the L_{Amax} noise levels from truck passbys to be compared to the noise limits in the "Vehicles in Motion" test.

The measurement location for this second monitoring was based on that used for the first quarterly truck noise monitoring survey, which was considered appropriate.

Further background information on time history and methodology for the noise monitoring should be referenced from Heggies report 10-6815R1 dated 23 October 2008, entitled *"Clyde Waste Transfer Facility Truck Noise Monitoring Truck Noise Measurement Report".*

Noise from the site's fork lift truck, as well as from traffic on Parramatta Road, were insufficiently high to cause interference to the truck noise level measurements.

Vehicles were observed to be accelerating up the incline at the measurement location to enable them to enter the transfer building. Only the measurement results from vehicles that had reasonably high throttle levels during the passby were considered to be acceptable.

If external noise sources were above the L_{Amax} of the truck targeted, the measurement result was discarded.

It was observed on the day of measurement that, for the majority of vehicles, the exhausts were situated at heights above 1,500 mm.

The measured L_{Amax} noise levels have been presented in this report together with the relevant information which enables individual vehicles and operators to be identified. None of the vehicles monitored on the day of the survey exceeded the noise levels of their vehicle category outlined in the Vehicle in Motion Test in the ADR 28/01. However, it is recommended that the vehicles identified in this report as generating noise levels close to the appropriate limits be inspected to see if they are clearly not defective.

So that noise levels are within the limits outlined in ADR 28/01, the repair or improvement of any future identified defective trucks will be managed in accordance with the strategies described in the report entitled *"Noise Management Plan – Terminal Operations Clyde Transfer Terminal*" prepared by Veolia Environmental Services (Australia) dated May 2008.

Results of Truck Noise Monitoring

Time	Company	Licence Number	Exhaust Location	LAmax	Make	Model
7:54:18	JJ Richards	AR91WK	Top / Left	79		
8:04:12	Cleanaway	AR10LS	Top / Left	80	IVECO	
8:07:36	JJ Richards	AC27PU	Top / Left	79	IVECO	ACCO
8:09:33	Veolia	AZ13JG		76	ISUZU	
8:10:23	Gallaway Environment	GAL208	Top / Right	74	MITSUBISHI	
8:14:57		TWP391	Top / Left	78		
8:18:11	Wanless Wastecorp	AF03ZX	Top / Left	77		
8:20:51	Auburn City Council	AB90AN	Top / Right	73	ISUZU	
8:22:17	SITA Environment Services	AY91GG		78		
8:29:13	Veolia	AZ59KC	Top / Left	79	VOLVO	FM12
8:34:01	Auburn City Council	AY75CT	Top / Left	80		
	Canterbury City Council	YVB310	Top / Right	83	HINO	
8:38:12	Veolia	YCP418	Top / Left	78		
8:40:40	JJ Richards	VPE517	Top / Right	77	HINO	
8:42:57	JJ Richards	ZBG181	Top / Right	78	HINO	
8:45:45	Auburn City Council	AY88AM	Top / Left	78	IVECO	
8:47:49	Cleanaway	AR11LS	Top / Left	82	IVECO	
8:59:XX	Wanless Wastecorp	AF03ZX	Top / Left	79		
8:59:09	Veolia	YCP222	Top / Left	82	IVECO	
9:04:25	Cleanaway	AR09LS	Top / Left	82	IVECO	
9:08:01	URM	URM076	Top /Left	84		
9:08:58	Veolia	YBN779	Top / Left	79	IVECO	ACCO
9:10:46		UPQ191	Top / Left	79	MITSUBISHI	
9:14:06	Gallaway Environment	GAL210	Top / Left	78	SCANIA	
9:16:XX	Veolia	YCP398	Top / Left	78	MITSUBISHI	
9:16:48	Veolia	YCP396	Top / Left	81	IVECO	
9:19:53	Cleanaway	AR22LS	Top / Left	80	IVECO	
9:23:07	Auburn City Council	AV25CI	Top / Left	75	Nissian Diesel	
9:24:43	JJ Richards	VWG346	Top / Right	80		
9:26:04	Watts Waste	YTS175	Top / Left	79	SCANIA	340
9:32:36	Canterbury City Council	ZCP691	Top / Right	77	HINO	FM
9:34:13	Canterbury City Council	ZBG189	Top / Right	75	HINO	
9:35:51	Veolia	YCP401	Top / Left	76	IVECO	
	Cleanaway	AR49AI	Top / Left	80	IVECO	
9:57:59	Veolia	AZ13JG	Top / Left	76		
9:59:19		NH400	Top / Left	76	MACK	-
9:59:49	Cleanaway	AR21LS	Top / Left	78	IVECO	ACCO
10:06:08	URM	URM105	Top / Left	76	IVECO	ACCO
10:08:04	Veolia	AU59AK	Top / Left	73	ISUZU	1400
10:08:44	Veolia	AB40PW	Top / Left	78	ISUZU	

Results of Truck Noise Monitoring

Time	Company	Licence Number	Exhaust Location	LAmax	Make	Model
10:19:58	Veolia	AV19XT	Top / Left	85	VOLVO	340
10:21:01	URM	URM040	Top / Left	79	IVECO	ACCO
10:22:51	Auburn City Council	AV25CI	Top / Left	76	Nissian Diesel	
10:25:26	Auburn City Council	AB90AN	Top / Right	76		
10:34:05	Veolia	WYB133	Top / Left	75	VOLVO	FL6
10:36:22	Veolia	COLEX	Top / Left	78	MITSUBISHI	
10:42:03	MITSUBISHI	AT32LT	Top / Left	80		
10:42:42		AJ63PH	Top / Left	79	VOLVO	FL7
10:47:15	Veolia	YUQ986	Top / Right	74	HINO	
10:49:XX		USS004	Top / Right	74		
10:53:20	Veolia	YES470	Top / Left	85	IVECO	
10:54:37	Veolia	AW36CB	Top / Left	81	VOLVO	
10:57:01	Veolia	YIQ467	Top / Left	80	ISUZU	1400
10:58:06	Veolia	YPZ907	Top / Left	77	ISUZU	1400
11:01:14	Veolia	AA52WJ	Top / Left	81	IVECO	
11:16:16		RTJ609	Top / Right	78	ISUZU	
11:21:37	URM	AE31CD	Top / Left	78	IVECO	
11:23:17	JJ Richards	AM65QW	Top / Left	76	SCANIA	260
11:25:36	URM	URM081	Top / Left	85		
11:39:17	Veolia	AU57QJ	Top / Left	77		
11:44:27	Canterbury City Council	AF38AL	Top / Left	78	IVECO	

Diagram of Exhaust Location