



HEGGIES

REPORT 10-6815-R1

Revision 0

Clyde Waste Transfer Facility Truck Noise Monitoring Truck Noise Measurement Report

PREPARED FOR

**Veolia Environmental Services
Cnr Unwin & Shirley Street
ROSEHILL NSW 2142**

23 OCTOBER 2008

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Clyde Waste Transfer Facility

Truck Noise Monitoring

Truck Noise Measurement Report

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
10-6815-R1	Revision 0	23 October 2008	Kenny Tsang	Dick Godson	Dick Godson



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1 INTRODUCTION

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

A Test and Management Plan has been established in response to the issues raised by the Department of Environment and Climate Change (DECC) in their letter to Mr Kitto dated 5 February 2008 (refer **Appendix A**).

This report provides the results of the first quarterly noise measurement results conducted on the 15 October 2008 at 322 Parramatta Rd, Clyde. 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 BACKGROUND

2.1 Conditions of Approval

The letter from the DECC dated 14 July 2008 (**Appendix B**) provides a response to Veolia's application to modify the Consent Conditions relating to the noise testing of trucks entering the waste transfer facility.

In the letter, the DECC refers to the proposed Truck Noise Monitoring Test and Management Plan (the Plan) dated 26 May 2008 prepared by Heggies Pty Ltd on behalf of Veolia Environmental Services Pty Ltd. (**Appendix C**).

The DECC has accepted the proposed methodology outlined by Heggies in the Plan providing that the following conditions are met:

- A minimum of 25% of the trucks attending the facility on the day of testing must be tested.
- Appropriate measures in place to protect the integrity results obtained at the specified testing location.
- Adjustments are made to the raw measurements in order to account for any differences in the methods used compared to those set out in ADR28/01.
- Ensure that the purpose of the truck noise monitoring is to identify and report potentially noisy trucks.

2.2 Letter from DECC

The letter from the DECC dated 5 February 2008 (**Appendix A**) provides a response to Veolia's application to modify the Consent Conditions relating to the noise testing of trucks entering the waste transfer facility. The following provides a brief summary of the key aspects relating to the proposed noise testing.

- The DECC supports an application to amend Condition 112 on the basis that the intent of the condition is satisfied.
- All Veolia trucks are required to meet the requirements of the Noise Control Regulation, whether they are new or used.
- Veolia is required to have a system in place to ensure that all trucks operated by it meet the requirements set out in the Noise Control Regulation including a means of repairing or improving any trucks that do not meet those limits.



- The DECC accepts that 25% of all trucks attending the premises must be tested on any given day but recommends that the testing be done at least 4 times per year, on a trial basis. If the results of this trial prove satisfactory, testing could subsequently be conducted say, twice a year.
- It is suggested that any new condition could refer to the stationary test requirements of ADR 28/01.
- The DECC accepts that Veolia has only a limited range of options with respect to ensuring that trucks operated by its contractors meet the required noise limits but that it can keep a register of any such trucks that exceed the noise limits and ask that they be repaired or exclude them from the premises.
- It is also recommended that the condition requires the setting out of a method of rectifying the Veolia trucks that are either clearly defective (for example, because noise control equipment such as external mufflers are missing or damaged) or are emitting more noise than those set out in the limits.

3 REQUIRED NOISE TESTING AND NOISE LIMITS UNDER ADR 28/01

ADR 28/01 “*External Noise of Motor Vehicles 2006*” includes two test procedures, these being a “Vehicles in Motion” test and a “Stationary Vehicle” test. A brief summary of the testing procedures is provided below.

For the vehicles in motion test, the ADR requires measurements to be undertaken at a distance of 7.5 m from the path of the vehicle’s centreline at a height of 1.2 m above road level. Vehicles should approach the test site at speeds of 30 km/h to 50 km/h in gear 2 or 3 and be operated at full throttle through the 20 m test site.

For the stationary vehicles test (on goods vehicles), the ADR requires noise measurements to be undertaken at a distance of 1.0 m from the exhaust at an angle of 45 degrees from the principal direction of gas flow. Measurements should be undertaken at governed speed or 75% Engine Speed at Maximum Power (ESMP) whilst the vehicle is in neutral gear.

Table 1 provides a summary of the allowable L_{Amax} noise levels in ADR 28/01 for Goods Vehicles.



Table 1 LAm_{ax} Noise Limits (dBA) - ADR 28/01

Vehicle Category Code	Vehicle Type	Vehicles in Motion	Stationary Vehicles				
			Spark Ignition and Direct Injection Diesel Engines	Spark Ignition Engines Exhaust Outlet Height		Diesel Engines Exhaust Outlet Height	
				<1500 mm	≥ 1500 mm	<1500 mm	≥ 1500 mm
NA	Light Goods Vehicles GVM≤3.5 t on road use	78 to 80	89	85	99	95	
NB	Medium Goods Vehicles GVM>3.5 t≤12 t on road use	81 to 84	95	91	101	97	
NC	Heavy Goods Vehicles GVM>12 t on road use	81 to 87	95	91	103	99	

Note: For vehicles in motion test, the LAm_{ax} noise limits are based on the Gross Vehicle Mass (GVM) and the Nett Engine Power (NEP). The noise limits in the table are expressed as a range where the lower noise level refers to the minimum GVM and NEP in each category and the upper noise level refers to the maximum GVM and NEP in each category.

4 REQUIRED NOISE TESTING AND NOISE LIMITS UNDER POEO (NOISE CONTROL) REGULATION 2000

The POEO (Noise Control) Regulation is based on a “Stationary Vehicle” test.

For the stationary vehicles test (on motor lorries), the noise measurements are to be undertaken at a distance of not more than 1.0 m from the exhaust at an angle of 45 or 90 degrees (depending on the exhaust height) from the principal direction of gas flow. Measurements should be undertaken at governed speed or 75% ESMP whilst the vehicle is in neutral gear or park.

Table 2 provides a summary of the allowable LAm_{ax} noise levels for Motor Lorries in the Noise Control Regulation.

For diesel and non-diesel engines constructed after 1 July 1983, the LAm_{ax} noise limits are equivalent to the stationary noise limits in ADR 28/01.



Table 2 LAmx Noise Limits - POEO (Noise Control) Regulation 2000

Description	Engine	Gross Vehicle Mass	Exhaust Height above Ground	Year of Manufacture	LAmx Noise Limit (dBA)
Motor Lorry or Motor Bus	Any engine other than diesel	3,500 kg or less	1.5 m or more	Before 1/7/83	88
				After 1/7/83	85
		Less than 1.5 m	Before 1/7/83	92	
			After 1/7/83	89	
		More than 3,500 kg	1.5 m or more	Before 1/7/83	94
			After 1/7/83	91	
	Less than 1.5 m	Before 1/7/83	98		
		After 1/7/83	95		
	Diesel	3,500 kg or less	1.5 m or more	Before 1/7/80	101
				After 1/7/80	98
			Less than 1.5 m	After 1/7/83	95
				Before 1/7/80	105
After 1/7/80			102		
			After 1/7/83	99	
More than 3,500 kg but less than 12,000 kg	1.5 m or more	Before 1/7/80	103		
		After 1/7/80	100		
	Less than 1.5 m	After 1/7/83	97		
		Before 1/7/80	107		
	After 1/7/80	104			
		After 1/7/83	101		
More than 12,000 kg	1.5 m or more	Before 1/7/80	105		
		After 1/7/80	102		
	Less than 1.5 m	After 1/7/83	99		
		Before 1/7/80	109		
	After 1/7/80	106			
		After 1/7/83	103		

5 COMMENTS ON ADR 28/01 AND NOISE CONTROL REGULATION TESTING PROCEDURES

The proposed Truck Noise Monitoring Test and Management Plan dated 26 May 2008 prepared by Heggies Pty Ltd on behalf of Veolia Environmental Services Pty Ltd (**Appendix C**) outlined the issues in relation to testing truck noise levels in strict accordance with ADR 28/01 and the Noise Control Regulation test requirements.

The DECC letter of 5 February 2008 notes that where possible, the measured L_{max} noise levels from truck passbys should be compared with the noise limits in ADR 28/01 or the Noise Control Regulation in order to identify vehicles that may have noise control devices that are defective or are in exceedance of the noise limits.



In order for the noise results to be comparable to these standards, Heggies measurement has adhered to the requirements of ADR 28/01 as far as practical (given the site constraints) to enable L_{Amax} noise levels from truck passbys to be comparable with the noise limits in the “Vehicles in Motion” test.

6 MEASUREMENT LOCATION AND INSTRUMENTATIONS

The first Truck Noise Monitoring was conducted on the 15 October 2008 at 322 Parramatta Road, Clyde. In order for the measurements to be comparable to the noise limits of ADR 28/01 the following conditions for equipment setup were made:

- 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 most representative of the ADR 28/01 test requirements.
- Measurements were undertaken between the hours of 8 am to 12 noon. During this four hour period, Heggies was able to capture the minimum 25% of the daily truck movements required by DECC.
- Measurements were undertaken using a Brüel & Kjær 2260 sound level meter using the A-weighting 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 behaviours were not influenced by someone standing in plain view (see **Figure 4**).
- The Gross Vehicle Mass (GVM) and vehicle type of each truck were recorded in order to determine the relevant vehicle class and noise limits identified in **Table 1**.
- Number plate and owner company of the vehicles were recorded for each truck passby in order to fully identify vehicles that exceed the specified noise limits.



Figure 1 Measurement Location

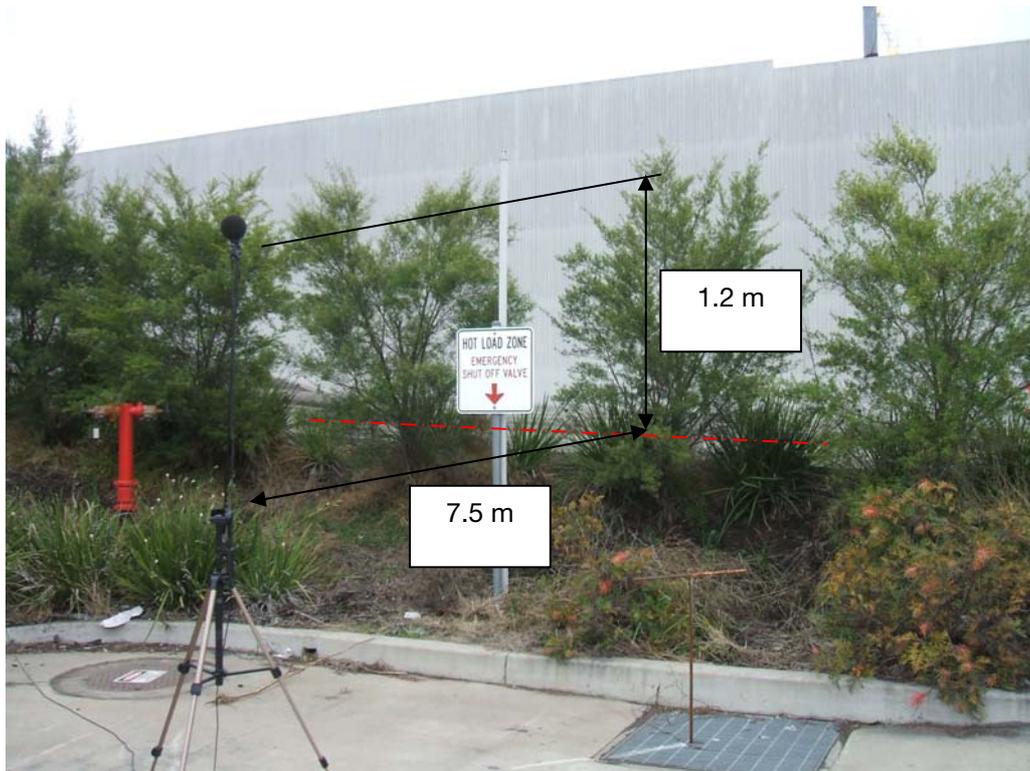


Figure 2 Proposed Noise Measurement Location

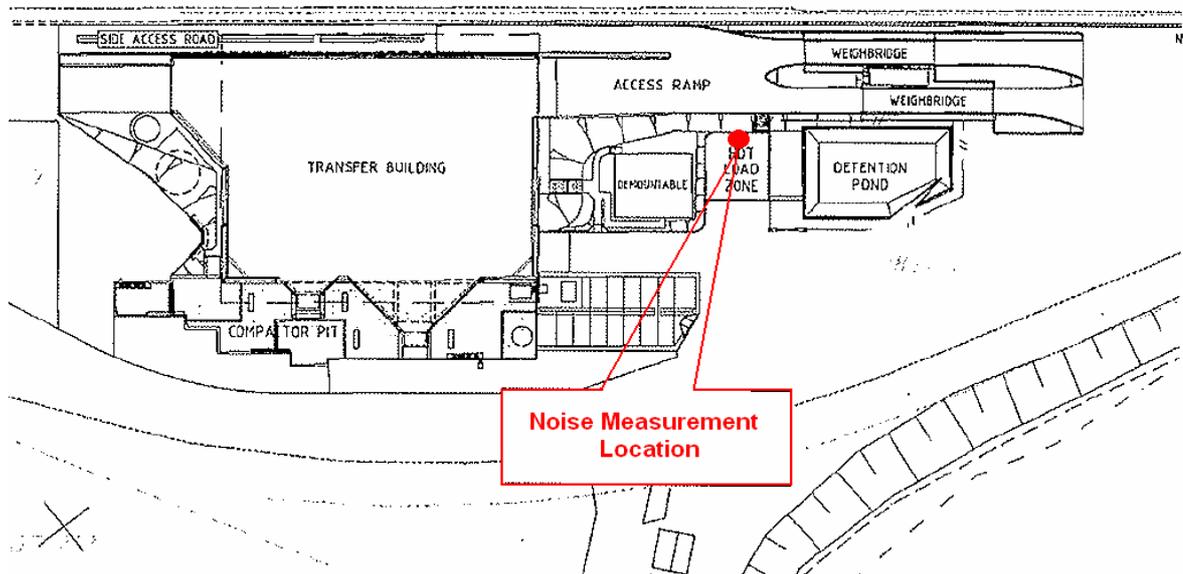




Figure 3 Uphill Incline to Transfer Building



Figure 4 Operating Position away from Plane View





7 NOISE MEASUREMENT RESULTS

In order to further satisfy the intent of the ADR 28/01 test requirements in Condition 112, a Noise Management Plan will be prepared by Veolia in order to document the management actions to be followed if the L_{Amax} noise levels from truck passbys are found to exceed the noise limits.

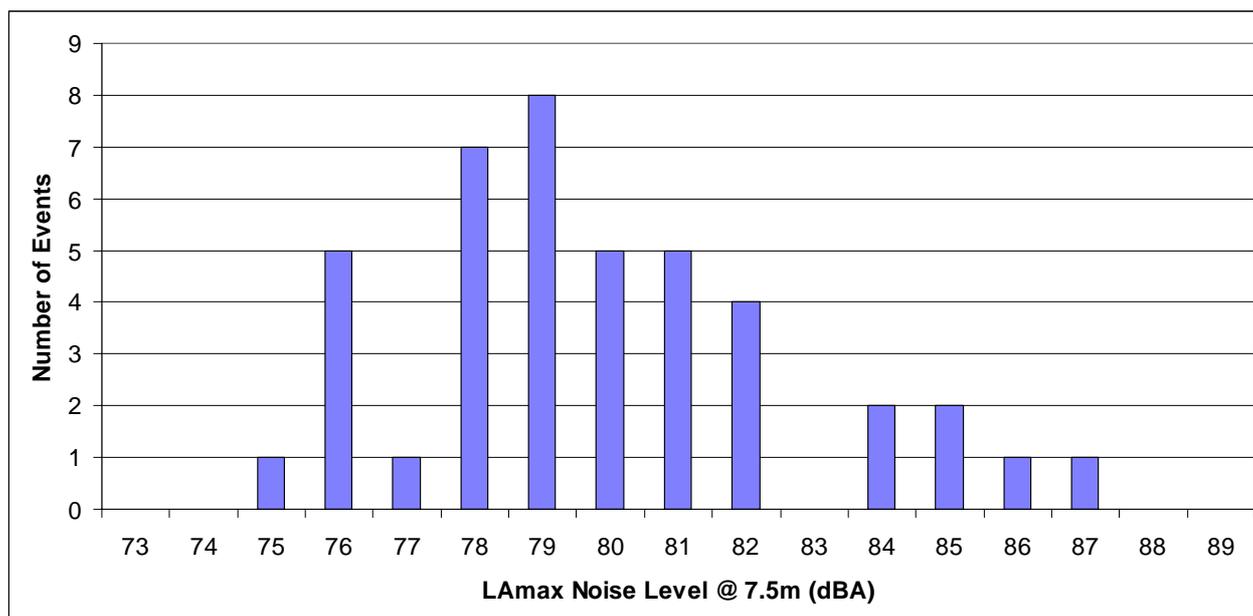
Appendix D is a summary of the vehicles that entered the Transfer Building on 15 October 2008. The L_{Amax} noise levels from individual truck movements accelerating up the incline were recorded.

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 59 trucks movements were observed entering the transfer building on the subject day. Out of the 59 truck passbys, 43 were considered acceptable measurement results with proper acceleration up the incline. Ambient (non truck generated) noise was monitored throughout the day to ensure that the recorded L_{Amax} noise levels were those contributed by the targeted vehicle only.

Figure 5 plots the acceptable monitoring results on a noise level distribution chart. The chart illustrates that the highest L_{Amax} noise levels of 87 dBA and 86 dBA each resulted for one truck passby only. The majority of the vehicles had L_{Amax} noise levels between the high 70 dBs and low 80 dBs.

Figure 5 Noise Measurements on 15 October 2008 for Trucks Entering the Waste Transfer Facility



Noise levels from individual truck passbys were subsequently compared with the noise limits in **Table 1** 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 outlined in **Table 1** 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 15 October 2008 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 the 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.

8 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 L_{Amax} noise levels from truck passbys to be comparable with the noise limits in the "Vehicles in Motion" test.

The measurement location selected for the first the quarterly noise measurement surveys review was considered appropriate.

Noise from the site's fork lift truck and 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 be able to enter the transfer building. Only the measurement results from vehicles that had reasonably high throttle during the passby were considered to be acceptable.

If external noise sources were above the L_{Amax} of the truck targeted, the measurement 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 exceeded the noise levels of their vehicle category outlined in the Vehicle in Motion Test of 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.

Any future identified defective trucks will be repaired or improved so that noise levels are within the limits outlined in ADR 28/01 before they are allowed to commence their normal operations. The operators of non-Veolia trucks should be notified and have their defective vehicles excluded from the Waste Transfer Facility until their noise levels comply with the ADR 28/01 noise limits.

Appendix A

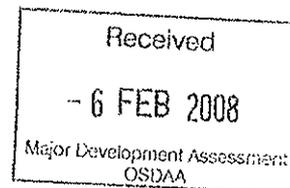
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DECC Letter dated 5 February 2008

Our reference : DOC08/2847

David Kitto
Director - Major Development Assessment
Department of Planning
GPO Box 39
SYDNEY NSW 2001



BY FACSIMILE & STANDARD POST

Dear Mr Kitto

**Proposed modification to Veolia Waste Transfer Terminal (DA 205-08-01 MOD 2) –
Clyde, Auburn Local Government Area –
Environment Protection Licence No.11763 – Truck noise assessment**

Thank you for your letter dated 16 January 2008 regarding the application from Veolia Environmental Services Pty Ltd ("Veolia") seeking to modify the Minister's development consent for the Waste Transfer Terminal. Veolia holds an environment protection licence no.11763 issued by the Environment Protection Authority ("EPA").

Please note that, although the EPA is now a part of the Department of Environment and Climate Change ("DECC"), certain statutory functions and powers continue to be exercised in the name of the EPA.

Summary

The DECC is of the view that the proposed alternative, at this stage, needs further work to clearly set out the new assessment requirements and to take into account New South Wales' legal requirements in relation to the emission of noise from trucks.

The reasons for this are set out below.

The DECC suggests that a meeting be held with the Department of Planning, Veolia and Veolia's consultants with a view to finalising this matter.

Background

Council's position

The DECC notes that in its letter dated 26 July 2007, Auburn Council does not support the removal of condition 112 but does support an application to amend the condition on the basis that the intent of the condition is satisfied.

The Department of Environment and Conservation NSW is now known as
the Department of Environment and Climate Change NSW

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Department of **Environment and Conservation** NSW



Current requirements of the Protection of the Environment Operations (Noise Control) Regulation 2000

The DECC would like to draw the requirements of the *Protection of the Environment Operations (Noise Control) Regulation 2000* ("the Noise Control Regulation") to the attention of the Department and Veolia. In particular, we draw attention to clauses 13 and 14 and Schedule 1 of the Noise Control Regulation which sets out limits for the emission of noise from trucks used on public roads in New South Wales. To assist you, copies of clauses 13 and 14 and Schedule 1 of the Noise Control Regulation are attached.

The testing procedures are set out in Schedule 2 to the Noise Control Regulation and a copy of this is attached.

All Veolia trucks need to meet the requirements of the Noise Control Regulation when used on public roads, whether or not the trucks are new or used, although the standard required depends on the type of engine, the size of the engine and the age of the vehicle, as set out in Schedule 1.

The DECC assumes that Veolia already has in place a system to ensure that all of its trucks meet the requirements of the Noise Control Regulation, however, the DECC notes that the implication of "Part 4 Responsibilities" of the report titled "Clyde Waste Transfer Terminal Truck Noise – Proposed Measurement and Assessment Methodology" dated 2 April 2007 prepared by Hyder Consulting Pty Ltd for Veolia makes this unclear.

We note that this does not impose an obligation on Veolia in relation to trucks not operated by Veolia.

As this is a strict legal requirement for all trucks in New South Wales, Veolia needs to ensure it has in place a system to ensure all trucks operated by it meet the requirements set out in the Noise Control Regulation including a means of repairing or improving any trucks that do not meet those limits.

Proposal

The DECC is prepared to accept that 25% of all trucks attending the premises be tested on any given day but recommends that the testing be done at least 4 times a year on a trial basis. If the results of this prove satisfactory, testing could subsequently be conducted say twice a year. In either case, reporting the results of the testing and rectification action would only be required once a year to the EPA, the Department of Planning and Council.

It is suggested that any new condition could refer to the stationary test requirements of ADR 28/01.

The DECC understands that not all of Veolia's trucks should be assessed as part of the conditions attached to the operation of the Waste Transfer Terminal, rather, the focus should be on the trucks, whether operated by Veolia or otherwise, that use the Waste Transfer Terminal.

The DECC also accepts that Veolia has only a limited range of options with respect to ensuring that trucks operated by its contractors meet the required noise limits but that it can keep a register of any such trucks that exceed the noise limits and ask that they be repaired or exclude them from the premises.

It is also recommended that the condition should also require the setting out of a method of rectifying the Veolia trucks that either are clearly defective (for example because the noise control equipment such as exhaust mufflers are missing or damaged) or emitting more noise than those set out in the limits.

If the Department agrees that a meeting between all the interested parties would progress the matter, please contact Christine Mitchell to make the necessary arrangements.

If you have any questions in relation to the above, please contact Christine Mitchell on (02) 9995 5758.

Yours faithfully



5 FEBRUARY 2008

Chris McElwain
Unit Head Waste Operations
Climate Change and Environment Protection Group

Enc. Clauses 13 and 14 of the Noise Control Regulation
Schedules 1 and 2 of the Noise Control Regulation

Appendix B

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DECC Response dated 14 July 2008

Our reference : DOC08/32368



David Kitto
Director - Major Development Assessment
Department of Planning
GPO Box 39
SYDNEY NSW 2001

BY FACSIMILE & STANDARD POST

Dear Mr Kitto

Proposed modification to Veolia Waste Transfer Terminal (DA 205-08-01 MOD 2) at Clyde – Environment Protection Licence No.11763 – Truck noise assessment plan by Heggies Pty Ltd

We refer to the proposed Truck Noise Monitoring Test and Management Plan dated 26 May 2008 prepared by Heggies Pty Ltd ("the Plan") on behalf of Veolia Environmental Services Pty Ltd ("Veolia") in relation to Veolia's application to modify the Minister's development consent for the Waste Transfer Terminal at Clyde. Veolia holds an environment protection licence no.11763 issued by the Environment Protection Authority ("EPA") in relation to that facility.

Please note that, although the EPA is now a part of the Department of Environment and Climate Change ("DECC"), certain statutory functions and powers continue to be exercised in the name of the EPA.

The DECC notes that several of the matters set out in its letter dated 5 February 2008 to you are addressed in the Plan. The DECC notes the proposed method of recording and reporting the results of the testing.

The DECC has a number of further comments and these are set out below:

1. At least 25% of the trucks attending the facility on the day of testing must be tested;
2. The proposed testing location appears to be suitable but are there any other measures that can be taken to protect that area from road traffic noise or noise from the waste transfer building, including forklift noise?
3. What adjustments, if any, are required to the raw measurements taken at that location to take account of the differences between the proposed testing method and the method set out in the ADR28/01 – this must be set out in the Plan?
4. The noise limits that are to be used as the limits in the plan should be clearly set out in the management plan as the last paragraph in section 7 of the Plan creates unacceptable uncertainty. In other words, the purpose of the Plan is to identify potentially noisy trucks, not minimise the number of truck inspections; and

The Department of Environment and Conservation NSW is now known as
the Department of Environment and Climate Change NSW

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Department of **Environment and Climate Change** NSW



5. The management plan should set out what will occur where a Veolia or non-Veolia truck is identified as operating above the limits set out in the Plan eg a letter will be sent to non-Veolia truck operators requiring rectification action within a certain period and or subsequent exclusion and Veolia trucks will be referred for stationary testing in accordance with the POEO (Noise Control) Regulation 2000 and any necessary repairs within a specified period and this action can be recorded in the database for inclusion in the annual report.

The matters set out above and the final form of the test and management plan will need to be reflected in an appropriate re-draft of condition 112. The DECC would be happy to comment on any proposed amendment to that condition.

If you have any questions in relation to the above, please contact Christine Mitchell on (02) 9995 5758.

Yours faithfully



14 JULY 2008

Chris McElwain
Unit Head Waste Operations
Climate Change and Environment Protection Group

Appendix C

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Heggies Letter dated 26 May 2008



HEGGIES

26 May 2008

10-6815 Test Plan 20080522

Veolia Environmental Services
Cnr Unwin & Shirley Street
ROSEHILL NSW 2142

Attention: Mr Thomas Muddle

Dear Thomas

Clyde Waste Transfer Facility Truck Noise Monitoring Proposed Test and Management Plan

1 Introduction

Heggies Pty Ltd (Heggies) has been engaged by Veolia Environmental Services (Veolia) to prepare a test and management plan to monitor and manage noise levels from heavy vehicles accessing the Clyde Waste Transfer Facility.

The test plan has been prepared in response to the issues raised by the Department of Environment and Climate Change (DECC) in their letter to Mr Kitto dated 5 February 2008 (refer **Attachment A**).

This report provides a noise measurement test and management plan in which:

- Measurements are aligned with the requirements of Australian Design Rule (ADR) 28/01 as far as practical and thus allowing noise from truck passbys to be compared with the applicable noise limits.
- A draft noise management plan has been prepared which outlines the actions that will occur when truck noise levels are found to be in exceedance of the nominated noise level thresholds.

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2 Background

2.1 Conditions of Approval

The NSW Department of Planning's (DoP) Condition 112 for the Clyde Waste Transfer Terminal requires that:

"The Applicant shall ensure that annual noise emissions assessments of all trucks owned or operated by the Applicant or trucks the subject of a delivery contract with the applicant are carried out. The assessment shall assess compliance with relevant noise emission requirements of ADR 28/01 or its successor. The assessment shall be made available to Auburn Council and the Director-General within 3 weeks of the Applicant's annual licensing report to the EPA (now DEC). If any non-compliance with the relevant noise emission requirements is identified, the assessment report shall recommend mitigation measures with the objective of ensuring compliance with relevant noise emission requirements of ADR 28/01."

The DECC notes in the letter of 26 July 2006 (**Attachment A**) that Auburn Council does not support the removal of Condition 112, but does support an application to amend the condition on the basis that the intent of the condition is satisfied.

2.2 Test Plan and Measurements Undertaken by Hyder

A test plan and attended noise measurements have previously been undertaken by Hyder Consulting Pty Ltd (Hyder). The test plan was prepared in April 2007 and the attended noise measurements were undertaken on 8 January 2008.

The measurement location that Hyder selected is illustrated in **Figure 1**. The attended noise measurements were undertaken at the Hardstand area (near the wire fence of the detention pond), approximately 13 m from the centre of the road between the entry ramp and weighbridge; and 21 m from the centre of the road between the weight bridge and exit ramp. This measurement location was considered most appropriate as influence from road traffic noise (particularly heavy vehicles) from Parramatta Road, noise from the waste transfer building and noise from the diesel fork truck near the waste transfer building was minimised.

The Hyder report indicates that a review of Veolia Environmental Services' register identifies that there are approximately 400 trucks movements daily (weekdays) to and from the site and that the majority of truck movements occur during morning periods. It was estimated that there are approximately 120 truck movements (weekdays) between 8:00 am to 12:00 midday, representing approximately 20% to 25% of the daily truck movements.

Attended measurements were undertaken by Hyder Consulting between 8:00 am and 12:00 midday on 8 January 2008. L_{Amax} noise measurements were measured for 108 truck passbys (54 entries and 54 exits). The L_{Amax} noise levels from trucks departing were 5 dBA to 7 dBA lower than those from trucks entering the site. This was due to the fact that the trucks departing were located 8 m further than the entering vehicle to the measuring equipment. The other reason appears to be that the trucks tend to accelerate as they enter the weighbridge, while trucks on exit have the option to roll down the hill.

Heggies have undertaken an analysis of the L_{Amax} passby noise levels for trucks entering the waste transfer facility. The results are plotted in **Figure 2** in the form of a noise level distribution chart. This chart illustrates that the highest L_{Amax} noise level of 84 dBA occurred for one truck passby and the next highest L_{Amax} noise level was 80 dBA. The L_{Amax} noise levels from all other passbys were less than 80 dBA.



Figure 1 Hyder Noise Measurement Location

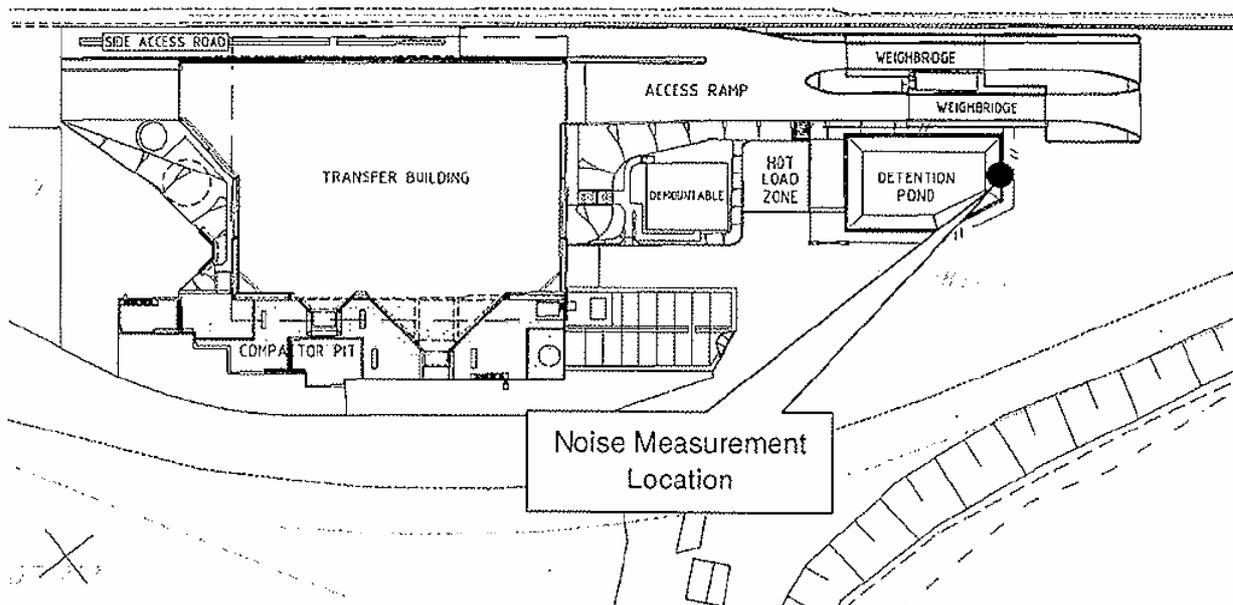
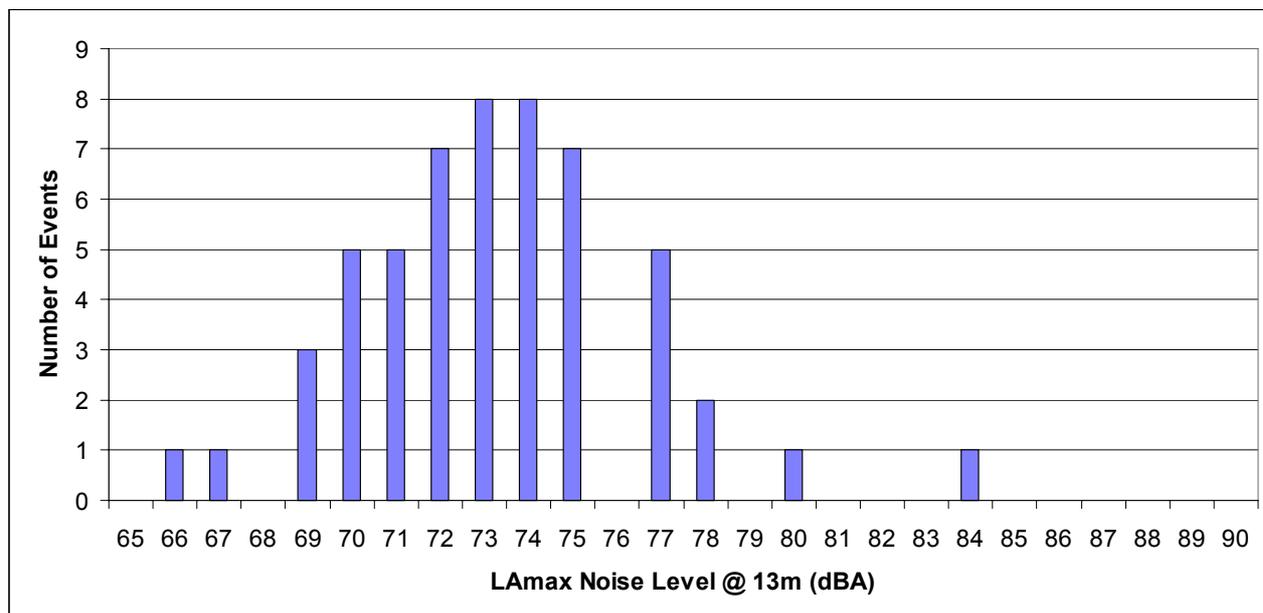


Figure 2 Analysis of Hyder Noise Measurements on 8 January 2008 for Trucks Entering Waste Transfer Facility



Note: For measurements at a distance of 7.5 m, a nominal correction of +5 dBA should be added to the Hyder measurement results.



2.3 Letter from DECC

The letter from the DECC dated 5 February 2008 (**Attachment A**) provides a response to Veolia's application to modify the consent conditions relating to the noise testing of trucks entering the waste transfer facility. The following provides a brief summary of the key aspects relating to the proposed noise testing.

- The DECC is of the view that the proposed testing (documented in the Hyder Report), at this stage, needs further work to clearly set out the new assessment requirements and to take into account New South Wales' legal requirements in relation to the noise emissions from trucks.
- The DECC supports an application to amend Condition 112 on the basis that the intent of the condition is satisfied.
- The DECC notes the requirements of the truck noise emission limits in the Protection of the Environment Operations (POEO) Noise Control Regulation 2000. The noise limits should form part of the proposed test plan.
- All Veolia trucks are required to meet the requirements of the Noise Control Regulation, whether they are new or used.
- Veolia is required to have a system in place to ensure that all trucks operated by it meet the requirements set out in the Noise Control Regulation including a means of repairing or improving any trucks that do not meet those limits.
- The DECC accepts that 25% of all trucks attending the premises be tested on any given day but recommends that the testing be done at least 4 times a year on a trial basis. If the results of this prove satisfactory, testing could subsequently be conducted say twice a year.
- It is suggested that any new condition could refer to the stationary test requirements of ADR 28/01.
- The DECC accepts that Veolia has only a limited range of options with respect to ensuring that trucks operated by its contractors meet the required noise limits but that it can keep a register of any such trucks that exceed the noise limits and ask that they be repaired or exclude them from the premises.
- It is also recommended that the condition should also require the setting out of a method of rectifying the Veolia trucks that either are clearly defective (for example because of noise control equipment such as external mufflers are missing or damaged) or emitting more noise than those set out in the limits.

3 Required Noise Testing and Noise Limits under ADR 28/01

ADR 28/01 "*External Noise of Motor Vehicles 2006*" includes two test procedures, these being a "Vehicles in Motion" test and a "Stationary Vehicle" test. A brief summary of the testing procedures is provided below.

For the vehicles in motion test, the ADR requires measurements to be undertaken at a distance of 7.5 m from the path of the vehicle's centreline at a height of 1.2 m above road level. Vehicles should approach the test site at speeds of 30 km/h to 50 km/h in gear 2 or 3 and be operated at full throttle through the 20 m test site.

For the stationary vehicles test (on goods vehicles), the ADR requires noise measurements to be undertaken at a distance of 1.0 m from the exhaust at an angle of 45 degrees from the principal direction of gas flow. Measurements should be undertaken at governed speed or 75% Engine Speed at Maximum Power (ESMP) whilst the vehicle is in neutral gear.

Table 1 provides a summary of the allowable L_{Amax} noise levels in ADR 28/01 for Goods Vehicles.



Table 1 L_{Amax} Noise Limits (dBA) - ADR 28/01

Vehicle Category Code	Vehicle Type	Vehicles in Motion Spark Ignition and Direct Injection Diesel Engines	Stationary Vehicles			
			Spark Ignition Engines Exhaust Outlet Height		Diesel Engines Exhaust Outlet Height	
			<1500 mm	≥ 1500 mm	<1500 mm	≥ 1500 mm
NA	Light Goods Vehicles GVM ≤ 3.5 t on road use	78 to 80	89	85	99	95
NB	Medium Goods Vehicles GVM > 3.5 t ≤ 12 t on road use	81 to 84	95	91	101	97
NC	Heavy Goods Vehicles GVM > 12 t on road use	81 to 87	95	91	103	99

Note: For vehicles in motion test, L_{Amax} noise limits are based on the Gross Vehicle Mass (GVM) and the Nett Engine Power (NEP). The noise limits in the table are expressed as a range where the lower noise level refers to the minimum GVM and NEP in each category and the upper noise level refers to the maximum GVM and NEP in each category.

4 Required Noise Testing and Noise Limits under POEO (Noise Control) Regulation 2000

The POEO (Noise Control) Regulation is based on a “Stationary Vehicle” test.

For the stationary vehicles test (on motor lorries), the noise measurements are to be undertaken at a distance of not more than 1.0 m from the exhaust at an angle of 45 or 90 degrees (depending on the exhaust height) from the principal direction of gas flow. Measurements should be undertaken at governed speed or 75% ESMP whilst the vehicle is in neutral gear or park.

Table 2 provides a summary of the allowable L_{Amax} noise levels for Motor Lorries in the Noise Control Regulation.

For diesel and non-diesel engines constructed after 1 July 1983, the L_{Amax} noise limits are equivalent to the stationary noise limits in ADR 28/01.



Table 2 LMax Noise Limits (dBA) - POEO (Noise Control) Regulation 2000

Description	Engine	Gross Vehicle Mass	Exhaust Height above Ground	Year of Manufacture	LMax Noise Limit (dBA)
Motor Lorry or Motor Bus	Any engine other than diesel	3500 kg or less	1.5 m or more	Before 1/7/83	88
				After 1/7/83	85
		Less than 1.5 m	Before 1/7/83	92	
			After 1/7/83	89	
		More than 3500 kg	1.5 m or more	Before 1/7/83	94
			After 1/7/83	91	
	Diesel	3500 kg or less	1.5 m or more	Before 1/7/80	101
				After 1/7/80	98
		Less than 1.5 m	After 1/7/83	95	
			Before 1/7/80	105	
		More than 3500 kg but less than 12000 kg	After 1/7/80	102	
			After 1/7/83	99	
More than 12000 kg	1.5 m or more	Before 1/7/80	103		
		After 1/7/80	100		
	Less than 1.5 m	After 1/7/83	97		
		Before 1/7/80	107		
	After 1/7/80	104			
	After 1/7/83	101			
	1.5 m or more	Before 1/7/80	105		
		After 1/7/80	102		
	Less than 1.5 m	After 1/7/83	99		
		Before 1/7/80	109		
After 1/7/80	106				
After 1/7/83	103				

5 Comments on ADR 28/01 and Noise Control Regulation Testing Procedures

The Hyder report of 1 April 2005 identifies a number of issues in relation to the testing of truck noise levels in strict accordance with the ADR 28/01 and Noise Control Regulation test requirements. These include the following:

- Testing in accordance with ADR 28/01 will be time consuming (up to one hour per vehicle). The number of trucks using the facility totals around 400, of which around seventy are owned by Collex (now trading as Veolia Environmental Services). Testing of this number of vehicles is likely to take several months.
- Testing the trucks will be costly and logistically complex.



- Identifying and maintaining a suitable area for testing moving vehicles for the duration of the tests will be problematic as the test area requires a 25 m radius to ensure free-field conditions as well as having reasonably low background noise levels. The site must also enable vehicles to accelerate to the required speeds (50 km/h and faster), safely decelerate and stop/turn.

The Collex facility is unsuitable as a test site for a number of reasons, primarily its speed limit of 20 km/h.

The above issues are acknowledged in the DECC letter of 5 February 2008 (refer **Section 2.3**).

In addition to the above, Heggies noted during the site inspection on 8 April 2008 that there was a large variation in the location of the vehicle exhausts for the different truck types accessing the waste transfer facility. One of the proposed options is to undertake attended measurements using a fixed microphone located near the weighbridge whilst the vehicle is stopped or just taking off after being weighed. However, on this basis of the large variation in exhaust locations, it is considered impractical to undertake reliable noise measurements at the required measurement distance of 1.0 and 45 degrees from the principal direction of gas flow, with a fixed microphone location.

6 Proposed Test Plan

The DECC letter of 5 February 2008 notes that where possible, the measured L_{Amax} noise levels from truck passbys should be compared with the noise limits in ADR 28/01 or the Noise Control Regulation in order to identify vehicles that may have noise control devices that are defective or are in exceedance of the noise limits.

The proposed test plan aims to mimic the requirements of ADR 28/01 as far as practical (given the site constraints) to enable L_{Amax} noise levels from truck passbys to be compared with the noise limits in the “Vehicles in Motion” test.

- Measurements are proposed to be undertaken at a measurement 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 are proposed to be undertaken at a height of 1.2 m above the test site surface (ie at the same height identified in ADR 28/01).
- Measurements would be undertaken at the location illustrated in **Figure 3** and **Figure 4**. This location is positioned between the weighbridge and the transfer building on an uphill slope. During the site visit on 8 April 2008, all trucks were observed to be accelerating at this location. As the “Vehicles in Motion” test requires 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 most representative of the ADR 28/01 test requirements.
- Measurements would be undertaken using a Type 1 Sound Level Meter using the A weighting network and fast response time constant in accordance with the relevant standards.
- Measurements would be undertaken over a four hour period at least four times per year on a trial basis during the first year. During the measurements, a microphone extension lead would be used to enable the sound level meter to be operated from within the weighbridge office so that driver behaviour is not influenced by someone standing alongside the measurement location.
- The Gross Vehicle Mass (GVM) and vehicle type of each truck will be recorded in order to determine the relevant vehicle class and noise limits identified in **Table 1**.
- Number plate and/or operator information would be recorded for each truck passby in order to identify vehicles that exceed the specified noise limits.
- All measurements would be included in a comprehensive measurement report.



Additional Notes on Proposed Measurement Location

The previous measurement location selected by Hyder was on the approach to the weighbridge at a distance of 13 m. At this location, the speed and approach direction of the vehicles was variable, resulting in a large variation in measured noise levels.

A measurement location just after the weighbridge was ruled out on the basis that a speed bump requires drivers to slow down. A measurement location closer to the transfer facility near the top of the ramp was also ruled out on the basis of high ambient noise levels from the transfer facility and trucks being required to stop at a boom gate.

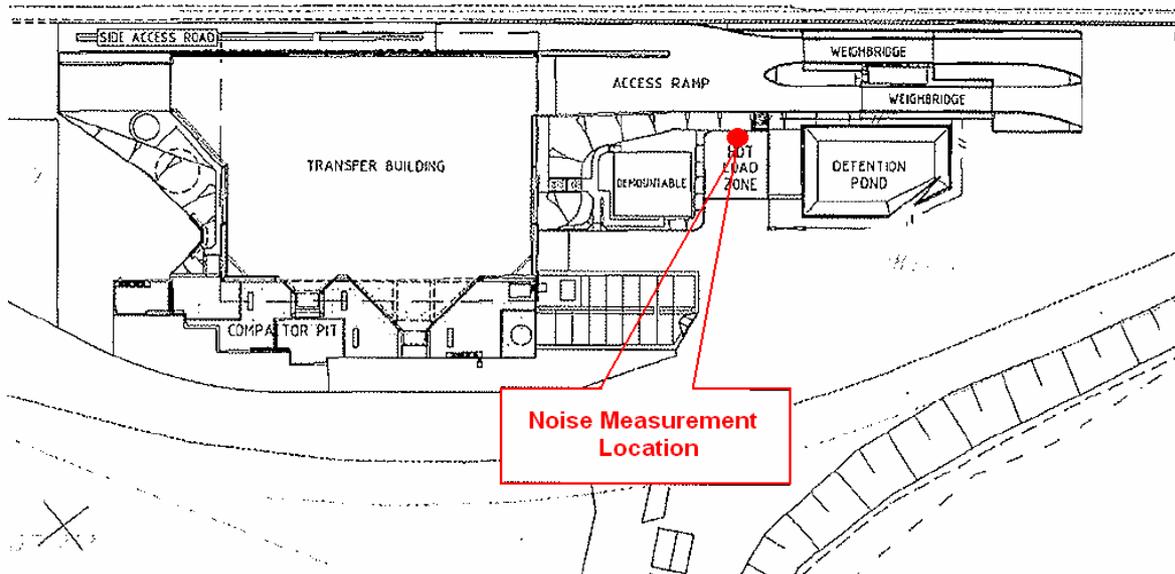
The proposed measurement location is considered to be representative of the loudest and most reliable measurement location.

Figure 3 Proposed Measurement Location





Figure 4 Proposed Noise Measurement Location



7 Noise Management Plan

In order to satisfy the intent of the ADR 28/01 test requirements in Condition 112, a noise management plan will be prepared by Veolia in order to document the management actions to be followed if the L_{Amax} noise levels from truck passbys exceed the noise limits.

The DECC letter of 5 February 2008 notes the following aspects that should be included in the noise management plan:

- Veolia is required to have a system in place to ensure that all trucks operated by it meet the requirements set out in the Noise Control Regulation including a means of repairing or improving any trucks that do not meet those limits.
- The DECC accepts that Veolia has only a limited range of options with respect to ensuring that trucks operated by its contractors meet the required noise limits but that it can keep a register of any such trucks that exceed the noise limits and ask that they be repaired or exclude them from the premises.
- It is also recommended that the condition should also require the setting out of a method of rectifying the Veolia trucks that either are clearly defective (for example because of noise control equipment such as external mufflers are missing or damaged) or emitting more noise than those set out in the limits.

In addition to the above requirements, it is anticipated that the noise management plan would also include the following:

- Following each series of noise measurements, the measured L_{Amax} noise levels would be stored in a database, together with the relevant information which enables individual vehicles and operators to be identified.
- Noise levels from individual truck passbys would be compared with the noise limits in **Table 1** to identify events which exceed the noise limits.



- Information will be stored in a database to record the number of Veolia trucks inspected as a result of noise levels exceeding the ADR 28/01 noise limits. The database should also include a field to record any actions arising from the truck inspection.
- For non-Veolia trucks, information will be stored in a database to identify the number of letters sent to other operators in relation to exceedances of the ADR 28/01 noise limits.
- On a yearly basis, a report will be prepared by Veolia providing a summary of the noise testing that has been undertaken, the number of trucks identified with noise levels in exceedance of the ADR 28/01 noise limits, the number of Veolia trucks inspected and repaired, and the number of letters sent to other operators.
- As the proposed testing is not in strict accordance with the ADR 28/01 requirements, the yearly report may also provide comment in relation to whether the noise limits in ADR 28/01 are appropriate.

For example, the L_{Amax} noise limit for a Medium Goods Vehicle is between 81 dBA to 84 dBA as outlined in ADR 28/01. If the upper value of this requirement is used (84 dBA), it will show that 2 of the 54 truck passbys conducted by Hyder would have exceeded an L_{Amax} noise limit of 84 dBA (after applying a +5 dB distance correction to the results in **Figure 2**). If the lower L_{Amax} noise limit of 81 dBA is used, the number of exceedances would increase from 2 to 9. This example highlights that if the noise limit is set to be too low, an unreasonable number of trucks would require inspections.

8 Conclusions

The proposed test plan in **Section 6** and management plan in **Section 7** are considered to address the intent of Condition 112 and the requirements of DECC in their letter of 5 February 2008.

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

Furthermore, the proposed management plan provides a procedure for inspecting and repairing (if necessary), Veolia trucks with noise levels exceeding the ADR 28/01 noise limits. For non-Veolia trucks, the proposed management plan provides a procedure for informing the operator that one of their vehicles registered a noise level exceeding the ADR 28/01 noise limits.

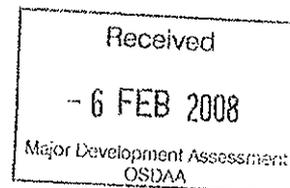
I trust that the above report provides sufficient information for your current requirements. Please contact me on 9428 8156 if you have any additional queries.

Kind Regards

CONRAD WEBER

Our reference : DOC08/2847

David Kitto
Director - Major Development Assessment
Department of Planning
GPO Box 39
SYDNEY NSW 2001



BY FACSIMILE & STANDARD POST

Dear Mr Kitto

**Proposed modification to Veolia Waste Transfer Terminal (DA 205-08-01 MOD 2) –
Clyde, Auburn Local Government Area –
Environment Protection Licence No.11763 – Truck noise assessment**

Thank you for your letter dated 16 January 2008 regarding the application from Veolia Environmental Services Pty Ltd ("Veolia") seeking to modify the Minister's development consent for the Waste Transfer Terminal. Veolia holds an environment protection licence no.11763 issued by the Environment Protection Authority ("EPA").

Please note that, although the EPA is now a part of the Department of Environment and Climate Change ("DECC"), certain statutory functions and powers continue to be exercised in the name of the EPA.

Summary

The DECC is of the view that the proposed alternative, at this stage, needs further work to clearly set out the new assessment requirements and to take into account New South Wales' legal requirements in relation to the emission of noise from trucks.

The reasons for this are set out below.

The DECC suggests that a meeting be held with the Department of Planning, Veolia and Veolia's consultants with a view to finalising this matter.

Background

Council's position

The DECC notes that in its letter dated 26 July 2007, Auburn Council does not support the removal of condition 112 but does support an application to amend the condition on the basis that the intent of the condition is satisfied.

The Department of Environment and Conservation NSW is now known as
the Department of Environment and Climate Change NSW

PO Box A290 Sydney South NSW 1232
59-61 Goulburn St Sydney NSW 2000
Tel: (02) 9995 5000 Fax: (02) 9995 5999
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ABN 30 841 387 271
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Department of **Environment and Conservation** NSW



Current requirements of the Protection of the Environment Operations (Noise Control) Regulation 2000

The DECC would like to draw the requirements of the *Protection of the Environment Operations (Noise Control) Regulation 2000* ("the Noise Control Regulation") to the attention of the Department and Veolia. In particular, we draw attention to clauses 13 and 14 and Schedule 1 of the Noise Control Regulation which sets out limits for the emission of noise from trucks used on public roads in New South Wales. To assist you, copies of clauses 13 and 14 and Schedule 1 of the Noise Control Regulation are attached.

The testing procedures are set out in Schedule 2 to the Noise Control Regulation and a copy of this is attached.

All Veolia trucks need to meet the requirements of the Noise Control Regulation when used on public roads, whether or not the trucks are new or used, although the standard required depends on the type of engine, the size of the engine and the age of the vehicle, as set out in Schedule 1.

The DECC assumes that Veolia already has in place a system to ensure that all of its trucks meet the requirements of the Noise Control Regulation, however, the DECC notes that the implication of "Part 4 Responsibilities" of the report titled "Clyde Waste Transfer Terminal Truck Noise – Proposed Measurement and Assessment Methodology" dated 2 April 2007 prepared by Hyder Consulting Pty Ltd for Veolia makes this unclear.

We note that this does not impose an obligation on Veolia in relation to trucks not operated by Veolia.

As this is a strict legal requirement for all trucks in New South Wales, Veolia needs to ensure it has in place a system to ensure all trucks operated by it meet the requirements set out in the Noise Control Regulation including a means of repairing or improving any trucks that do not meet those limits.

Proposal

The DECC is prepared to accept that 25% of all trucks attending the premises be tested on any given day but recommends that the testing be done at least 4 times a year on a trial basis. If the results of this prove satisfactory, testing could subsequently be conducted say twice a year. In either case, reporting the results of the testing and rectification action would only be required once a year to the EPA, the Department of Planning and Council.

It is suggested that any new condition could refer to the stationary test requirements of ADR 28/01.

The DECC understands that not all of Veolia's trucks should be assessed as part of the conditions attached to the operation of the Waste Transfer Terminal, rather, the focus should be on the trucks, whether operated by Veolia or otherwise, that use the Waste Transfer Terminal.

The DECC also accepts that Veolia has only a limited range of options with respect to ensuring that trucks operated by its contractors meet the required noise limits but that it can keep a register of any such trucks that exceed the noise limits and ask that they be repaired or exclude them from the premises.

It is also recommended that the condition should also require the setting out of a method of rectifying the Veolia trucks that either are clearly defective (for example because the noise control equipment such as exhaust mufflers are missing or damaged) or emitting more noise than those set out in the limits.

If the Department agrees that a meeting between all the interested parties would progress the matter, please contact Christine Mitchell to make the necessary arrangements.

If you have any questions in relation to the above, please contact Christine Mitchell on (02) 9995 5758.

Yours faithfully



5 FEBRUARY 2008

Chris McElwain
Unit Head Waste Operations
Climate Change and Environment Protection Group

Enc. Clauses 13 and 14 of the Noise Control Regulation
Schedules 1 and 2 of the Noise Control Regulation

Appendix D

Report 10-6815-R1

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Results of Truck Noise Monitoring

Time	Company	Licence Number	Exhaust Location	LMax	Make	Model
-	URM	URM076	Top / Left	76	-	-
8:14:43	Veolia	AT67VJ	Top / Left	79	-	-
8:21:31	JJ Richards	AD18XB	Top / Right	84	-	-
8:32:54	Auburn City Council	AY89AM	Top / Left	80	IVECO	ACCO
8:33:36	Auburn City Council	AV25CI	Top / Left	76	-	-
8:39:43	Auburn City Council	AW61ZP	Top / Left	81	IVECO	ACCO
8:42:16	Auburn City Council	AY90AM	Top / Left	82	-	-
8:42:38	Veolia	PICNUP	Top / Left	79	VOLVO	340
8:59:51	JJ Richards	ZBG181	Top / Right	78	-	-
9:05:36	JJ Richards	AC27PU	Top / Left	78	IVECO	ACCO
9:08:22	Veolia	AV19XT	Top / Left	86	VOLVO	340
9:12:23	JJ Richards	ZAN766	Top / Right	76	-	-
9:19:39	Veolia	YCP222	Top / Left	81	IVECO	ACCO
9:28:47	Cleanaway	AR11LS	Top / Left	79	IVECO	ACCO
9:34:27	JJ Richards	AB02JZ	Top / Right	79	IVECO	CURSOR
9:41:18	Veolia	YCP418	Top / Left	84	IVECO	ACCO
9:51:06	Sydney Waste Pty Ltd	TWP391	Top / Left	79	-	-
9:53:37	Veolia	AW36CB	Top / Left	82	VOLVO	-
9:57:21	Canterbury City Council	ZBG189	Top / Right	78	-	-
9:58:00	Auburn City Council	AV25CI	Top / Left	77	-	-
10:01:39	JJ Richards	YBT908	Top / Left	80	-	-
10:07:34	Cleanaway	AR10LS	Top / Left	82	-	-
10:19:02	Veolia	YES467	Top / Left	81	IVECO	ACCO
10:20:02	Cleanaway	AR38AI	Top / Left	79	IVECO	ACCO
10:21:13	JJ Richards	YTE397	Top / Right	80	RINO	-
10:25:51	Veolia	WHE332	Top / Right	76	ISUZU	-
10:27:09	Cleanaway	AR48AI	Top / Left	82	IVECO	ACCO
10:44:39	Veolia	AU57QJ	Top / Left	78	VOLVO	340
10:48:20	Cleanaway	AR21LS	Top / Left	78	-	-
10:50:20	Watts Waste	YTS175	Top / Left	75	-	-
10:51:02	Cleanaway	AR49AI	Top / Left	84	IVECO	ACCO
10:53:32	URM	URM111	Top / Left	80	-	-
10:59:14	Veolia	YES468	Top / Left	79	IVECO	ACCO
11:08:59	Auburn City Council	AV25CI	Top / Left	78	NISSIAN	-
11:12:02	Veolia	YPZ907	Top / Left	76	ISUZU	-
11:13:23	Unknown	AJ63PH	Top / Left	77	VOLVO	-
11:14:01	Veolia	AB40PW	Top / Left	78	ISUZU	-
11:17:41	JJ Richards	ZBG190	Top / Right	81	RINO	FM
11:18:12	URM	AE31CD	Top / Left	80	IVECO	ACCO
11:19:24	JJ Richards	AD18XB	Top / Left	79	IVECO	ACCO
11:34:50	Veolia	YCP398	Top / Left	85	-	-
11:40:07	Cleanaway	AR22LS	Top / Left	85	IVECO	ACCO
11:47:00	JJ Richards	ZCP691	Top / Right	87	RINO	FM

Diagram of Exhaust Location

