

Attachment J7

Contents

Noise Monitoring

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1.7 NOISE EMISSIONS See Attachment J7 FOR noise monitoring reports. Data given below is taken from a survey carried out by NES in 1999. See Attachment J7 for Noise monitoring report.

Source	Emission point reference No.	Equipment reference No.	Sound Pressure ¹ dBA at reference distance	Octave bands (Hz)										Impulsive or tonal qualities	Periods of Emission	Other Comments
				31.5	63	125	250	500	1K	2K	4K	8K				
Main tank farm pump	1			76	82	80	80	83	82	90	93	90				
Main tank farm pump	2			77	77	76	82	79	80	88	91	89				
Process room breakout	3			85	81	75	71	71	69	70	70	64				
Process room breakout (with centrifugal filter)	4			87	83	86	75	72	72	78	73	66				
Emo loading/unloading pump	5			83	95	81	80	75	75	72	68	63			Spatial average	
Loading/unloading oil pump	6			76	72	72	74	75	70	66	64	53			Spatial average	
Boiler room noise breakout	7			81	74	68	69	67	68	68	60	54				
Oil filter crusher Noise breakout	8			77	74	67	66	73	68	62	55	44				

¹For items of plant Sound Power levels may be used.



NOISE MONITORING See Attachment J7 for noise monitoring report for 2002 and the initial survey carried out for the IPC application.
 Third Octave analysis for noise emissions should be used to determine tonal noises

Location	National Grid Reference (5N, 5E)	Sound Pressure Levels		
		L(A) _{eq}	L(A) ₁₀	L(A) ₉₀
1. SITE BOUNDARY				
Location 1:				
Location 2:				
Location 3:				
Location 4:				
Location 5:				
Location 6:				
Location 7:				
Location 8:				
2. NOISE SENSITIVE LOCATIONS				
Location 1:				
Location 2:				
Location 3:				
Location 4:				
Location 5:				
Location 6:				
Location 7:				
Location 8:				

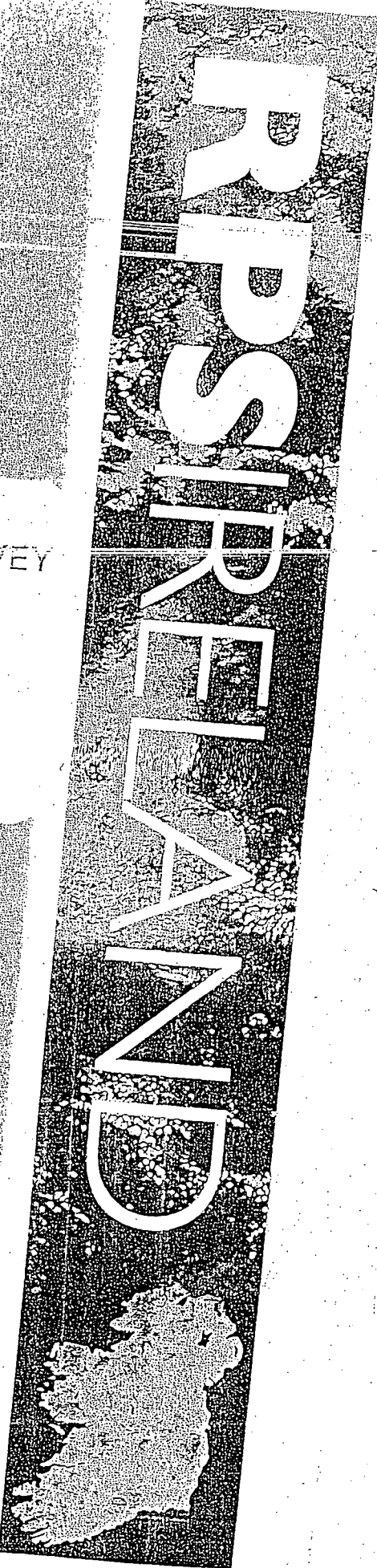
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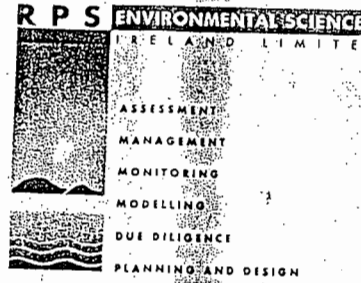
NOTE: All locations should be identified on accompanying drawings.

Effective Environmental Consultancy

ENVIRONMENTAL NOISE SURVEY
FOR ATLAS IRELAND LTD
FEBRUARY 2002

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Kylemore Road
Dublin 12
Tel: +353-1-450 4922
Fax: +353-1-450 4929
Email: rpses@iol.ie
www: rpsplc.co.uk

ENVIRONMENTAL NOISE SURVEY FOR ATLAS IRELAND LTD FEBRUARY 2002

FOR
ATLAS IRELAND LTD
CLONMINAM INDUSTRIAL ESTATE
PORTLAOISE
COUNTY LAOIS
IRELAND

Ref: NA0678 NR02
Date: 14th March 2002
Report prepared by: Jennifer Harmon
Report Reviewed by: Maureen Marsden

BELFAST
DUBLIN
CORK
WATERFORD

A MEMBER OF THE
RPS GROUP PLC

REGISTERED IN IRELAND
REGISTERED No 239174
KYLEMORE ROAD
DUBLIN 12
IRELAND

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- 1.0 Brief for Consultancy
- 2.0 Summary
- 3.0 Introduction
- 4.0 Noise Survey Assessment Method
- 5.0 Survey Results and Discussion
- 6.0 Recommendations
- 7.0 Conclusions

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1.0 BRIEF FOR CONSULTANCY

- 1.1 To measure the noise levels from the Atlas Environmental facility, located at Clonminam Industrial Estate, Portlaoise, County Laois, as required under Condition 8.1 of Atlas Environmental's Integrated Pollution Control agreement (Licence Register Number: 472).

2.0 SUMMARY

- 2.1 Noise has been measured on the boundary of the site and at the nearest residential locations.
- 2.2 The measured noise levels at the boundary of the site exceed the EPA limits during some of the day time measurements. This was noted as being due to noise from on site operations and industrial noise sources external to the facility.
- 2.3 The measured noise levels at the nearest noise sensitive locations were found to be above EPA guidance notes limits at one location. This was noted as being due to road traffic.
- 2.4 No tonal noise was noted at noise sensitive locations during the survey period.

JENNIFER HARMON
Environmental Consultant

MAUREEN MARSDEN
Senior Acoustic Consultant

3.0 INTRODUCTION

RPS Environmental Sciences has been commissioned by Atlas Environmental, to measure the noise levels from their facility, located at Clonminam Industrial Estate, Portlaoise, Co. Laois. The survey is part of the requirement under Condition 8.1 of Atlas Environmental's Integrated Pollution Control Licence [Licence Register Number: 472].

RPSES Consultants subsequently visited the site on 12th February 2002 to conduct a noise survey between 12:00 and 00:00hrs. The findings of the survey are summarised in this report (a summary of the terminology used in this report is given in Appendix A).

The Atlas Environmental site is situated in a predominantly industrial area, in close proximity to farmland and a residential area. The site also borders the Dublin - Cork railway line.

4.0 NOISE SURVEY ASSESSMENT METHOD

A noise survey was conducted on the boundary of the site, and at neighbouring residential areas (Locations are shown in figure 3). Three of the monitoring locations were on the boundary of the site (Positions 1, 2, and 3), and two of the monitoring locations are at adjacent residential areas (Positions 4 and 5)

Noise Monitoring Location	Description
Position 1	Along the eastern site boundary at entrance gates.
Position 2	At northern site boundary beside portacabins.
Position 3	At southern site boundary –behind waste oil storage shed.
Position 4	Nearby residential area, west of Atlas, beside railway line.
Position 5	East of Atlas Environmental, on the corner with access road for halting site.

Table 1: Description of noise monitoring locations

Noise measurements were made over a 12-hour period, between 1200hrs and 0000hrs. Measurements were made of the L_{Aeq} , the L_{A10} and the L_{A90} .

The EPA noise limits, as stated in Section 8.2 of Atlas Environmental's IPC Licence, set a limit of 55dB L_{Aeq} for the daytime activities, and a limit of 45dB L_{Aeq} for night-time activities.

The following equipment was used for the noise survey:

- Bruël & Kjær Type 2260 Investigator Sound Level Meter
- Bruël & Kjær Type 4231 Sound Level Calibrator

Measurements were made at a height of 1.5m above ground level, and measurements were free-field, taken 1-2m from reflecting surfaces. The weather conditions were in accordance with the requirements of ISO 1996: Acoustics – Description and Measurement of Environment Noise under suitable weather conditions.

The instrumentation was checked and calibrated before and after the survey period.

Octave band data is presented for positions 4 and 5, the two noise sensitive properties, while the Atlas site was operational.

5.0 SURVEY RESULTS AND DISCUSSION

The results of the noise survey are presented in Table 2 (Summary of noise measurements).

The noise survey was carried out to gain a profile of the noise emissions from the Atlas site over the day, evening and night time periods. The main noise sources are operational from 07:30 to 18:00 hours. These include, trucks loading and unloading waste materials, reverse warning alarms, noise from the boiler and centrifugal areas and vehicle wash areas. The site remains open until 23:00 hours to allow for delivery trucks to enter the site.

5.1 *Boundary Locations*

In general, noise levels within the site boundary (locations 1 –3) are above 55dB(A) during the morning and afternoon period while noise sources described above are in operation. After approximately 18:00 hours the majority of on site operations ceased and consequently noise levels were significantly reduced to below the guidance daytime level.

The L_{A90} levels measured which represents a steady background noise level are below the EPA limits for all boundary locations with the exception of one measurement at Location 2. This was noted to be due to noise from the centrifugal and boiler room and a truck idling nearby.

5.2 *Noise Sensitive Locations*

The noise sensitive locations surrounding the site, (locations 4 & 5) were also measured. Location 4 is situated to the west of the site. Noise levels at this location were above the 55dB(A) daytime and 45 dB(A) night time limits. The dominant noise source at this location was road traffic. The Atlas site operations were audible during lulls in traffic at this location but were not considered the dominant noise source. The background noise levels (L_{A90} values) indicate noise levels which may be attributed to the Atlas site, these ranged from 39 – 49 dB L_{A90}

during daytime measurements. A night time level of 38 dB L_{A90} was measured.

Location 5 situated to the east of the site was 1dB(A) above day time limits for one measurement. The main noise sources at this location were noted as passing trains (Freight and passenger), vehicles near the halting site and noise from the Atlas Environmental site. The night time noise levels were below the EPA guidance limits. The measured L_{A90} levels ranged from 42 – 46 dB L_{A90} daytime and 35 dB L_{A90} night time.

Octave band data was measured at each location during the noise survey. No tonal noise was noted during the survey. Figures 1 and 2 are graphic illustration of the measured octave data for the two noise sensitive locations (N4 & N5) while the Atlas site was operational.

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Measurement Location/time	L _{Aeq}	L _{A10}	L _{A90}	Notes
Position 1				
13:30-14:00	64	67	48	On site activities & trains
17:00-17:30	60	62	53	Power hose washing vehicles
20:08-20:38	48	49	44	External traffic, noise from Atlas site not audible
23:21-23:36	45	46	43	
Position 2				
14:05-14:35	57	59	54	On site movements include: Boiler & Centrifugal room, truck reverse alarms and external phone bell.
17:35-18:05	60	61	57	
20:45-21:15	52	52	47	
22:55-23:10	49	48	43	No site noise audible during last measurement.
Position 3				
14:45-15:15	60	64	50	Trucks moving waste material main noise sources during day time measurements.
18:20-18:50	49	49	45	
21:15-21:30	46	43	40	
22:40-22:55	39	40	35	Quiet location during late evening and night time.
Position 4				
15:25-15:55	72	70	49	Road traffic main noise source at this location, Atlas site audible during lulls in traffic. Mainly truck movements.
18:55-19:25	64	60	42	
21:45-22:00	56	56	39	
23:45-00:00	55	56	38	
Position 5				
12:30-13:00	56	52	42	Noise from truck movements within Atlas site audible during day time measurements.
16:17-16:47	54	56	46	
18:35-20:05	46	47	43	
22:05-22:20	42	37	35	No noise from site during evening / night time measurements.

Table 2: Summary of noise measurements

Octave Band Data

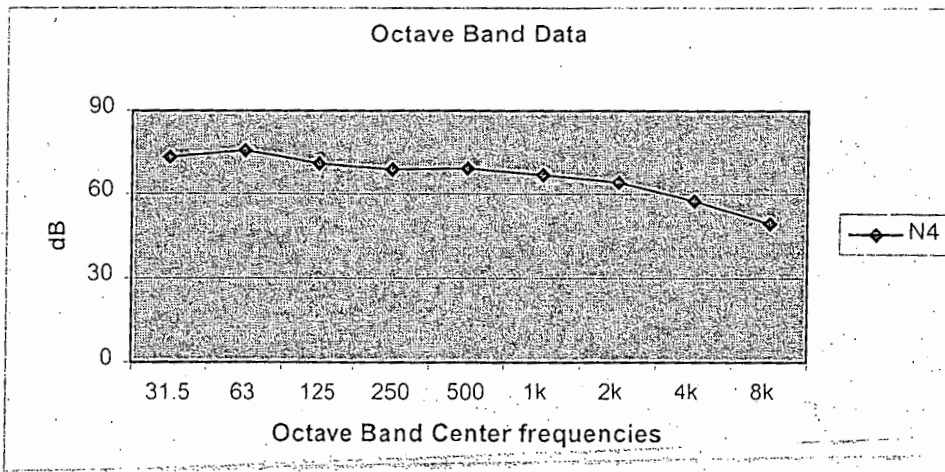


Figure 1: Octave band data for location N4 at 15:25

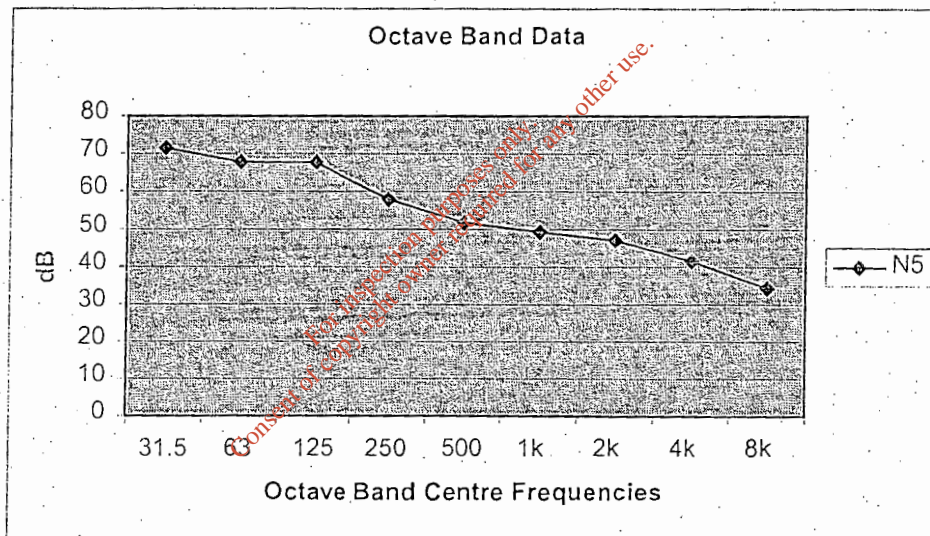


Figure 2: Octave band data for location N5 at 12:30

6.0 RECOMMENDATIONS

The noise levels at the site boundary were found to be in excess of the Atlas IPC licence daytime limits for some measurements. These levels were not found to cause exceeded noise levels at the nearest noise sensitive locations.

Some observations from the site survey however have been noted which may aid in reducing overall noise levels within the site.

- Doors from the boiler and centrifugal rooms should be kept closed at all times where practicable. This will significantly reduce noise emissions from these areas.
- Noise from truck movements are difficult to attenuate as they are naturally loud. Noise from reverse warning alarms are an associated noise source from this activity. Ensuring these activities are carried out during daytime hours where there is normally additional activity in the surrounding environment (i.e. where there is a lot of traffic movement along adjacent roads) will reduce the associated noise impact of this source at noise sensitive locations.

7.0 CONCLUSIONS

A noise survey was conducted between 12:00 and 00:00hrs, at Atlas Environmental. Noise levels at the sites noise sensitive locations are not considered to be affected by noise from Atlas Environmental on site operations. Although audible at both locations, the dominant noise source at both locations was due to road and rail traffic. No tonal noise from the Atlas site is audible at the surrounding noise sensitive locations.

Measurements at the site boundary are found to be above the EPA guidelines set in Atlas Environmental's IPC Licence for some day time measurements. Where the measurements on site have exceeded the set limits, it has been noted as being due to a combination of on-site operations and external noise sources in the area caused by traffic and train noise.

Noise levels can be reduced within the site boundary by the recommendations described above.

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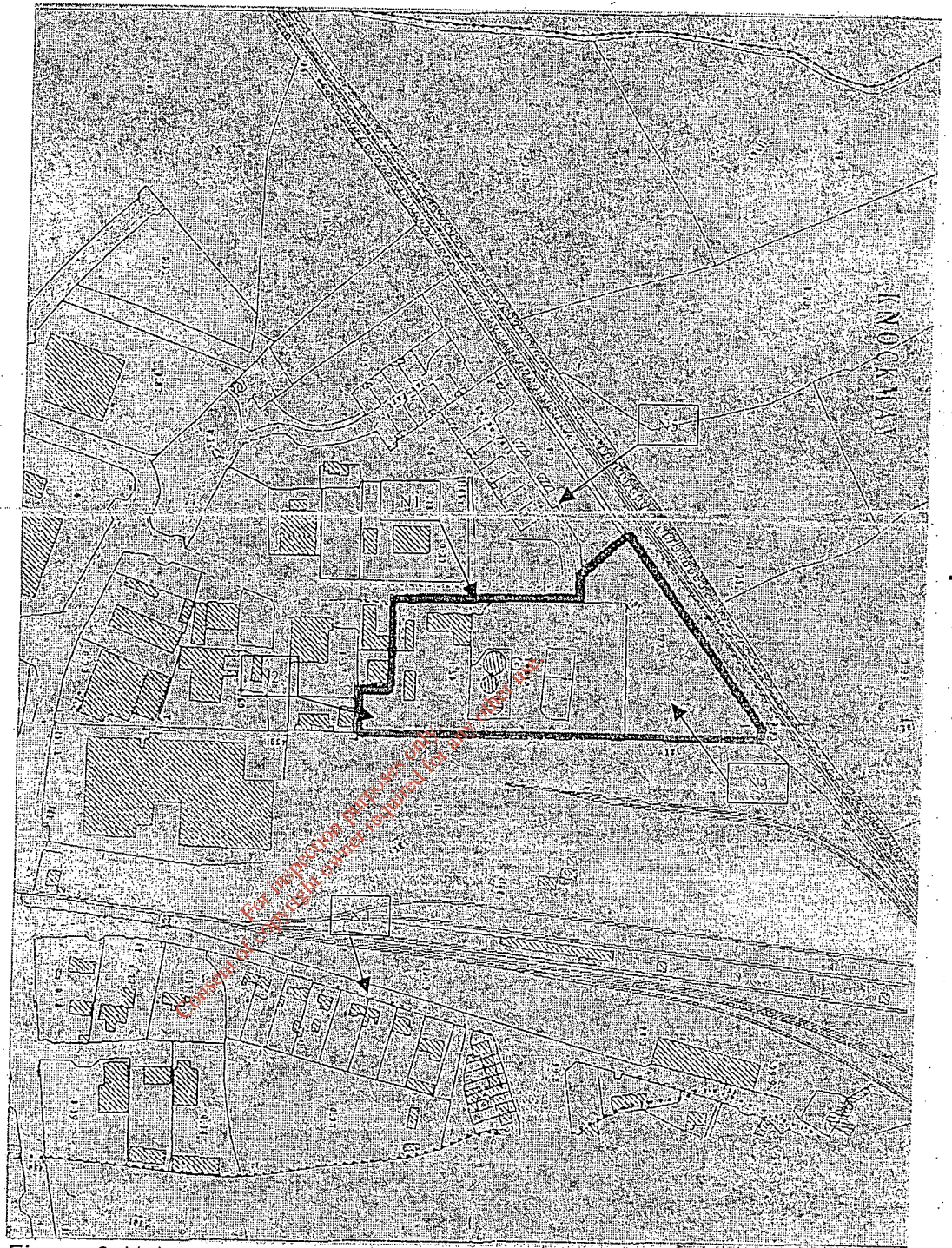


Figure 3: Noise Monitoring Locations

APPENDIX A
Summary of terms

L_{Aeq}	The continuous equivalent A-weighted sound pressure level. This is an "average" of the sound pressure level.
L_{A90}	The noise level exceeded for 90% of the measurement period. This is normally used to measure background noise.
L_{A10}	The noise level exceeded for 10% of the measurement period. This is normally used to measure road traffic noise.

A-weightings The human ear is sensitive to different frequencies of sound. The A-weighting represents the response of human ear to sound.

Octave band analysis

This is measured to determine whether there are any dominant tonal fluctuations over the monitoring period, as required by the EPA Guidelines.

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Report Prepared by Maureen Marsden Meng Acoustics and Vibration, MIOA	Signed <i>Maureen Marsden</i>
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Date: 06 March 2001

Ref: NA0452

FOR
ATLAS ENVIRONMENTAL IRELAND LTD
CLONMINAM INDUSTRIAL ESTATE
PORTLAOISE
COUNTY LAOIS
IRELAND

ENVIRONMENTAL NOISE
SURVEY FOR
ATLAS ENVIRONMENTAL
IRELAND LTD, PORTLAOISE

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REGISTERED IN IRELAND
REGISTERED No 239174
KYLEMORE ROAD
DUBLIN 12
IRELAND

A MEMBER OF THE
RPS GROUP PLC

BELFAST
DUBLIN
CORK
WATERFORD

Kylemore Road
Dublin 12
Tel: +353-1-450 4922
Fax: +353-1-450 4929
Email: rpses@iol.ie
www: rpsplc.co.uk

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1.0 Brief for Consultancy

2.0 Summary

3.0 Introduction

4.0 Noise Survey Assessment Method

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6.0 Conclusions

1.0 BRIEF FOR CONSULTANCY

1.1 To measure the noise levels from the Atlas Ireland facility, located at Clonminam Industrial Estate, Portlaoise, County Laois, as required under Condition 8.1 of Atlas Ireland's Integrated Pollution Control agreement (Licence Register Number: 472).

2.0 SUMMARY

2.1 Noise has been measured on the boundary of the site and at the nearest residential location

2.2 The measured noise levels at the boundary of the site exceed the EPA limits, due to noise from other sources in the industrial estate.

2.3 The results of the one-third octave band noise measurements show that there is some activity, which is tonal in nature.

MAUREEN MARS DEN

Senior Acoustic Consultant

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3.0 INTRODUCTION

RPS Environmental Sciences has been commissioned by Atlas Ireland, to measure the noise levels from their facility, located at Clonminam Industrial Estate, Portlaoise, County Laois. The noise monitoring survey has been requested by the Environmental Protection Agency as part of the twelve month noise survey review, as required under Condition 8.1 of Atlas Environmental's Integrated Pollution Control Licence [Licence Register Number: 472].

RPSES Consultants subsequently visited the site on 13th February 2001 to conduct noise survey during the period, between the hours of 0645hrs and 1945hrs. The findings of the survey are summarised in this report (a summary of the terminology used in this report is given in Appendix A).

The Atlas Ireland site is situated in a predominantly industrial area, in close proximity to farmland and a residential area. The site is also close to the Dublin-Gork railway line.

4.0 NOISE SURVEY ASSESSMENT METHOD

A noise survey was conducted on the boundary of the site, and at neighbouring residential areas (Locations are shown in figure 1). Three of the monitoring locations were on the boundary of the site (Positions 1, 2, and 3), and two of the monitoring locations are at an adjacent residential areas (Positions 4 and 5). These boundary monitoring locations are the same as the original IPC licence monitoring locations.

Noise Monitoring Location	Description
Position 1	In front of Cathal Whelan Garage
Position 2	In front of juxtaposed factory, south boundary.
Position 3	End on lane south of Atlas
Position 4	Nearby residential area, east of Atlas Environmental, beside railway line.
Position 5	End of lane west of Atlas Environmental, on the corner with access road for halting site.

Table 1: Description of noise monitoring locations

Measurements were made at a height of 1.5m above ground level, and measurements were free-field, taken 1-2m from reflecting surfaces. The weather conditions were in accordance with the requirements of ISO 1996: Acoustics – Description and Measurement of Environment Noise under suitable weather conditions.

- Bruel & Kjaer Type 2250 Investigator Sound Level Meter
 - Bruel & Kjaer Type 4231 Sound Level Calibrator
- The following equipment was used for the noise survey:

Noise measurements were made over a 13-hour period, between 0645hrs and 1945hrs. Measurements were made of the L_{Aeq} , the L_{A10} , L_{A90} and one – third octave band data. The EPA noise limits as stated in Section 8.2 of Atlas Ireland's IPC Licence, set a limit of 55dB L_{Aeq} for the daytime activities, and a limit of 45dB for night-time activities.

Table 2 OS grid references of measurement location

Measurement Location Reference	Grid Reference
	E246103 N197760
	E246105 N197761
	E246111 N197748
	E246111 N197748
	E246111 N197748
	E246081 N197773
	E246128 N197753
	E246092 N197745
	E246101 N197731
	8

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The instrumentation was checked and calibrated before and after the survey period.

The data presented for the one - third octave band survey was that of the early evening between 1800 and 1945. This data was used, as it was less effected by external noises, therefore it is more representative of the tonal noises being emitted by the Atlas Ireland site.

5. SURVEY RESULTS AND DISCUSSION

The results of the noise survey are presented in Table 2 (Summary of noise measurements).

The Position 1 results show, that the day time and night time values exceed the values set in the IPC Licence, of L_{Aeq} 45dB for day time and L_{Aeq} 55dB for night time. These exceedences are caused by sources external to the Atlas Ireland site, such as vehicular traffic, an alarm sounding and from activities at a nearby garage. The L_{A90} which is representative of the background noise level in the area, is below the EPA limits.

For Positions 2, 3, 4, and 5, the measured L_{Aeq} noise levels also exceed the values set in the IPC license. Again the values measured were dominated by noise external to the site. The measured L_{A90} levels give a more accurate picture of the noise levels and these levels are below the EPA guidelines.

The one-third octave band data was at measured at the five locations. The data has only been presented for position four, as this is the only location where noise is audible from the Atlas Ireland site (see Figure 3). The peaks in the one-third-octave band graph correspond to the audible noise from this location. The four remaining locations do not show any tonal components.

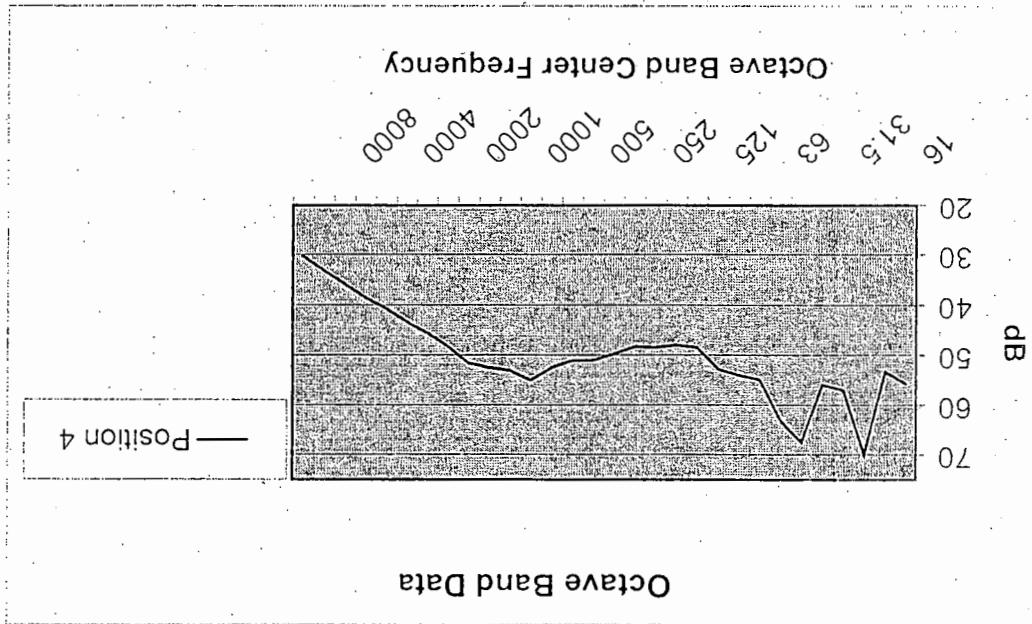
Table 2 Summary of noise measurements

Measurement	Location/time	Position 1	Position 2	Position 3	Position 4	Position 5
LAeq		0645 (15min) 0855 (30min) 1214 (30min) 1450 (30min) 1814 (15min)	0715 (15min) 1008 (30min) 1524 (30min) 1851 (15min)	0700 (15min) 0932 (30min) 1250 (30min) 1620 (30min) 1830 (15min)	0745 (15min) 1121 (30min) 1710 (30min) 1930 (30min)	0730 (15min) 1043 (30min) 1740 (30min) 1910 (15min)
LA10		48 62 59 61 53	53 64 75 55	52 59 54 65 51	56 68 68 58	53 67 49 49
LA90		46 52 53 49 48	49 50 51 45	48 51 51 49 46	49 53 47 43	48 52 45 44

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Figure 3: Octave Band Data



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A noise survey was conducted between 0645hrs and 1945hrs, at Atlas Ireland. These measurements predominantly show that the noise levels remain within the EPA guidelines set in Atlas Ireland's IPC Licence. Where the measurements exceeded the set limits, it is due to external noise in the area caused by traffic, trains passing, earth moving machinery and other activities in the vicinity of the Atlas Ireland site.

The octave band measurements show that some tonal noise from the Atlas site is audible at one of the site locations.

6.0 CONCLUSIONS

Summary of terms

APPENDIX A

L_{Aeq} The continuous equivalent A-weighted sound pressure level. This is an "average" of the sound pressure level.

L_{A90} The noise level exceeded for 90% of the measurement period. This is normally used to measure background noise.

L_{A10} The noise level exceeded for 10% of the measurement period. This is normally used to measure road traffic noise.

A-weightings The human ear is sensitive to different frequencies of sound. The A-weighting represents the response of human ear to sound.

Octave band analysis

This is measured to determine whether there are any dominant tonal fluctuations over the monitoring period, as required by the EPA Guidelines.

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Surveyed 1997 - 1997
 Revised 0
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Rural PLACE Map

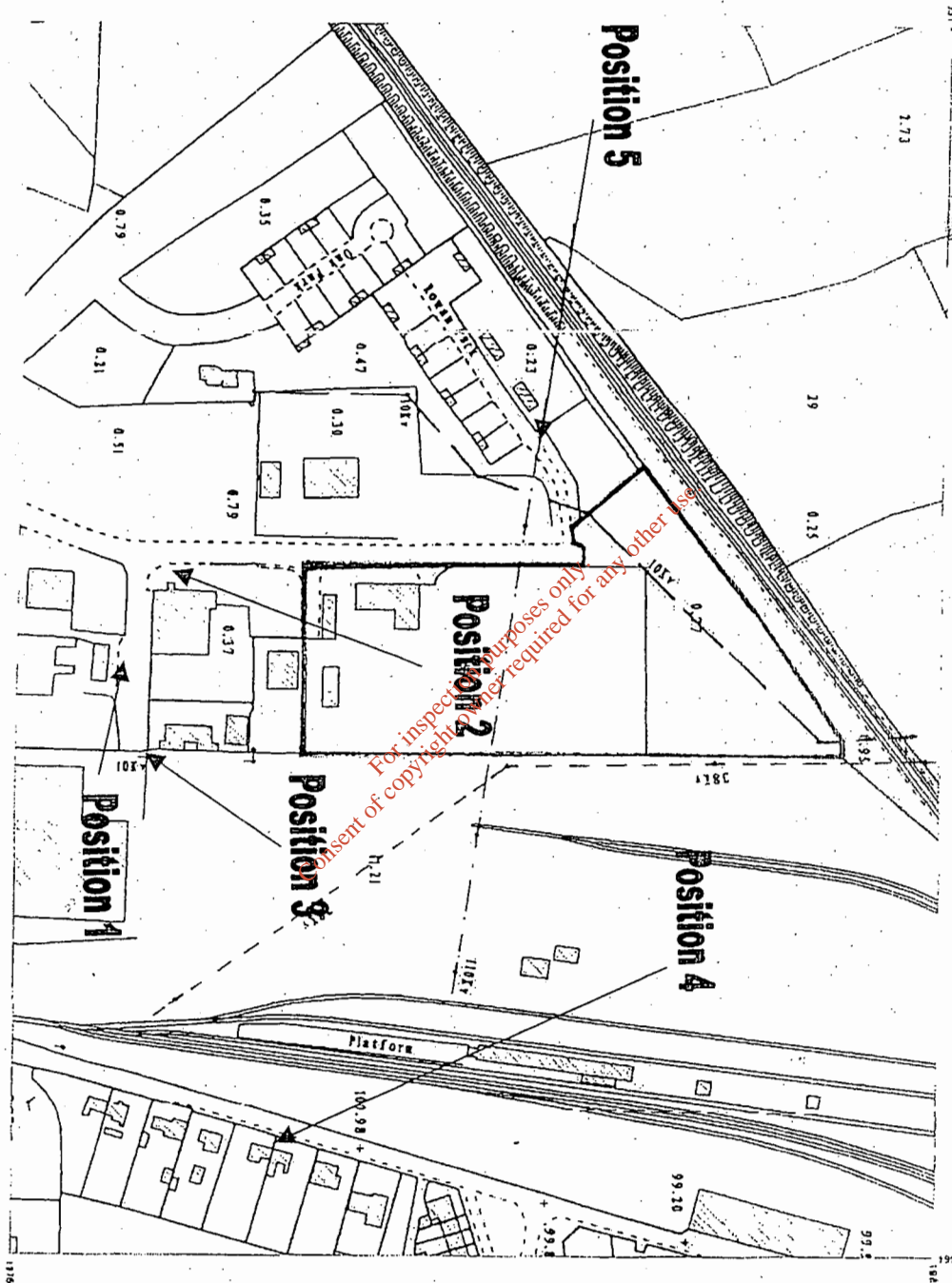


Figure 1 Noise Monitoring Locations



1:2500
 3947-A 3947-B



Ordnance Survey
 Ireland

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IPC LICENCE APPLICATION

PART 16: NOISE EMISSIONS

FOR:

Atlas Oils
Clonminam Industrial Estate
Port Laoise
Co. Laois

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Report prepared by: **Ian Etchells** BEng MIOA
Ref: IE/402/925NR01
Date: 4th August 1999

1.0 BRIEF FOR CONSULTANCY

- 1.1 To carry out those noise measurements and analyses required in support of an Integrated Pollution Control (IPC) licence application.
- 1.2 To prepare a Technical Report giving full details of the noise surveys and results.
- 1.3 To complete Section 16 of the IPC Licence Application Form.

2.0 SUMMARY

- 2.1 A detailed site noise survey has been carried out and those major items of plant emitting noise to the surrounding environment have been identified.
- 2.2 Ambient noise levels have been sampled over a typical 24 hour period at a number of positions on the site boundary and at nearby noise-sensitive locations.
- 2.3 This report constitutes Attachment 16 of the IPC Licence Application.

IAN ETCHELLS

Senior Acoustic Consultant

CHRIS DILWORTH

Senior Acoustic Consultant

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- 4.0 Attachment No. 16A - Noise Sources
- 5.0 Attachment No. 16B - Ambient Noise Measurements
- 6.0 Attachment No. 16C - Noise Impact

DRAWING 16.01 - Site Measurement Locations

DRAWING 16.02 - Boundary and Noise Sensitive
Measurement Locations

Appendix A - Site Noise Survey Details

Appendix B - Ambient Noise Survey Details

Appendix C - Acoustical Parameters

Appendix D - Ambient Noise Spectra

3.0 INTRODUCTION

Atlas are required to lodge an application for an Integrated Pollution Control (IPC) Licence with the Environmental Protection Agency (EPA). NES Acoustics has been instructed to collate all of the noise data required to be submitted in support of the application.

Section 16 of the IPC application relates to noise, and is dealt with in detail in the main body of this report. The noise data has also been used to compile attachments 16A, 16B and 16C in the format stipulated on the IPC Application Form.

4.0 ATTACHMENT NO. 16A NOISE SOURCES

Section 16A of the IPC application requires the applicant to give particulars relating to the noise output of items of plant located in and around the site. The EPA has stipulated that it is currently interested only in those sources which are felt to affect the external noise climate, particularly at nearby noise sensitive locations. Furthermore, the Agency does not require to see information relating to any sources other than those felt to be major contributors.

This section deals with the findings of the in-depth noise survey carried out on 14th July 1999, full details of which are given in Appendix A. The following text includes an item-by-item discussion of those items studied in detail.

Please note:

- The approximate locations of positions used for noise measurements are shown on drawing 16.01 at the end of this report with corresponding grid reference shown in Table 8.
- See Appendix C for an explanation of the relevant acoustical parameters.
- Octave band frequency spectra are included in Table 7
- at the rear of this section.

4.1 Overview

Atlas operate a facility at Clonminam Industrial Estate, Port Laoise. The site is bounded to the north by a railway line, to the east by a railway yard, to the south by industrial units and to the west by industrial units and a halting site. All of the main noise sources on the site are located either externally or internally at ground floor level.

The noise climate in the vicinity of the northern, eastern and southern site boundaries is characterised by broadband noise associated primarily with pumping equipment. The noise climate at the western site boundary comprises emissions from the site together with noise from the main site access road.

There are a variety of external sources which generate high localised noise levels, although none would be considered excessive in that they neither lead to particularly high noise levels nor give rise to tonal noise at nearby noise-sensitive locations.

4.2 Main Tank Farm Pump

Plant ID: None

Location: Approximately at the centre of the site and to the south side of the tank farm

Operation: Intermittent

Spectrum: Generally broadband with greatest energy above 1kHz. Slight hum audible associated with pump motor

Screening: North & West (tanks), East & South (buildings)

Comments: Dominates noise climate at centre of site. Mainly audible at eastern site boundary. Measurements were complicated by presence of pipework serving the tank farm.

Measurement Reference	Location	Overall Level dBA
1	1m south of pump	97
2	1m east of pump	95

Table 1 Main Tank Farm Pump

4.3 Process Room (Centrifuge Room) Noise Breakout

Plant ID : None – centrifugal filters

Location : Centre of site

Operation : Intermittent - load dependent

Spectrum : Low frequency hum at 125Hz when centrifuge operating

Screening : Walls of process room – the only opening faces the eastern site boundary

Measurement Reference	Location	Overall Level dBA
3	1m from open doorway to process room – only 1 vibratory filter operating	77
4	1m from open doorway to process room – 1 vibratory filter and 1 centrifugal filter operating	82

Table 2 Process room noise breakout

4.4 EMO Loading/Unloading Oil Pump

Plant ID: None

Location: Western side of tank farm

Operation: Intermittent

Spectrum: Broadband

Screening: North and East (tank farm), South and West (building facades)

Comments: Spectrum measured whilst tanker loading – low frequency noise component due to idling engine in tanker

Measurement Reference	Location	Overall Level dBA
5	Spatial average in arc approximately 1m from pump	81

Table 3 EMO Loading/Unloading Oil Pump

4.5 Loading/Unloading Oil Pump

Plant ID: None

Location: East side of site

Operation: Intermittent – used more during evening when tankers frequently arrive

Spectrum: Broadband – slight rattle audible

Screening: North (tanks), East (tankers and boundary earth mound), West (building facades)

Comments: The pump is used when tankers are loading and unloading. Consequently, noise from the pump is screened to the east and west by the bodies of the tankers parked next to it.

Measurement Reference	Location	Overall Level dBA
6	Spatial average in arc approximately 1m from pump	74

Table 4 Loading/Unloading Oil Pump

4.6 Boiler Room Noise Breakout

Plant ID: AHU 49B1

Location: Adjacent to site entrance and crusher building

Operation: Intermittent

Spectrum: Broadband with low frequency bias

Screening: North, East and West (boiler room building), South (crusher building façade)

Comments: Noise breakout occurs via the ventilation grilles in the boiler room door.

Measurement Reference	Location	Overall Level dBA
7	1m from boiler room door	73

Table 5 AHU-49B1

4.7 Oil Filter Crusher Building Noise Breakout

Plant ID: None

Location: Housed in building adjacent to southern site boundary

Operation: Intermittent (typically 2-3 hours per day)

Spectrum: Broadband

Screening: North, South and West (crusher building walls)

Comments: The hydraulic crusher equipment is housed within a masonry building with a lightweight roof deck. Noise breakout occurs via the open east facing doorway of the room housing the crusher. Operation of the crusher hydraulics is relatively quiet – main noise source is crushed filters falling from a conveyor into a steel skip.

Measurement Reference	Location	Overall Level dBA
8	1m from open doorway of crusher room	80

Table 6 Oil Filter Crusher Building Noise Breakout

Measurement Reference	Noise Source	Distance from Source (m)	Equivalent Continuous Sound Level (L_{eq} re 2×10^{-5} Pa)										Comments	
			Overall (dBA)	Octave Band Centre Frequency (Hz)										
				31.5	63	125	250	500	1k	2k	4k	8k		
1	Main tank farm pump	1	97	76	82	80	83	80	82	82	90	93	90	
2	Main tank farm pump	1	95	77	77	82	79	80	88	91	89			
3	Process room breakout	1	77	85	81	75	71	71	69	70	70	64		
4	Process room breakout (with centrifugal filter)	1	82	87	83	86	75	72	72	78	73	66		
5	EMO Loading/Unloading Pump	1	81	83	95	81	80	75	75	72	68	63	Spatial average	
6	Loading/Unloading Oil Pump	1	74	76	72	74	74	70	66	64	53		Spatial average	
7	Boiler Room Noise Breakout	1	73	81	74	68	67	68	68	60	54			
8	Oil Filter Crusher Noise Breakout	1	80	77	74	67	66	73	62	55	44			

Table 7 Noise Sources Summary Sheet

Measurement Location Reference	Grid Reference
1	E246103 N197760
2	E246105 N197761
3	E246111 N197748
4	E246111 N197748
5	E246081 N197773
6	E246128 N197753
7	E246092 N197745
8	E246101 N197731

Table 8 OS grid references of measurement location

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5.0 ATTACHMENT NO. 16B AMBIENT NOISE MEASUREMENTS

Section 16B of the IPC Licence requires the measurement of ambient noise levels at a number of boundary locations and noise-sensitive locations in proximity to the site. In order to fulfill this condition, a 24 hour environmental noise survey was performed during a typical week. The site is in full production during weekdays between 07:00 and 00:00hrs. There is also occasional weekend site operation between 07:00 and 13:00hrs during Saturdays. However, absolute background noise levels could not be established as various items of plant operate intermittently outside of normal working hours. Full survey details and a brief outline of methodology are given in Appendix B.

In order to assist with the identification of any tonal components in the noise measurements, we have included octave band data measured at each ambient measurement location - see Appendix D for details.

See Appendix C for an explanation of the relevant acoustical parameters.

5.1 Choice of Measurement Locations

Refer to Drawing 16.02 for guidance as to approximate positioning of the locations discussed in sections 5.1.1 and 5.1.2 below.

5.1.1 Boundary Measurement Locations

Three locations were selected for purposes of measurements performed on nominal site boundaries.

Position 1 is located next to a gate on the concrete pathway next to the Emo office buildings at the front (west side) of the site.

Position 2 is adjacent to the site entrance next to a sign carrying a warning about speed ramps

Position 3 is on the earth mound at the eastern site boundary adjacent to the loading/unloading oil pump gantry.

5.1.2 Measurement Positions at Nearby Noise-Sensitive Locations

Two noise-sensitive locations were identified.

Position 4 is located on the pavement of Clonminam Road outside the stone wall of the closest house, in a straight line, ('Avondale') to the site. This position represents the row of houses which are the nearest permanent dwellings to the site (approximately 200m from the eastern site boundary).

Position 5 is on a grass verge next to the entrance of the halting site to the west of the Atlas site, approximately 30m from the closest site boundary

5.2 Results of Measurements on the Site Boundary

Table 9 below lists the highest values for L_{Aeq} and the lowest values for L_{A90} measured at each boundary location during the course of the survey.

Location	Overall Levels (dBA)	
	L _{Aeq}	L _{A90}
Position 1	54	37
Position 2	62	42
Position 3	71	47

Table 9 Results of noise measurements on the site boundary

Comments:

During the day-time noise levels measured at position 1 were dominated by contributions from site traffic, plant and other industrial estate traffic on the public roads. The noise climate during the night at Position 1 consisted mainly of distant traffic noise and plant noise from the Atlas and Avonmore sites.

The daytime noise climate at position 2 was dominated by traffic entering and leaving the Atlas site. During late evening and night broadband boiler noise from the site was just audible.

The daytime noise climate at position 3 was dominated by the noise of loading and unloading tanker activities at the adjacent gantry. However, this location is well screened from the nearest noise sensitive locations by 1.5m high earth mound running along the length of the eastern site boundary.

A full listing of all results is given in Tables 11 to 13 towards the rear of this report.

5.3 Results of Measurements at Nearby Noise-Sensitive Locations

Table 10 below lists the highest values for L_{Aeq} and the lowest values for L_{A90} , for both day-time and night-time periods, measured at the noise-sensitive locations during the survey.

Location	Overall Levels (dBA)			
	Day-time (30 min samples)		Night-time (15 min samples)	
	L_{Aeq}	L_{A90}	L_{Aeq}	L_{A90}
Position 4	68	56	50	42
Position 5	56	55	44	39

Table 10 Results of noise measurements at nearby noise-sensitive locations

Comments:

At position 4, the daytime noise measurements were dominated by traffic noise from the road running next to the measurement position and the adjacent railway yard. The night time noise climate was dominated by passing vehicles and general activities in the railway yard. Intermittent low intensity high frequency noise was audible during the night although its source could not be identified. However, this noise was not considered to be intrusive.

The daytime noise climate at position 5 was dominated by traffic using local roads and on the Atlas site, plant noise from Atlas site and intermittent noise from within the halting site. Plant noise from the Atlas site was audible but not considered to be of a character or intensity likely to cause intrusion within the halting site. During the night the Atlas site was barely audible.

A full listing of all results is given in Tables 14 and 15 towards the rear of this report.

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6.0 ATTACHMENT NO. 16C NOISE IMPACT

Although there are several noise sources at Atlas Oil's facility, the noise levels produced by most of this machinery is contained within localised areas. This is mainly due to a number of plant items being located within buildings or screened by tanks and building facades.

The nearest noise sensitive location to the site (i.e. the halting site) overlooks the quietest boundary of the Atlas site which is screened from the majority of noise sources by the tank farm and buildings. Although some noise from the Atlas site is audible at the entrance to the halting site during the day, it is not considered to constitute a significant impact. At night the Atlas site is barely audible at this location.

Noise from the Atlas site is generally inaudible at the nearest houses during both day and night due to the presence of masking noise from the railway yard, local traffic and other nearby industrial facilities. Some intermittent noise from the Atlas site is just audible at the nearest houses during the night, although it is of such low intensity to be considered as having a negligible impact.

The results of the survey have shown that the noise impact at the nearest noise sensitive positions due to Atlas Oils operation is minimal, this also being supported by subjective observations.

Time	L _{Aeq}	L _{Amax}	L _{Amin}	L _{A10}	L _{A90}	°C	%RH	Wind Speed	Comments
08:00-08:30	48	63	40	50	45	13	56	1.1/E⇌W	(i)
11:25-11:55	54	69	48	56	50	15	54	1.4/E⇌W	
14:55-15:25	51	69	43	54	46	17	54	1.3/E⇌W	(ii)
18:50-19:20	49	65	41	50	43	16	71	0.6/N⇌S	
22:35-23:05	44	69	39	46	41	13	79	0.0	(iii)
01:40-01:59	44	67	37	45	37	11	83	0.0	
06:25-06:40	45	70	38	45	40	9	88	0.0	(iv)

Table 11 Results of ambient noise measurements at boundary Position 1

- (i) Main sources include vehicles and reversing sirens
- (ii) Noise from boiler house and hammering in adjacent breakers yard
- (iii) Gate alarm sounding (2 minutes) whilst site is locked for evening
- (iv) Occasional truck movements on industrial estate

Time	L _{Aeq}	L _{Amax}	L _{Amin}	L _{A10}	L _{A90}	°C	%RH	Wind Speed	Comments
08:40-08:30	62	91	45	59	47	12	56	1.5/E⇌W	(i)
12:00-12:30	54	79	49	55	51	15	54	0.9/E⇌W	
15:30-16:00	61	86	47	60	50	16	54	1.6/E⇌W	(ii)
19:24-19:54	55	79	46	57	48	16	67	1.7/E⇌W	(iii)
23:07-23:22	47	68	41	45	43	14	73	0.0	(iv)
00:10-00:25	48	58	40	50	42	12	78	0.0	
05:54-06:00	52	64	44	53	47	9	83	0.0	(v)

Table 12 Results of ambient noise measurements at boundary Position 2

- (i) Tankers entering/leaving site + reversing sirens
- (ii) Forklift moving skip on Atlas site + pump noise audible
- (iii) Pump noise from site audible + truck movements
- (iv) Boiler house audible
- (v) Plant on Atlas site audible + aircraft flying overhead

Time	L _{Aeq}	L _{Amax}	L _{Amin}	L _{A10}	L _{A90}	°C	%RH	Wind Speed	Comments
10:50-11:20	64	76	58	65	60	14	58	1.8/N⇌S	(i)
14:20-14:50	71	81	61	73	68	16	55	1.2/N⇌S	
18:10-18:40	61	77	57	63	59	15	65	1.3/N⇌S	(ii)
22:00-22:30	57	76	53	57	55	13	72	1.6/N⇌S	(iii)
01:15-01:30	47	53	45	49	47	10	79	0	(iv)

Table 13 Results of ambient noise measurements at boundary Position 3

- (i) Tanker arrival + pump noise from loading/unloading oil pump
- (ii) Tanker loading
- (iii) Noise breakout from process room is dominant
- (iv) Plant noise from nearby Avonmore factory

Time	L _{Aeq}	L _{Amax}	L _{Amin}	L _{A10}	L _{A90}	°C	%RH	Wind Speed	Comments
10:10-10:40	68	86	51	74	53	14	58	0.8/ E⇌W	(i)
13:45-14:15	66	86	43	68	47	15	56	1.2/ N⇌S	(ii)
20:50-21:21	56	79	40	57	43	13	66	1.1/ N⇌S	(iii)
23:28-23:43	49	59	37	50	42	11	71	0.7/ E⇌W	(iv)
00:45-00:00	47	52	44	49	45	11	79	0.0	(v)
06:45-07:00	50	63	43	54	45	9	80	0.0	(vi)

Table 14 Results of ambient noise measurements at noise-sensitive Position 4

- (i) Diesel loco running + other activities in railway yard audible. Atlas site inaudible
- (ii) Forklift operating in railway yard. Atlas site inaudible
- (iii) People working and talking in nearby garden. Atlas site inaudible
- (iv) Noise from railway yards. Atlas site inaudible
- (v) Slight high frequency whistle audible – possibly from Atlas or adjacent site
- (vi) General activity in railway yard including engines starting and radio. Atlas site inaudible

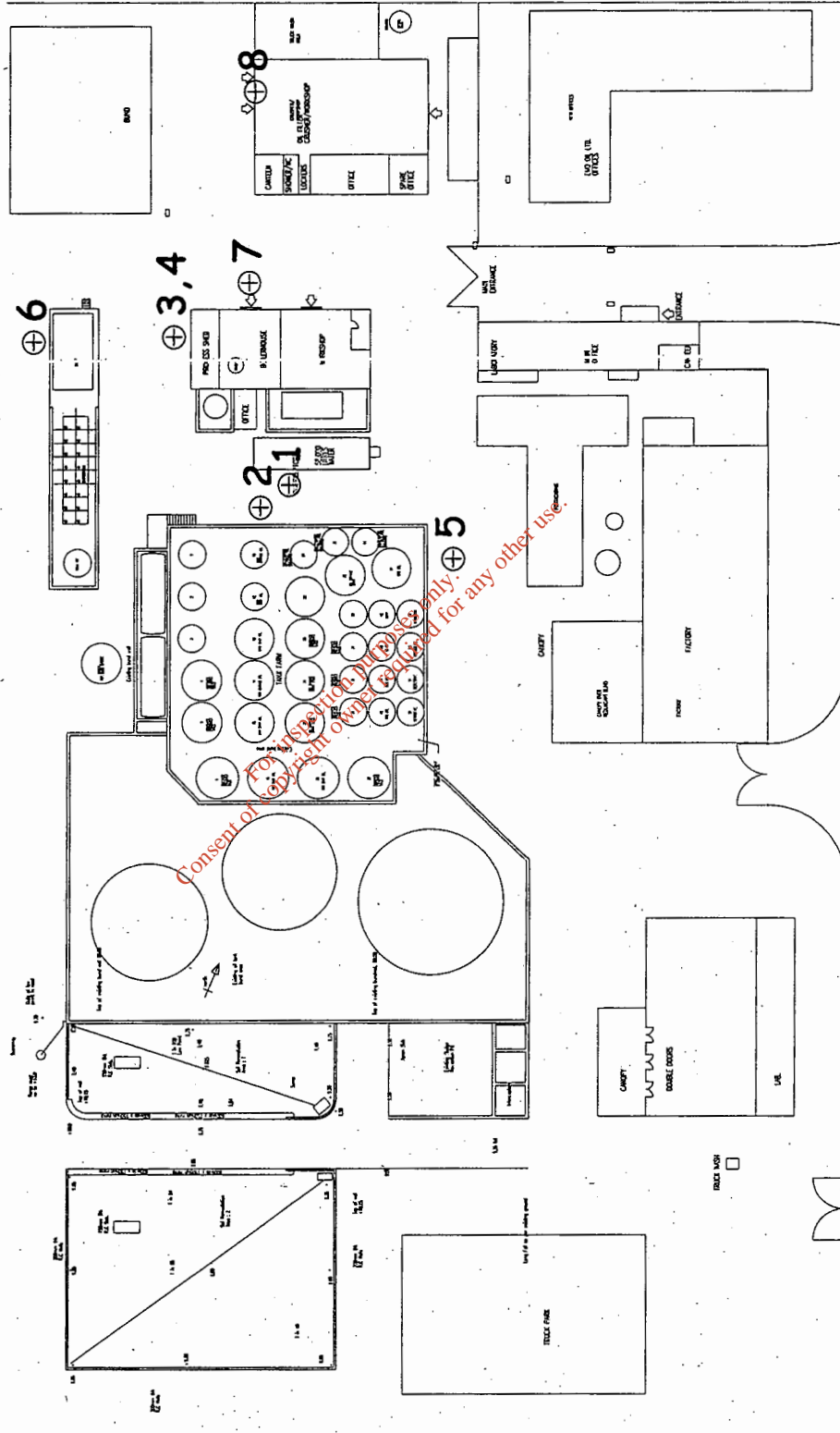
Time	L _{Aeq}	L _{Amax}	L _{Amin}	L _{A10}	L _{A90}	°C	%RH	Wind Speed	Comments
09:25-09:55	56	73	51	59	53	13	57		(i)
13:10-13:40	52	74	41	56	43	16	55		(ii)
17:30-18:00	54	68	49	56	51	15	59		(iii)
21:27-21:57	44	65	38	45	41	12	62		(iv)
23:50-00:05	42	64	37	43	40	10	71		(v)
00:30-00:45	44	61	38	45	39	10	74		(vi)
06:05-06:20	42	64	38	43	40	10	79		(vii)

Table 15 Results of ambient noise measurements at noise-sensitive Position 5

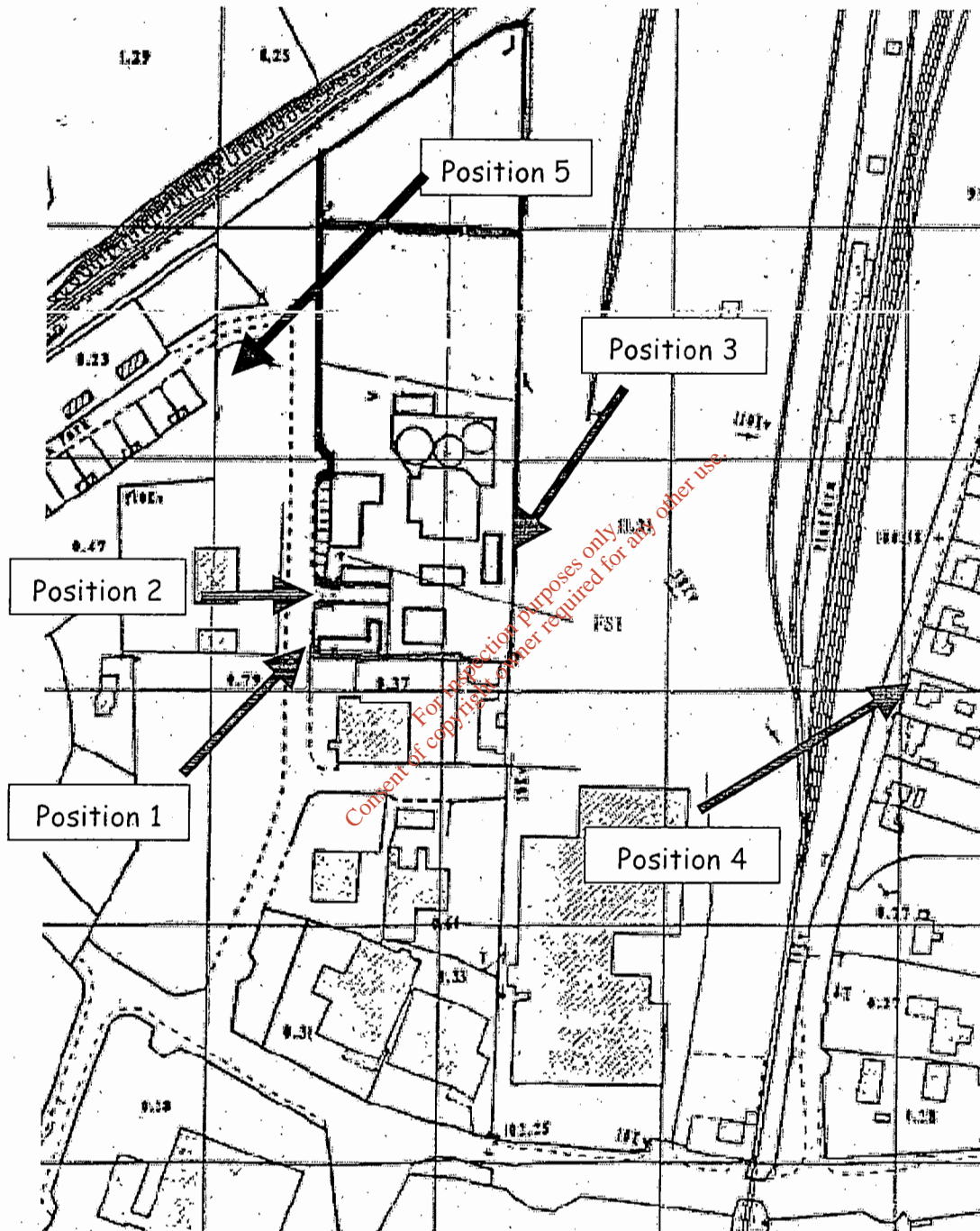
- (i) Some pump noise from Atlas site audible – pumps serving tanks K55 and K54
- (ii) No audible plant noise from Atlas site but skip collection could be heard.
- (iii) Some impulsive hammering noise from Atlas site – maintenance work. Truck idling.
- (iv) Children shouting in halting site. Hammering from motor winding factory opposite Atlas site. Atlas site quiet.
- (v) Atlas site quiet. Distant traffic and noise from Avonmore factory dominant.
- (vi) Faint plant noise from Atlas site. Measurement paused due to activity on halting site.
- (vii) Faint plant noise from Atlas and Avonmore sites. Distant traffic and birdsong.

DRAWING 16.01

SITE NOISE MEASUREMENT POSITIONS



AMBIENT NOISE MEASUREMENT POSITIONS



APPENDIX A SITE NOISE SURVEY DETAILS

A.1 Location of Survey

Atlas Oils
Clonminam Industrial Estate
Port Laoise
Co. Laoise

A.2 Date & Time of Survey

14th July 1999
16:30hrs to 18:00hrs

A.3 Personnel Present During Survey

Ian Etchells - NES

A.4 Instrumentation

Brüel & Kjær Type 2238 'Mediator' Precision Sound Level Meter
Brüel & Kjær Type 4231 Sound Level Calibrator

A.5 Calibration

Before and after the survey the measurement apparatus was check calibrated to an accuracy of ± 0.3 dB using the Type 4231 Sound Level Calibrator. The calibrator produces a sound pressure level of 94.0dB re 2×10^{-5} Pa at a frequency of 1kHz.

A.6 Methodology

Noise level measurements were performed at the locations stipulated in the main body of the report using the 2238 sound level meter and noted down immediately onto survey sheets.

APPENDIX B AMBIENT NOISE SURVEY DETAILS

B.1 Locations of Surveys

Atlas Oils
Clonminam Industrial Estate
Port Laoise
Co. Laoise

B.2 Date & Time of Surveys

08:00hrs to 16:00hrs and 13/7/99
00:00hrs to 08:00hrs and 16:00 to 00:00hrs 14/7/99

B.3 Personnel Present During Surveys

Ian Etchells - NES
Mark Avis - NES
Damien Kelly - NES

B.4 Instrumentation

Brüel & Kjær Type 2231 Modular Precision Sound Level Meter
Brüel & Kjær Type 2238 'Mediator' Precision Sound Level Meter
Brüel & Kjær Type 4231 Sound Level Calibrator

B.5 Calibration

Before and after the survey the measurement apparatus was check calibrated to an accuracy of $\pm 0.3\text{dB}$ using the Type 4231 Sound Level Calibrator. The calibrator produces a sound pressure level of 94.0dB re $2 \times 10^{-5}\text{Pa}$ at a frequency of 1kHz.

B.6 Methodology

A total of five measurement locations were selected in accordance with guidance provided by the EPA.

Noise levels were measured at all three locations on a cyclical basis throughout the course of both surveys. The measurement results were transcribed directly onto survey record sheets immediately on completion of each sample. Sample periods were 30 minutes during day-time (ie. 07:00 to 23:00) and 15 minutes during night-time (ie. 23:00 to 07:00).

All measurements were carried out generally in accordance with ISO 1996: *Description and Measurement of Environmental Noise*.

APPENDIX C ACOUSTICAL PARAMETERS

- L_{Aeq}** is the A-weighted equivalent continuous steady sound level and effectively represents an average value.
- L_{Amax}** is the maximum A-weighted sound level measured during the sample period.
- L_{Amin}** is the minimum A-weighted sound level measured during the sample period.
- L_{A90}** is the A-weighted sound level which is exceeded for 90% of the sample period; used to quantify background noise.
- L_{A10}** is the A-weighted sound level which is exceeded for 10% of the sample period; used to quantify traffic noise.
- A-weighting** is the process by which noise levels are corrected to account for the varying sensitivity of the human ear to different frequencies of sound.

All quoted noise levels are relative to 2×10^{-5} Pa.

**APPENDIX D
 AMBIENT MEASUREMENT POSITION NOISE SPECTRA**

Ambient Measurement Location	Time	L_{eq} (re 2×10^{-5} Pa)										
		Overall (dBA)	Octave Band Centre Frequency (Hz)									
			31.5	63	125	250	500	1k	2k	4k	8k	
Position 1	19:20	49	70	65	48	47	40	40	44	38	27	
Position 2	19:50	51	68	59	54	51	50	46	41	38	29	
Position 3	18:35	62	75	69	64	60	60	58	53	43	36	
Position 4	23:37	39	53	52	50	40	35	32	29	19	13	
Position 5	17:55	51	66	64	57	50	47	45	43	34	25	

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