Appendix Q

Noise Assessment

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Noise Assessment

Riverside Tourist Cabins, South West Rocks

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1 Introduction

1.1 Background

GeoLINK has been engaged by Shannon Pacific Pty Ltd to prepare a noise assessment to support a development application seeking approval under Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act) 1979 for nine tourist cabins on New Entrance Road, South West Rocks.

This report has been prepared in response to Department of Planning's adequacy review of an initial Environmental Assessment for the proposed tourist cabins. The adequacy review requested an "acoustic assessment report "which measures and assesses noise levels during day, evening and night, and including peak times such as between 8pm and 11pm on Friday and Saturday. This report is to determine the noise levels at the location of the nearest cabin to the Tavern, and recommend appropriate mitigation measures such that the noise levels at all cabin sites complies with the relevant Australian Standard" (letter from NSW Department of Planning dated 22/12/2010).

1.2 The Site

The subject site is located adjacent to the eastern bank of the Macleay River, about 3 km from the coastal township of South West Rocks and the Pacific Ocean. South West Rocks is a coastal village overlooking Trial Bay, approximately 40 km north-east of Kempsey.

New Entrance Road lies between the site and the Macleay River and forms the western boundary of the land. In the south-western corner, the site fronts Marlin Drive, which services an adjoining residential estate. To the north of the site there is a small parcel of freehold land, which separates the site from a former Crown Road which is now vacant Crown Land.

The New Entrance Road boat ramp (Mattys Flat boat ramp) and associated community facilities are located on the south-western side of the Marlin Drive / New Entrance Road intersection. Riverside Tavern is located on the site, adjacent to New Entrance Road and immediately to the north of the proposed cabins. Riverside Tavern covers an area of approximately 0.6 ha including buildings and a car parking area located on the northern side of the tavern.

Plate 1.1 Site Context viewed from above Marlin Drive looking North

Plate 1.2 Riverside Tavern as viewed from Corner New Entrance Road and Marlin Drive looking North

1.3 Assessment Objectives

The purpose of this report is to assess the potential impacts of the Riverside Tavern operations on the acoustic amenity of the proposed tourist cabins and propose any necessary mitigation measures. Specific objectives of this acoustic assessment are to:

- determine project-specific noise level criteria for the subject site;
- determine existing background and ambient noise levels at the subject site;
- determine existing noise levels at the subject site for day, evening and night time periods;
- compare noise levels with the project-specific noise levels and asses the impacts; and
- determine feasible and reasonable noise mitigation measures for the subject site to mitigate impacts from Riverside Tavern.

1.4 Riverside Tavern

Noise generated from Riverside Tavern has the potential to impact on the proposed tourist cabins, with the closest cabin located approximately 28 m south of the tavern. The Tavern has a general finished floor level of approximately 3 m Australian Height Datum (AHD) which is similar to the proposed floor levels of the cabins.

The tavern has been operating since 2001 without any noise complaints. The tavern currently operates pursuant to its liquor licence which also has controls established to minimise noise disturbance to nearby residents to ensure the current amenity is maintained. The Tavern operating hours are 10 am to 12 midnight - Monday to Saturday and 10 am to 10 pm Sunday, with peak hours of 7 pm to 10 pm Fridays and Saturdays.

The tavern provides a range of facilities including outside eating areas. The tavern provides infrequent outdoor music entertainment (approximately six times a year, usually during summer) from the deck. When these outdoor music events occur they are restricted to:

- the hours of 2pm to 5pm;
- non-amplified (acoustic) music; and
- single or duo musicians.

Indoor entertainment occurs between 8pm and 11pm Friday and Saturday. The tavern doors and windows remain closed during indoor entertainment (except for necessary entry and exit). Access to the tavern building during entertainment is provided through noise traps to the access doors on which comprise a small room separating the interior of the tavern from the exterior. Security guards are also in place to ensure the doors remain closed and that patrons do not make undue noise whilst outside. An automatic sound limiting system is also in place at the tavern which limits the generated sound level.

1.4.1 Tavern Licence Conditions

The Liquor Licence (LL Number: 110545) for the tavern includes the following conditions in respect to noise control:

> *The L_{A10} noise level emitted from the licensed premises shall not exceed the background noise level in an Octave Band Centre Frequency (31.5 z - k z inclusive) by more than 5dB between 7:00 am and 12:00 midnight at the boundary of any affected residence.*
>
> *The L_{A10} noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5 z - k z inclusive) between 12:00 midnight and 7:00 am at the boundary of any affected residence.*
>
> *Notwithstanding compliance with the above, the noise from the licensed premises shall not be audible within any habitable room in any residential premises between the hours of 12:00 midnight and 7:00 am.*
>
> *The behaviour of patrons is to be monitored by the licensee; that is the licensee should take reasonable action to ensure that patrons do not create a noise nuisance.*
>
> *An automatic sound limiting system shall be installed and maintained in an operating condition at all times in the hotel which limits the generated sound level, in particular the low frequency. The generated noise level shall be limited to not greater than 105 dB, pre-midnight, in the 125 z Octave Band when measured at 1m from the inside of walls to the exterior.*
>
> *All windows and doors within the premises are to remain closed during the provision of entertainment save for necessary entry and exit from the premises.*
>
> *Access to the hotel building during entertainment must be provided through noise traps to the double doors on the eastern and north western walls of the Fisherman s Bar. The noise traps are to comprise a small room separating the interior of the hotel from the exterior of the hotel. Doors on the noise traps must be hung with minimum gaps, be self closing and not held in an open position.*
>
> *An announcement is to be made upon the cessation of entertainment to the effect that patrons should leave the premises and the vicinity quickly and quietly to avoid disturbance of the neighbourhood.*
>
> *On evenings when entertainment is provided, at least two (2) licensed uniformed security personnel are to be engaged by the licensee on the premises to ensure that no unruly behaviour occurs within the premises and immediate surrounds such as the car park area and the area fronting the Macleay River. Such security are to be engaged at least one (1) hour before entertainment commences and remain until closure of the premises at which time they are to patrol the area to ensure patrons of the premises do not loiter or linger in the area or cause nuisance annoyance to the neighbourhood until the last patron has left the vicinity of the premises.*

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Noise Assessment

This noise assessment has been undertaken with primary reference to the NSW Industrial Noise Policy (NSW EPA, 2000).

The NSW Industrial Noise Policy (INP) addresses noise emitted from industrial sites and how this may affect the amenity of nearby receivers. It is recognised the INP's focus is on the noise emitted from large industrial developments with some guidance on measuring and assessing noise from small commercial and industrial premises regulated by councils. The INP has been selected for this project as it states that "the [INP] criteria can also be used to identify the need for planning and building-design mitigation measures for managing the relationship between noise generating activities [the tavern] and noise-sensitive developments [the proposed cabins]" (NSW EPA, 2000:4).

A primary objective of this assessment is measuring and assessing noise levels from Riverside Tavern to determine the noise levels at the location of the proposed cabins and recommend, where necessary, appropriate mitigation measures for the proposed cabins to provide a suitable noise amenity for residents.

2.1 Noise Measurement

2.1.1 Measurement Period

The noise measurement period used in this assessment to determine existing noise levels is one day covering the day/evening/night periods defined in the INP. A one day measurement period is in accordance with the INP recommendations for "low risk" which is defined in the INP as a development that is likely to make moderate noise affecting a small area. Riverside Tavern is considered a low risk noise source based on the infrequent nature of music entertainment in combination with the current licence conditions and operating protocols in place as detailed in Section 1.4 of this report. The low risk categorisation of the tavern is supported by the measured noise levels discussed in Section 2.2.

While only a one day measurement period is required for the assessment, noise monitoring equipment was initially deployed at the site for a period of one week to ensure measured noise levels included peak times at the tavern. Due to a number of circumstances, noise monitoring equipment was deployed at the site for a period of one week on three separate occasions:

1. 25th to 31st January 2011 (including Australia Day public holiday);
2. 10th to 21st February 2011; and
3. 28th February to 5th March 2011.

The circumstances leading to deployment of the noise monitoring equipment on three occasions includes:

- First monitoring period: the noise monitoring equipment was 'interfered with' at approximately 8pm on the night of 25th January 2011 (eve of Australia Day public holiday). This resulted in the removal of the wind filter (foam ball) from the microphone for the remaining duration of the period to 31st January 2011. The absence of the foam ball resulted in excessive wind noise during periods with significant winds;
- Second monitoring period: equipment failure resulted in a lack of any usable data for the entire period;
- Third monitoring period: significant rainfall over the majority of the period resulted in limited usable data.

Despite the above circumstances, sufficient usable data has been obtained from the monitoring periods to adequately describe the noise environment for the day/evening/night periods defined in the INP. This includes

adequate description of noise levels associated with peak times at the tavern. This is detailed further in Section 2.2.

2.1.2 Monitoring Equipment

A Noise Measurement Services environmental noise logger Type RION NL21 was used (refer to Plate 2.1).

Plate 2.1 Noise Logging Equipment RION NL21

2.1.3 Monitoring Location

The noise logging location was chosen to provide information on the impact of Riverside Tavern noise on the proposed cabins. The microphone of the logger was positioned in the approximate location of the nearest proposed cabin to the tavern as shown in Illustration 2.1. The monitoring location was in a cleared area well in excess of 20 m from surrounding reflecting surfaces / objects. The microphone was positioned approximately 1.5m above ground level as recommended by the Industrial Noise Policy (NSW E PA 2000). The context of the noise logger location is shown in Plates 2.2 to 2.5.

Plate 2.2 Noise Monitoring Location: General Context Looking North to Tavern (28 February 2011)

Drawn by: RE Checked by: MVE Reviewed by: TIM Date: March 2011

Information shown is for illustrative purposes only

Source of base data: NSW LPI Aerial Photograph

North

0 25

Noise Logger Location

GeoLINK environmental management and design

Noise Assessment: Riverside Tourist Cabins, South West Rocks

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Illustration 2.1

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Plate 2.3 Noise Monitoring Location – Looking North to Tavern (10 February 2011)

Plate 2.4 Noise Monitoring Location – General Context Looking South (28 February 2011)

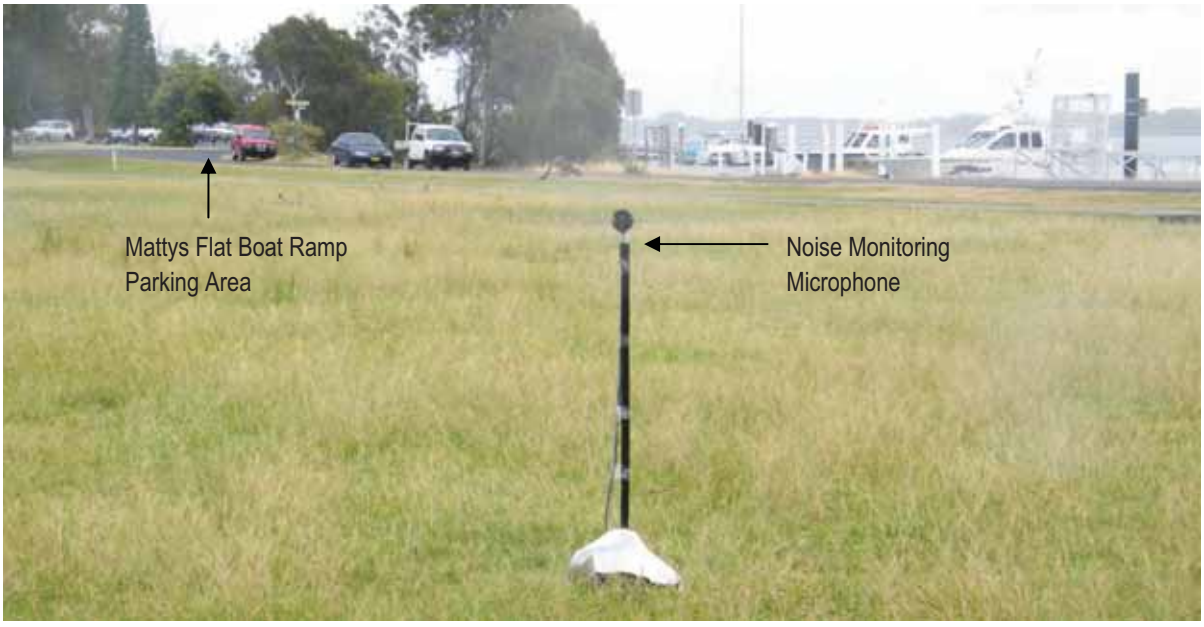


Plate 2.5 Noise Monitoring Location – Looking South (10 February 2011)

2.1.4 Measurement Parameters

The noise logger obtained 'Fast' time weighting and 'A' frequency weighting sound pressure level readings at 15 minute intervals. Calibration of the noise logger was undertaken before and after each measurement period to ensure no significant tonal drift occurred over the monitoring period. No significant drift was recorded.

Noise measurements included:

- L_{A10} – the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise;
- L_{A90} – the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level; and
- L_{Aeq} – the equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

2.1.5 Meteorological Conditions

Table 2.1 provides a summary of the weather conditions over the monitoring period. The daily observations have been sourced for the Bureau of Meteorology website for the weather stations nearest the site: Fishermans Reach for rainfall (wind and temperature is not available for this site); and South West Rocks (Smoky Cape Lighthouse) for wind and temperature.

2.5.1.1 Rainfall

The significant rain and wind experienced during the third monitoring period results in a significant portion of the data being unusable. During periods of significant rain, excessive noise levels will be produced from:

- rainfall on the casement of the noise measuring equipment located 1.5m directly below the microphone;
- heavy rainfall on the ground immediately surrounding the microphone; and
- increased traffic noise associated with the 'splash' from tyres travelling on wet roads.

It is important to note that the rainfall figures shown in Table 2.1 are the rainfall total for the 24 hour period preceding 9am. Therefore, the 68.6 mm total shown for 03/03/11 may have fallen anywhere between 9 am on 02/03/11 and 9 am on 03/03/11.

Periods of heavy rain are evident in the noise level data when the L_{Aeq} and L_{A90} noise levels are similar. This is due to the noise of heavy rainfall on the noise logger casement and the immediate ground surface 'masking' or exceeding noises due to traffic and other high, intermittent noise sources.

2.5.1.2 Wind

Due to the relatively exposed nature of the Smoky Cape Lighthouse weather station, it is considered that the wind data provides an upper limit or over-estimate of the wind experienced at the subject site. This is supported by field observations during deployment of the noise logger on 25/01/11. Wind at the site was not considered significant whereas the wind data indicates speeds of 28 km/hr or 7.8 m/s (the INP recommends excluding noise monitoring data obtained during periods when the average wind speed at microphone height exceeds 5 m/s). The noise readings obtained during this time (while the wind filter / foam ball was in place) also do not indicate any influence from wind. Therefore, the wind speed data shown in Table 2.1 is considered only an approximate guide in respect to wind speed at the subject site. Nevertheless, the boxed figures in Table 2.1 refer to wind speeds in excess of 5 m/s.

Table 2.1 Meteorological Conditions during Monitoring

Date	*Day*	*Rainfall [1] (mm)*	*Time*	*Wind Direction*	*Wind Speed (km/hr) [2]*	*Temperature (ºC)*
	First Monitoring Period					
25/01/11	Tuesday	0	9am	N	28	23.6
			3pm	N	28	27.7
26/01/11	Wednesday	0	9am	NE	33	23.7
			3pm	NNE	46	26.6
27/01/11	Thursday	0	9am	N	41	23.1
			3pm	N	33	27.0
28/01/11	Friday	0.4	9am	NNE	7	23.2
			3pm	S	22	22.2
29/01/11	Saturday	0.2	9am	S	11	19.0
			3pm	NNE	11	27.8
30/01/11	Sunday	0	9am	SW	9	22.6
			3pm	N	22	27.8
31/01/11	Monday	0	9am	NNE	15	22.5
			3pm	N	33	27.8
01/02/11	Tuesday	0	9am	NNE	46	23.9
			3pm	N	46	27.6
	Third Monitoring Period					
28/02/11	Monday	3.4	9am	SW	22	22.6
			3pm	ENE	15	27.5
01/03/11	Tuesday	-	9am	NNW	11	25.0
			3pm	E	19	30.0
02/03/11	Wednesday	11.4	9am	SE	28	22.0
			3pm	SE	19	21.4
03/03/11	Thursday	68.6	9am	S	9	21.2
			3pm	SE	9	23.0
04/03/11	Friday	13.4	9am	S	7	22.3
			3pm	S	7	25.0
05/03/11	Saturday	14.6	9am	N	22	22.6
			3pm	SSE	41	20.6

Source:

Rainfall data:

http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av p nccObsCode 136 p display type dailyDataFile p stn num 059143 p sta rt ear

Wind and temperature data: http://www.bom.gov.au/climate/dwo/ DC DW2123.latest.shtml

Notes: 1. Rainfall figures are the total rain in the 24 hours prior to 9am on the day of the recorded figure.

2. Boxed figures refer to winds in excess of 5 m/s. The INP recommends excluding noise monitoring data for periods when the wind speed at microphone height exceeds 5 m/s.

2.2 Existing Noise Levels

The recorded noise levels at the site are contained in Appendix A. Table 2.2 summarises the existing L_{Aeq} and L_{A90} noise levels determined from the recorded data for the day/evening/night periods. The L_{Aeq} figures represents the equivalent continuous noise level – the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring. The L_{A90} figures represent the background noise level. The L_{A90} figures are based on the sound level that is exceeded for 90 per cent of the time over which a given sound is measured.

Table 2.2 Existing L_{Aeq} and L_{A90} Noise Levels

Assessment Period		*L_{Aeq} Noise Levels dB(A)*	*L_{A90} Noise Levels dB(A) (Assessment Background Level)[1]*
Day	(7am to 6pm)[2]	48.6	43.3
Evening	(6pm to 10pm)	47.8	43.3
Night	(10pm to 7am)[3]	42.5	29.1

Notes: 1. the single figure background level representing each assessment period - day, evening and night determined by the tenth percentile method from the L_{A90} noise levels;
2. 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays;
3. 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

Plate 2.6 on the following page compares the above site noise levels to noise levels from common sounds. The illustration in Plate 2.6 indicates the above levels are equivalent to the expected noise from a library (at the lower end) and from a typical living room (in the middle range).

As noted in Section 2.2.1, a one-day measurement period covering day/evening/night has been used in this assessment to determine existing noise levels. The use of a one-day noise measurement period is based on the site / noise environment being considered 'low risk' as defined in the INP.

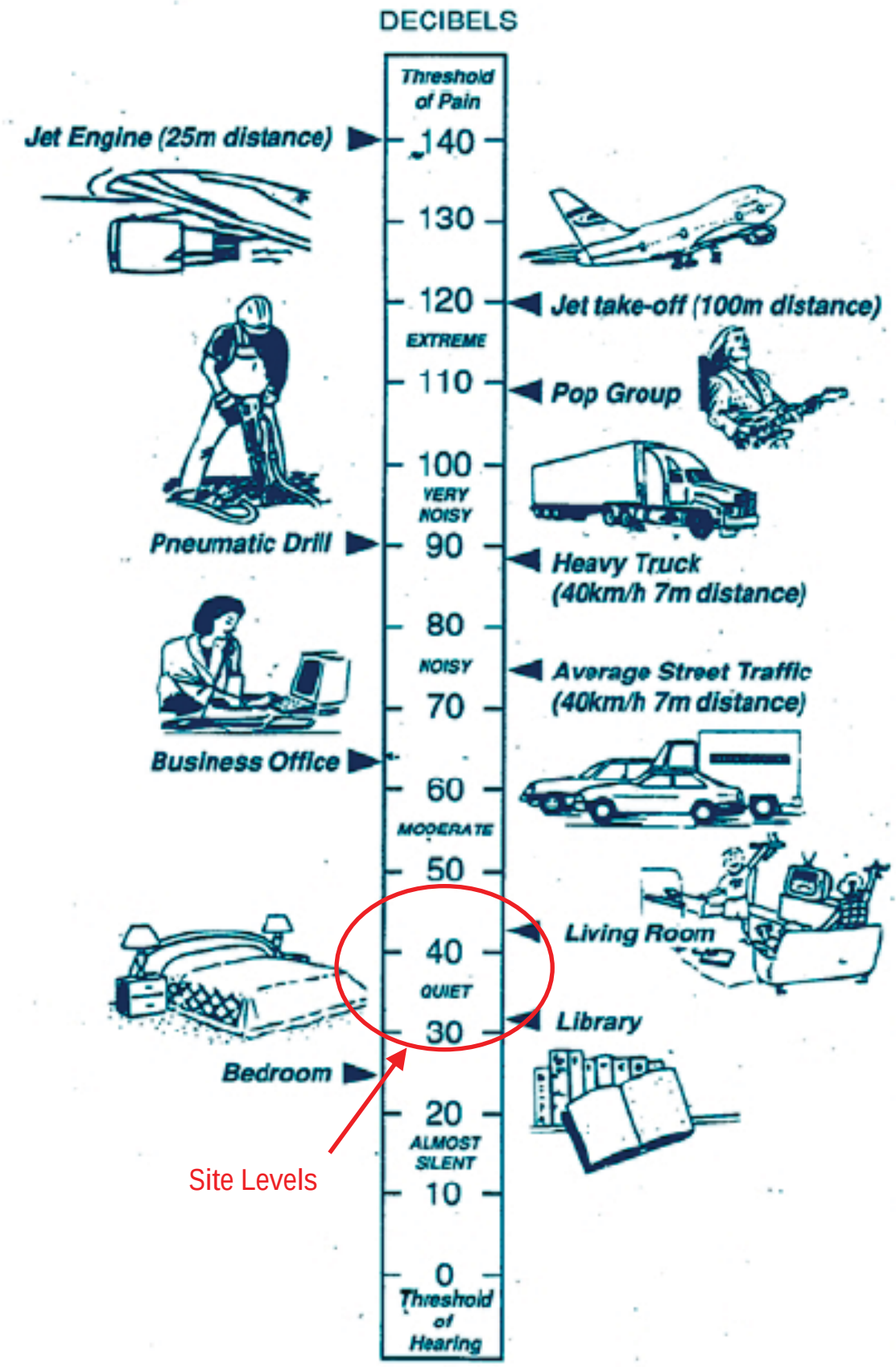
Noise levels for day, evening and night periods have been extracted from different dates due to the various circumstances that led to an interrupted sequence of useable noise monitoring data (as described in Section 2.2.1). The appropriate dates were selected based on review of the measured noise levels, field observations, consideration of rainfall and wind influences and the objective of describing noise levels during peak times at the tavern. The selection of the appropriate date to calculate the day/evening/night noise levels is described in the following sub-sections.

2.2.1 Day Period

The day period noise levels in Table 2.2 have been based on the L_{Aeq} and L_{A90} noise levels recorded on Tuesday, 25 January 2011.

Other days were generally not suitable due to wind noise in the first deployment period following removal of the wind filter. Day periods in the third deployment period were generally not suitable due to noise associated with rainfall and wind. However, figures from the third deployment period were used for comparative purposes:

- L_{Aeq} figures ranged from 49.9 to 57.1 dB(A) for 2/3/11 to 5/3/11 - up to approximately 10 dB(A) more than the adopted figure which is considered representative of the impact of rainfall on noise levels from the noise monitor casement and from traffic on the nearby road (approximately 20 m away); and
- L_{A90} figures ranged from approximately 35 to 40 dB(A) for 2/3/11 to 5/3/11 – between 3 and 8 dB(A) less than the adopted figure.



Source: Road Traffic Noise Taskforce Final report

Plate 2.6 Noise Levels of Common Sounds

2.2.2 Evening Period

The evening period noise levels in Table 2.2 have been based on the L_{Aeq} and L_{A90} noise levels recorded on Tuesday, 25 January 2011 (the day before the Australia Day public holiday). Due to this evening being the eve of a public holiday it is considered comparable to a Friday or Saturday evening in respect to activity at the tavern.

Other days were generally not suitable due to wind noise on the exposed microphone in the first deployment and noise associated with rainfall in the third deployment period. L_{Aeq} figures ranged from 70 to 80 dB(A) relatively consistently on the windy days of the first deployment period following removal of the wind filter. The variations in noise levels during this period are relatively consistent with the variations in wind speed records shown in Table 2.2. For comparative purposes, noise levels from the third deployment period for the evenings are:

- L_{Aeq} figures ranged from approximately 50 to 60 dB(A) for 2/3/11 to 5/3/11 - up to approximately 10 dB(A) more than the adopted figure which is considered representative of the impact of rainfall on noise levels; and
- L_{A90} figures ranged from approximately 40 to 50 dB(A) for 2/3/11 to 5/3/11 – similar levels to the adopted figure.

2.2.3 Night Period

The night period noise levels in Table 2.2 have been based on the L_{Aeq} and L_{A90} noise levels recorded on Saturday night, 29 January 2011. The noise level readings obtained during this period when the wind filter was absent are considered relatively unaffected by wind noise based on review of the wind speed records and the behaviour and magnitude of the noise levels over this period.

Other days were not considered suitable due to wind noise on the exposed microphone in the first deployment with the exception of the night of 30/01/11 which recorded similar levels. The night periods during the third deployment period are not considered suitable. Noise levels during the third deployment were relatively high (45 to 50 dB(A)) consistently throughout the night periods even between the hours of 1am and 6am when there would be no noise source from the tavern. Therefore the source of noise during these periods is considered to be the result of rainfall on the noise monitor casement and surrounding ground surface. Traffic on the road during this period (1 am to 6am) would be minimal.

2.2.4 Noise Sources

The main sources of noise contributing to the noise levels recorded at the site are listed below. Identification of these sources is based on site observations during deployment and collection of the noise monitoring equipment and based on review of the noise level data:

- road traffic along New Entrance Road adjacent to the site;
- noise from the tavern;
- insect noise in the evenings / at night;
- boat noise to a minor extent;
- wind noise including noise associated with wind blowing through the large stands of casuarinas adjoining the eastern portion of the proposed development area;
- background noise from the river and surf from the river entrance / coastline; and
- background noise from the residential area to the east of the site.

2.3 Noise Level Criteria

The INP sets two separate noise criterion to meet environmental noise objectives:

- intrusive noise: controlling intrusive noise impacts in the short term for residences; and
- protecting the amenity of land uses: maintaining noise level amenity for residences and other land uses.

In assessing noise impacts, both the above criterion are taken into account for residential receivers, but one will become the limiting criterion and form the project-specific noise level criteria.

2.3.1 Intrusiveness Criteria

The intrusiveness criterion is equal to the background noise level plus 5 dB. The background noise level can be defined as 'the underlying level of ambient noise when all unusual extraneous noise is removed'. Sound contributing to background levels can include sounds from nearby birds, water courses, insects, animals, machinery, road traffic etc. The background noise level is defined by the rating background level (RBL) in the INP. In this instance, with the use of a one-day measurement period, the RBL is equivalent to the Assessment Background Level (ABL) which is the L_{A90} figures listed in Table 2.2.

The RBL is the overall single figure background level representing each assessment period (day, evening and night) over the monitoring period. The RBL is derived from monitoring $L_{A90,\ 15\ minutes}$ noise levels. Table 2.3 presents the RBLs and subsequent intrusiveness criteria (RBL + 5 dB(A)) for the day, evening and night periods described in Section 2.2.

Table 2.3 Rating Background Levels and Intrusiveness Criteria

Assessment Period		*Rating Background Level (RBL)[1] dB(A)*	*Intrusiveness criteria (RBL +5) dB(A)*
Day	(7am to 6pm)[2]	43.3	48.3
Evening	(6pm to 10pm)	43.3	48.3
Night	(10pm to 7am)[3]	29.1	34.1

Notes: 1. The overall single figure background level representing each assessment period (day/evening/night) over the whole monitoring period;
2. 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays;
3. 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

2.3.2 Amenity Criteria

The maximum ambient noise level within an area from industrial sources should not normally exceed the criteria in Table 2.1 of the INP. Meeting this criterion will protect against noise impacts such as speech interference, community annoyance and, to some extent, sleep disturbance.

The type of receiver and noise amenity area for the subject site is defined as 'Suburban Residence' in respect to Table 2.1 of the INP. The amenity criteria for this classification are listed in Table 2.4.

Table 2.4 Noise Amenity Criteria – Suburban Residence

Type of Receiver	*Indicative Noise Amenity Area*	*Time of Day*	*Recommended L_{Aeq} Noise Level dB(A)*	
			Acceptable	*Maximum*
Residence	Suburban	Day	55 dB(A)	60 dB(A)
		Evening	45 dB(A)	50 dB(A)
		Night	40 dB(A)	45 dB(A)

Source: NSW ndustrial Noise Policy (NSW EPA, 2000)

2.3.3 Project Specific Noise Level Criteria

The more stringent of the intrusiveness or the amenity criteria sets the project-specific noise levels for the assessment. For this project intrusiveness criterion is the more stringent for the evening period and the amenity criterion is the more stringent for the day and night time periods. The project-specific noise level criteria are summarised in Table 2.5.

Table 2.5 Project Specific Noise Level Criteria

Assessment Period		*Project-Specific Noise Criteria dB(A)*
Day	(7am to 6pm)[1]	48.3
Evening	(6pm to 10pm)	45.0
Night	(10pm to 7am)[2]	34.1

Notes: 1. 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays;
2. 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

2.4 Comparison of Noise Levels and Criteria

Table 2.6 compares the existing noise levels with the project-specific noise level criteria.

Table 2.6 Comparison of Site Noise Levels and Project-Specific Criteria

Assessment Period		*Project-Specific Noise Criteria dB(A)*	*Existing Noise Levels (L_{Aeq} Noise Levels) dB(A)*
Day	(7am to 6pm)[1]	48.3	48.6
Evening	(6pm to 10pm)	45.0	47.8
Night	(10pm to 7am)[2]	34.1	42.5

Notes: 1. 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays;
2. 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

The project-specific criteria are exceeded by 0.3 dB(A), 2.8 dB(A), and 8.4 dB(A) during the day, evening and night respectively. Differences or exceedances in the order of 2 to 3 dB(A) are generally not considered significant as this difference in sound level is barely perceptible to the human ear. Therefore the critical noise levels and impacts relate primarily to the night period. The impacts and mitigation measures are discussed below.

2.5 Noise Impacts and Mitigation Measures

2.5.1 Noise Impacts

The assessment indicates that a steady noise level equivalent to approximately 42.5 dB(A) would be experienced during the night period at the location of the proposed cabin nearest Riverside Tavern. This is also the nearest location to New Entrance Road which is potentially a more significant noise source than Riverside Tavern. Therefore noise levels from this location are considered representative of the worst case for the proposed development.

The noise level reduction inside the cabins has been considered based on the case of an open window in the bedrooms or living areas during the night period to allow for ventilation. The internal noise reduction through an open window is approximately 10 dB(A) (RTA, 2001:20). Therefore the external steady noise level of 42.5 dB(A) will be reduced to an internal noise level of approximately 32.5 dB(A). This level complies with the project specific noise criteria of 34.1 dB(A) for the night period.

Table 2.7 compares the expected internal noise levels in the cabins with Australian Standards for recommended design sound levels for building interiors. The comparison shows the estimated internal noise levels during the day and evening are in accordance with the maximum recommended levels for living areas as specified in Australian Standards AS/NZS 2107:2000 – Acoustics – Recommended design sound levels and reverberation

times for building interiors. The night time internal noise levels are in accordance with the maximum recommended levels for sleeping areas and are only 2.5 dB(A) in excess of the 'satisfactory' levels in AS/NZS 2107:2000. Therefore the internal noise levels are considered acceptable without the requirement for additional mitigation measures.

Table 2.7 Comparison of Internal Noise Levels with Australian Standards Levels

Assessment Period	*Project-Specific Noise Criteria dB(A)*	*Existing External Noise Levels dB(A)*	*Internal Noise Levels [1] dB(A)*	*Australian Standards - Recommended Design Sound Levels (L_{Aeq}) for Living Areas and Sleeping Areas [2]*	
				Satisfactory	*Maximum*
Day	48.3	48.6	38.6	30	35 / 40 [3]
Evening	45.0	47.8	37.8	30	35 / 40 [3]
Night	34.1	42.5	32.5	30	35 / 40 [3]

Notes: 1. Internal noise levels are based on a 10 dB(A) noise reduction through open windows;
2. Figures from Table 1 is AS/NZS 2107:2000 for "Houses and apartments near minor roads"
3. 40 dB(A) for sleeping areas and 45 dB(A) for living areas.

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Conclusions

The main sources of noise contributing to the noise levels at the site of the proposed cabins are:

- road traffic along New Entrance Road adjacent to the site;
- noise from the tavern;
- insect noise in the evenings / at night;
- boat noise to a minor extent;
- wind noise including noise associated with wind blowing through the large stands of casuarinas adjoining the eastern portion of the proposed development area;
- background noise from the river and surf from the river entrance / coastline; and
- background noise from the residential area to the east of the site.

Noise levels recorded at the site indicate that noise levels from the tavern are not excessive. This is based on recorded noise levels covering the day/evening/night periods defined in the NSW Industrial Noise Policy (NSW EPA, 2000) and including a Saturday night period to assess peak times at the tavern. The low noise levels from the tavern are not unexpected in consideration of the structural and operation measures in place at the tavern. Indoor entertainment at the tavern occurs between 8pm and 11pm Friday and Saturday. The tavern doors and windows remain closed during indoor entertainment and access to the tavern building during entertainment is provided through noise traps which comprise a small room separating the interior of the tavern from the exterior. Security guards are also in place to ensure the doors remain closed and that patrons do not make undue noise whilst outside. An automatic sound limiting system is also in place which limits the generated sound level.

Assessment of noise impacts at the site of the proposed cabins has considered the two separate noise criterion defined in the NSW Industrial Noise Policy:

- intrusive noise: controlling intrusive noise impacts in the short term for residences; and
- protecting the amenity of land uses: maintaining noise level amenity for residences and other land uses.

For this project intrusiveness criterion is the more stringent for the evening period and the amenity criterion is the more stringent for the day and night time periods. The existing noise levels measured for each time period (day/evening/night) exceed the project-specific criteria by 0.3 dB(A), 2.8 dB(A), and 8.4 dB(A) respectively. The differences in the order of 2 to 3 dB(A) are generally not considered significant as this difference in sound level is barely perceptible to the human ear. Therefore the critical noise levels relate primarily to the night period.

The assessment indicates that a steady noise level equivalent to approximately 42.5 dB(A) would be experienced during the night period at the location of the proposed cabin nearest Riverside Tavern. This is also the nearest location to New Entrance Road which is a potentially significant noise source. Therefore noise levels from this location are considered representative of the worst case for the proposed development.

The internal noise that would be experienced in the cabins is approximately 32.5 dB(A) based on a 10 dB(A) internal noise reduction through an open window. This level complies with the project specific noise criteria of 34.1 dB(A) for the night period. This level is also considered acceptable in reference to Australian Standards for recommended design sound levels for building interiors (AS/NZS 2107:2000). The night time internal noise levels are in accordance with the maximum levels recommended for sleeping areas in AS/NZS 2107:2000. Therefore the internal noise levels are considered acceptable without the requirement for additional mitigation measures.

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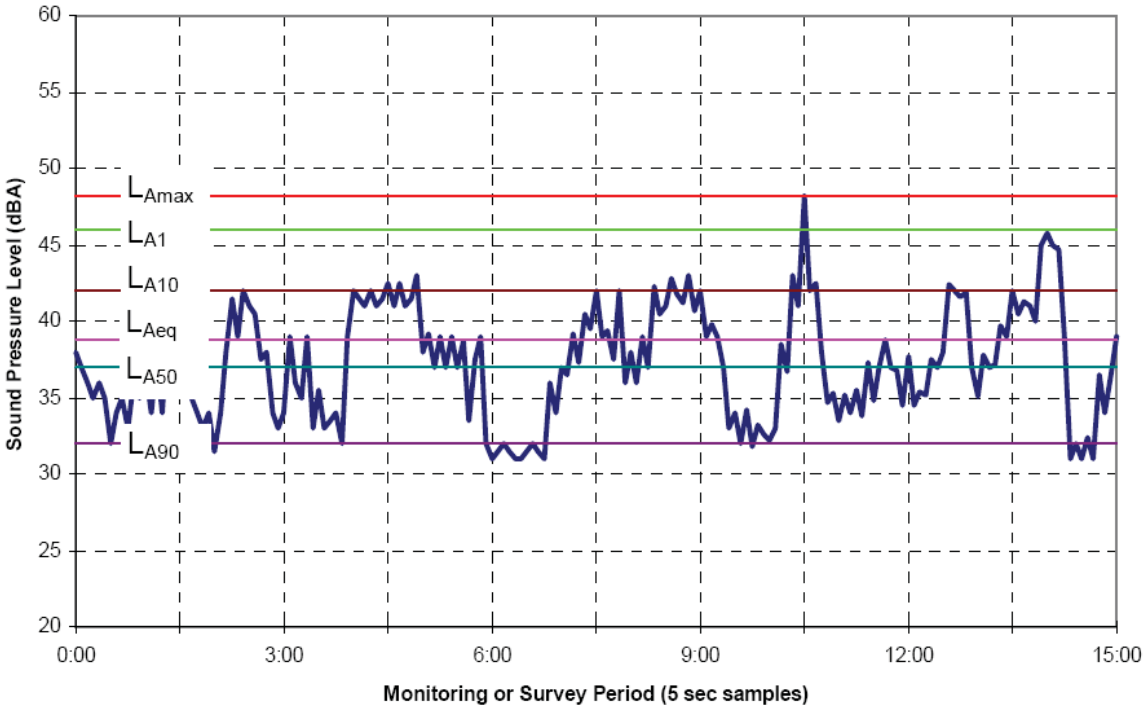
Glossary

A-weighted	*See dB(A)*
Assessment Background Level (ABL)	The single figure background level representing each assessment period - day, evening and night (that is, three assessment background levels are determined for each 24-h period of the monitoring period). Its determination is by the tenth percentile method described in Appendix B of the NSW Industrial Noise Policy.
dB	Abbreviation for decibel - a unit of sound measurement. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.
dB(A)	Unit used to measure 'A-weighted' sound pressure levels. A-weighting is an adjustment made to sound-level measurement to approximate the response of the human ear.
Day period	The period from 07:00 and 18:00 (7am to 6pm) (Monday to Saturday) and 08:00 to 18:00 (8am to 6pm) (Sundays and Public Holidays).
Evening period	The period from 18:00 to 22:00 (6pm to 10pm).
L_{A1}	The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time (refer to graph below for illustration of this descriptor).
L_{A10}	The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the LA10 level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise (refer to graph below for illustration of this descriptor).
L_{A50}	The L_{A50} level is the noise level which is exceeded for 50% of the sample period. During the sample period, the noise level is below the L_{A50} level for 50% of the time (refer to graph below for illustration of this descriptor).
L_{A90}	The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level (refer to graph below for illustration of this descriptor).
L_{Aeq}	The equivalent continuous noise level - the level of noise equivalent to the energy average of noise levels occurring over a measurement period. Put another way: the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring (refer to graph below for illustration of this descriptor).
Maximum Noise Level (L_{Amax})	The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period (refer to graph below for illustration of this descriptor).
Night period	The period from 22:00 to 07:00 (10pm to 7am) (Monday to Saturday) and 22:00 to 08:00 (10pm to 8am) (Sundays and Public Holidays).
Rating Background Level (RBL)	The overall single figure background level representing each assessment period (day/evening/night) over the whole monitoring period (as opposed to over each 24-h period used for the assessment background level). This is the level used for assessment purposes. It is defined as the median value of: ▪ all the day assessment background levels over the monitoring period for the day ▪ all the evening assessment background levels over the monitoring period for the evening; or ▪ all the night assessment background levels over the monitoring period for the night.

Note: the above definitions are largely sourced from the NSW Industrial Noise Policy (NSW EPA, 2000).



Source: Wilkinson Murray

The above graph illustrates the varying noise over a typical 15 minute sampling period and the statistical descriptors of the noise levels.

Project Team

The project team members included:

Tim Ruge
Environmental Engineer

Ali McCallum
Environmental Scientist

References

Standards Australia (2000). *Acoustics Recommended design sound levels and reverberation times for building interiors*. AS/NZS 2107:2000. Standards Australia International Ltd, Sydney

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Appendix A

Recorded Noise Levels

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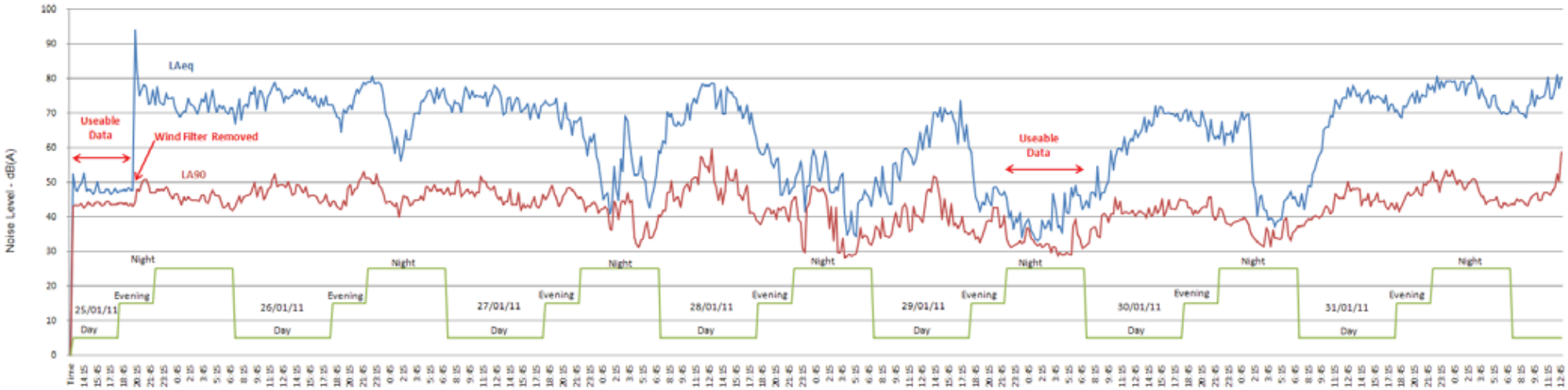
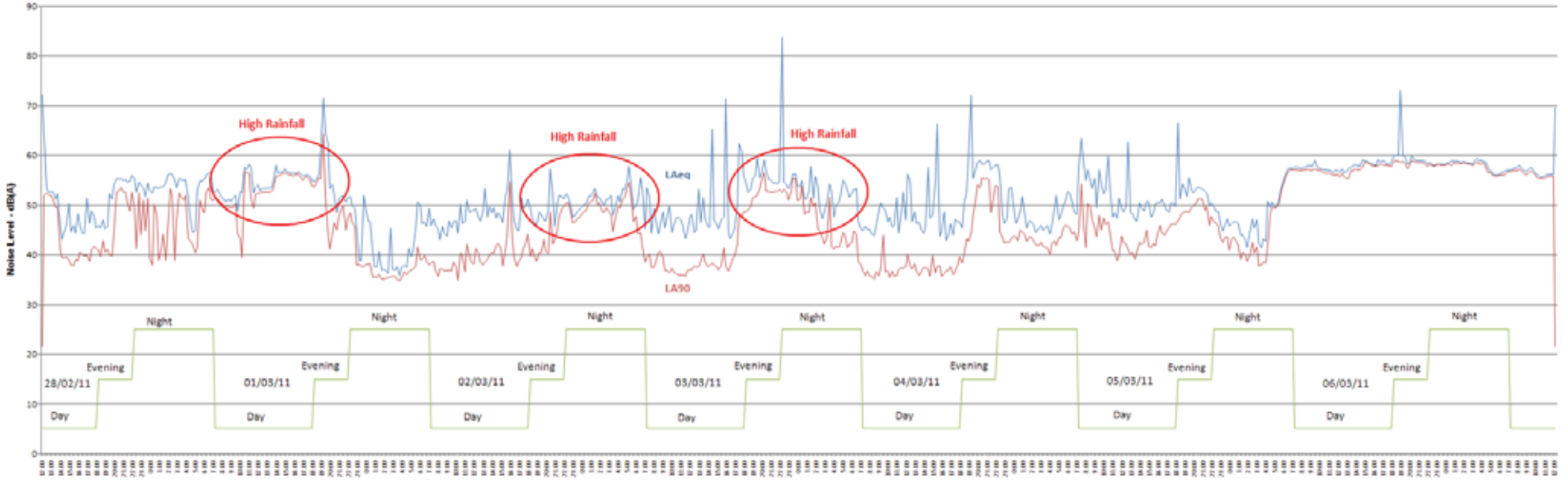
Graph of Recorded Noise Levels from First Monitoring Period – 25/01/2011 to 31/01/2011



Graph of Recorded Noise Levels from Third Monitoring Period – 28/02/2011 to 06/03/2011



First Monitoring Period

Monitoring Results:

Day Period 0715-1800

Date	Day	$L_{Aeq(day)}$	ABL
Total period		**72.6**	
25/01/2011	Tue	48.6	43.3
26/01/2011	Wed	74.9	44.2
27/01/2011	Thu	74.0	43.4
28/01/2011	Fri	73.7	41.6
29/01/2011	Sat	65.7	34.7
30/01/2011	Sun	66.2	36.6
31/01/2011	Mon	72.9	39.4
1/02/2011	Tue	75.7	43.7

Evening Period 1815-2200

Date	Day	$L_{Aeq(evening)}$	ABL
Total period		**70.6**	
25/01/2011	Tue	47.8	43.3
26/01/2011	Wed	74.3	42.7
27/01/2011	Thu	70.9	44.8
28/01/2011	Fri	56.5	38.7
29/01/2011	Sat	49.7	34.0
30/01/2011	Sun	67.9	40.4
31/01/2011	Mon	74.5	43.7

Night Period 2215-0700

Date	Day	$L_{Aeq(night)}$	ABL
Total period		**72.5**	
25/01/2011	Tue	73.0	43.4
26/01/2011	Wed	74.8	43.6
27/01/2011	Thu	60.4	33.8
28/01/2011	Fri	52.1	29.1
29/01/2011	Sat	42.5	29.1
30/01/2011	Sun	62.9	32.6
31/01/2011	Mon	77.2	43.7

GEO Link Data from Rion NL21 logger sn 718

Date	*Time*	*LA90*	*LAeq*	*10^((L Aeq(15 minute) /10))*
25/01/2011	13:00:00	43.1	52.3	169824
25/01/2011	13:15:00	43.5	48.1	64565
25/01/2011	13:30:00	43.3	47.6	57544
25/01/2011	13:45:00	43.6	49.2	83176
25/01/2011	14:00:00	43.9	49.7	93325
25/01/2011	14:15:00	42.7	52.7	186209
25/01/2011	14:30:00	43.5	47.6	57544
25/01/2011	14:45:00	44.3	48.1	64565
25/01/2011	15:00:00	43.7	47.8	60256
25/01/2011	15:15:00	43.4	46.6	45709
25/01/2011	15:30:00	44.1	47.4	54954
25/01/2011	15:45:00	44.4	50.1	102329
25/01/2011	16:00:00	44.2	46.9	48978
25/01/2011	16:15:00	43.4	46.9	48978
25/01/2011	16:30:00	43.7	46.9	48978
25/01/2011	16:45:00	44.3	48.1	64565
25/01/2011	17:00:00	44.5	47.9	61660
25/01/2011	17:15:00	43.7	46.5	44668
25/01/2011	17:30:00	43.7	47	50119
25/01/2011	17:45:00	43.6	48.3	67608
25/01/2011	18:00:00	43.9	47.1	51286
21		***43.3***		***1526842***
26/01/2011	7:15:00	43.1	67	5011872
26/01/2011	7:30:00	44.3	70.1	10232930
26/01/2011	7:45:00	46.1	74.1	25703958
26/01/2011	8:00:00	44	67.9	6165950
26/01/2011	8:15:00	45.7	72	15848932
26/01/2011	8:30:00	46.1	72.7	18620871
26/01/2011	8:45:00	46.2	71.6	14454398
26/01/2011	9:00:00	46.5	76	39810717
26/01/2011	9:15:00	48.4	75.6	36307805
26/01/2011	9:30:00	50	77.8	60255959
26/01/2011	9:45:00	45.8	71.5	14125375
26/01/2011	10:00:00	48.5	76.6	45708819
26/01/2011	10:15:00	48.8	76.2	41686938
26/01/2011	10:30:00	45	74	25118864
26/01/2011	10:45:00	45.8	70.7	11748976
26/01/2011	11:00:00	47.9	75.2	33113112
26/01/2011	11:15:00	48.5	76	39810717
26/01/2011	11:30:00	50.6	77.6	57543994
26/01/2011	11:45:00	52.5	78.9	77624712
26/01/2011	12:00:00	48.7	76.5	44668359
26/01/2011	12:15:00	49.1	77.2	52480746
26/01/2011	12:30:00	49.5	76	39810717
26/01/2011	12:45:00	49.1	73.1	20417379
26/01/2011	13:00:00	48.4	75.2	33113112
26/01/2011	13:15:00	50.3	74	25118864
26/01/2011	13:30:00	47.9	75.2	33113112
26/01/2011	13:45:00	46.4	75.2	33113112
26/01/2011	14:00:00	46.7	77.1	51286138
26/01/2011	14:15:00	49.4	75.6	36307805
26/01/2011	14:30:00	49.3	76.7	46773514
26/01/2011	14:45:00	47.7	75.6	36307805
26/01/2011	15:00:00	47.1	75	31622777
26/01/2011	15:15:00	48.6	77.5	56234133
26/01/2011	15:30:00	45.7	74.2	26302680
26/01/2011	15:45:00	46	75	31622777
26/01/2011	16:00:00	46.2	73.3	21379621
26/01/2011	16:15:00	46.1	75	31622777
26/01/2011	16:30:00	45.8	72.7	18620871
26/01/2011	16:45:00	44.1	71.7	14791084
26/01/2011	17:00:00	44.2	74.4	27542287
26/01/2011	17:15:00	44.9	72.1	16218101
26/01/2011	17:30:00	46.5	75.1	32359366
26/01/2011	17:45:00	44.6	72.5	17782794
26/01/2011	18:00:00	43	72.5	17782794
44		***44.23***		***1375287626***
27/01/2011	7:15:00	48.5	72.6	18197009
27/01/2011	7:30:00	46.4	72.1	16218101
27/01/2011	7:45:00	47	70.1	10232930
27/01/2011	8:00:00	46.6	73.5	22387211
27/01/2011	8:15:00	50.1	72.9	19498446
27/01/2011	8:30:00	50.5	73	19952623
27/01/2011	8:45:00	45.7	70.3	10715193
27/01/2011	9:00:00	46.6	73.9	24547089
27/01/2011	9:15:00	47.4	77.7	58884366
27/01/2011	9:30:00	48	76.1	40738028
27/01/2011	9:45:00	46.8	74.1	25703958
27/01/2011	10:00:00	47.4	76.6	45708819
27/01/2011	10:15:00	45.7	74.6	28840315
27/01/2011	10:30:00	47.2	75.3	33884416
27/01/2011	10:45:00	47	74.9	30902954
27/01/2011	11:00:00	52	75.1	32359366
27/01/2011	11:15:00	50.1	74.4	27542287
27/01/2011	11:30:00	50.1	76	39810717
27/01/2011	11:45:00	48.6	71.8	15135612
27/01/2011	12:00:00	48.1	74.9	30902954
27/01/2011	12:15:00	48.1	76.1	40738028
27/01/2011	12:30:00	48.9	77.9	61659500
27/01/2011	12:45:00	46.1	77.6	57543994
27/01/2011	13:00:00	45.1	76.2	41686938
27/01/2011	13:15:00	45.8	75.2	33113112
27/01/2011	13:30:00	43.6	69.4	8709636
27/01/2011	13:45:00	44.6	70.3	10715193
27/01/2011	14:00:00	44.3	74.3	26915348
27/01/2011	14:15:00	48	74.6	28840315
27/01/2011	14:30:00	43.5	70.8	12022644
27/01/2011	14:45:00	43.7	73	19952623
27/01/2011	15:00:00	43.6	74.7	29512092
27/01/2011	15:15:00	47.1	74.1	25703958
27/01/2011	15:30:00	41.9	70.1	10232930
27/01/2011	15:45:00	43.9	71.2	13182567
27/01/2011	16:00:00	42.5	71.4	13803843
27/01/2011	16:15:00	43.6	72.8	19054607
27/01/2011	16:30:00	42.5	68.3	6760830
27/01/2011	16:45:00	44	71	12589254
27/01/2011	17:00:00	45.7	72.9	19498446
27/01/2011	17:15:00	43.3	70.6	11481536
27/01/2011	17:30:00	42.6	68.6	7244360
27/01/2011	17:45:00	44.1	72.2	16595869
27/01/2011	18:00:00	46.5	72.5	17782794
44		***43.36***		***1097502812***
28/01/2011	7:15:00	39.9	58.6	724436
28/01/2011	7:30:00	41.9	62.1	1621810
28/01/2011	7:45:00	41.9	61.1	1288250
28/01/2011	8:00:00	47	70.4	10964782
28/01/2011	8:15:00	44	47.4	54954
28/01/2011	8:30:00	44.1	47.6	57544
28/01/2011	8:45:00	43.9	47.9	61660
28/01/2011	9:00:00	44	47.4	54954
28/01/2011	9:15:00	43.3	48.5	70795
28/01/2011	9:30:00	43.9	47.7	58884
28/01/2011	9:45:00	43.2	47.7	58884
28/01/2011	10:00:00	44.4	94	2511886432
28/01/2011	10:15:00	48	82.4	173780083
28/01/2011	10:30:00	47.5	75.2	33113112
28/01/2011	10:45:00	50	77	50118723
28/01/2011	11:00:00	50.7	78.2	66069345
28/01/2011	11:15:00	51	77.8	60255959
28/01/2011	11:30:00	49.3	72.7	18620871
28/01/2011	11:45:00	47.1	73	19952623
28/01/2011	12:00:00	47.1	76.7	46773514
7		***43.26***		***417675***
29/01/2011	18:15:00	44.5	72.4	17378008
29/01/2011	18:30:00	44.5	71	12589254
29/01/2011	18:45:00	43	69	7943282
29/01/2011	19:00:00	42.4	68.8	7585776
29/01/2011	19:15:00	42.2	64.5	2818383
29/01/2011	19:30:00	44.8	71.2	13182567
29/01/2011	19:45:00	43.3	69.9	9772372
29/01/2011	20:00:00	48.2	71.4	13803843
29/01/2011	20:15:00	49.4	72.4	17378008
29/01/2011	20:30:00	46.4	71.1	12882496
29/01/2011	20:45:00	47.9	74.8	30199517
29/01/2011	21:00:00	48.3	77.1	51286138
29/01/2011	21:15:00	50.3	75.7	37153523
29/01/2011	21:30:00	51.3	77.4	54954087
29/01/2011	21:45:00	53.1	78.9	77624712
29/01/2011	22:00:00	51.1	78.2	66069345
16		***42.7***		***432621312***
27/01/2011	18:15:00	45.1	73.7	23442288
27/01/2011	18:30:00	46	72.7	18620871
27/01/2011	18:45:00	47.4	72.2	16595869
27/01/2011	19:00:00	49.2	72.6	18197009
27/01/2011	19:15:00	46.5	73	19952623
27/01/2011	19:30:00	45.5	74.3	26915348
27/01/2011	19:45:00	43	68.2	6606934
27/01/2011	20:00:00	44.4	65.4	3467369
27/01/2011	20:15:00	46.1	68.7	7413102
27/01/2011	20:30:00	46.9	73.2	20892961
27/01/2011	20:45:00	48.2	68.6	7244360
27/01/2011	21:00:00	48.5	67.9	6165950
27/01/2011	21:15:00	47.7	63.7	2344229
27/01/2011	21:30:00	47.4	67.8	6025596
27/01/2011	21:45:00	46.1	67.3	5370318
27/01/2011	22:00:00	45.4	68.2	6606934
16		***44.75***		***195861762***
28/01/2011	18:15:00	38.6	59.9	977237
28/01/2011	18:30:00	37.7	58.5	707946
28/01/2011	18:45:00	39.6	57.9	616595
28/01/2011	19:00:00	41.2	58.8	758578
28/01/2011	19:15:00	42.5	61.1	1288250
28/01/2011	19:30:00	42.4	58.7	741310
28/01/2011	19:45:00	40.8	55.8	380189
28/01/2011	20:00:00	41.9	54.3	269153
28/01/2011	20:15:00	39.4	56.8	478630
28/01/2011	20:30:00	42.6	57.1	512861
28/01/2011	20:45:00	41.9	46.2	41687
28/01/2011	21:00:00	42.8	46.4	43652
28/01/2011	21:15:00	42.8	48.8	75858
28/01/2011	21:30:00	40	51.1	128825
28/01/2011	21:45:00	38.8	46.6	45709
28/01/2011	22:00:00	44.3	48.1	64565
16		***38.7***		***7131045***
29/01/2011	18:15:00	35.5	58.7	741310
29/01/2011	18:30:00	36.5	52.4	173780
29/01/2011	18:45:00	33.6	45.8	38019
29/01/2011	19:00:00	34.3	44.1	25704
29/01/2011	19:15:00	32.5	41.6	14454
29/01/2011	19:30:00	34.5	44.3	26915
29/01/2011	19:45:00	36.7	43.6	22909
29/01/2011	20:00:00	38.7	47	50119
29/01/2011	20:15:00	39.1	44.6	28840
29/01/2011	20:30:00	38.8	43.4	21878
29/01/2011	20:45:00	42.9	48.5	70795
29/01/2011	21:00:00	42.7	48.6	72444
29/01/2011	21:15:00	42.9	48.1	64565
29/01/2011	21:30:00	37	46.6	45709
29/01/2011	21:45:00	37.8	46.2	41687
29/01/2011	22:00:00	40.4	47.5	56234
16		***33.95***		***1495362***
30/01/2011	18:15:00	44.9	70.5	11220185
30/01/2011	18:30:00	44.6	71.2	13182567
30/01/2011	18:45:00	42.5	67.8	6025596
30/01/2011	19:00:00	42.6	70.8	12022644
30/01/2011	19:15:00	40.7	67.7	5888437
30/01/2011	19:30:00	42	67.7	5888437
30/01/2011	19:45:00	41.2	66.3	4265795
30/01/2011	20:00:00	42	66.3	4265795
30/01/2011	20:15:00	42.7	70.7	11748976
30/01/2011	20:30:00	43.1	68.2	6606934
30/01/2011	20:45:00	42.8	65.6	3630781
30/01/2011	21:00:00	45.5	61.9	1548817
30/01/2011	21:15:00	45.7	68.2	6606934
30/01/2011	21:30:00	40.6	64.1	2570396
30/01/2011	21:45:00	39.1	62.7	1862087
30/01/2011	22:00:00	40.1	63.7	2344229
16		***40.35***		***99678609***
31/01/2011	18:15:00	44.1	71.1	12882496
31/01/2011	18:30:00	41.7	69.5	8912509
31/01/2011	18:45:00	43.3	68.7	7413102
31/01/2011	19:00:00	44.3	72.2	16595869
31/01/2011	19:15:00	46	71.7	14791084
31/01/2011	19:30:00	47.2	73.4	21877616
31/01/2011	19:45:00	46	74.6	28840315
31/01/2011	20:00:00	46.6	75.7	37153523
31/01/2011	20:15:00	47.5	73	19952623
31/01/2011	20:30:00	48.8	76.6	45708819
31/01/2011	20:45:00	46.8	73.1	20417379
31/01/2011	21:00:00	46	75.6	36307805
31/01/2011	21:15:00	49.7	75.2	33113112
31/01/2011	21:30:00	49.2	74.9	30902954
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25/01/2011	22:15:00	48.1	72.9	19498446
25/01/2011	22:30:00	47.8	73.4	21877616
25/01/2011	22:45:00	48.1	72.9	19498446
25/01/2011	23:00:00	47.7	72.5	17782794
25/01/2011	23:15:00	48.7	75.7	37153523
25/01/2011	23:30:00	47.9	74.2	26302680
25/01/2011	23:45:00	46.1	74.4	27542287
26/01/2011	0:00:00	45.4	74.7	29512092
26/01/2011	0:15:00	46.6	71.9	15488166
26/01/2011	0:30:00	46.8	70.3	10715193
26/01/2011	0:45:00	44.7	69.1	8128305
26/01/2011	1:00:00	43.6	69.5	8912509
26/01/2011	1:15:00	45.7	70.8	12022644
26/01/2011	1:30:00	44.8	70.5	11220185
26/01/2011	1:45:00	45.7	74.3	26915348
26/01/2011	2:00:00	45	72.3	16982437
26/01/2011	2:15:00	44.8	72.3	16982437
26/01/2011	2:30:00	44.7	71.5	14125375
26/01/2011	2:45:00	44.8	69.8	9549926
26/01/2011	3:00:00	44.5	71.4	13803843
26/01/2011	3:15:00	46.2	74	25118864
26/01/2011	3:30:00	46.3	73.4	21877616
26/01/2011	3:45:00	44.4	75.7	37153523
26/01/2011	4:00:00	44	70.2	10471285
26/01/2011	4:15:00	46.8	74.3	26915348
26/01/2011	4:30:00	47.7	76.8	47863009
26/01/2011	4:45:00	46.4	71.9	15488166
26/01/2011	5:00:00	46.1	70.1	10232930
26/01/2011	5:15:00	46.1	72.3	16982437
26/01/2011	5:30:00	43.9	71.3	13489629
26/01/2011	5:45:00	42.7	72.1	16218101
26/01/2011	6:00:00	43.2	70.4	10964782
26/01/2011	6:15:00	44.1	69.8	9549926
26/01/2011	6:30:00	42.4	71.3	13489629
26/01/2011	6:45:00	41.8	71.5	14125375
26/01/2011	7:00:00	***43.4***		***712090394***
36		51.4	79.2	83176377
26/01/2011	22:15:00	51	79	79432823
26/01/2011	22:30:00	49.8	80.6	114815362
26/01/2011	22:45:00	49.8	78.6	72443596
26/01/2011	23:00:00	52.5	78.8	75857758
26/01/2011	23:15:00	49.1	79	79432823
26/01/2011	23:30:00	48.2	78.1	64565423
26/01/2011	23:45:00	46.9	75.6	36307805
27/01/2011	0:00:00	44.2	69.8	9549926
27/01/2011	0:15:00	44.3	68.6	7244360
27/01/2011	0:30:00	44.6	66.6	4570882
27/01/2011	0:45:00	43.8	63.1	2041738
27/01/2011	1:00:00	43.1	58.4	691831
27/01/2011	1:15:00	44	63.1	2041738
27/01/2011	1:30:00	40	59.8	954993
27/01/2011	1:45:00	42.9	56.4	436516
27/01/2011	2:00:00	46	59.6	912011
27/01/2011	2:15:00	45.7	65.1	3235937
27/01/2011	2:30:00	45.6	62.3	1698244
27/01/2011	2:45:00	43.3	62.5	1778279
27/01/2011	3:00:00	43.8	66.5	4466836
27/01/2011	3:15:00	44.8	69.6	9120108
27/01/2011	3:30:00	44.8	70.2	10471285
27/01/2011	3:45:00	45	69.8	9549926
27/01/2011	4:00:00	46	73.4	21877616
27/01/2011	4:15:00	44.9	73.5	22387211
27/01/2011	4:30:00	48.6	74.8	30199517
27/01/2011	4:45:00	48.7	76.3	42657952
27/01/2011	5:00:00	47.4	76.7	46773514
27/01/2011	5:15:00	47.7	75.5	35481339
27/01/2011	5:30:00	49.4	73	19952623
27/01/2011	5:45:00	47.4	77.5	56234133
27/01/2011	6:00:00	47.8	74.1	25703958
27/01/2011	6:15:00	48	76.3	42657952
27/01/2011	6:30:00	46.6	77.3	53703180
27/01/2011	6:45:00	47.2	74.3	26915348
27/01/2011	7:00:00	***43.55***		***1099340920***
36		45.8	68.9	7762471
27/01/2011	22:15:00	44.9	63.3	2137962
27/01/2011	22:30:00	41.7	61.5	1412538
27/01/2011	22:45:00	43.1	57.7	588844
27/01/2011	23:00:00	43	63	1995262
27/01/2011	23:15:00	43.8	61.6	1445440
27/01/2011	23:30:00	44.4	64.1	2570396
27/01/2011	23:45:00	43.3	57.3	537032
28/01/2011	0:00:00	41.1	56.1	407380
28/01/2011	0:15:00	42.1	50.6	114815
28/01/2011	0:30:00	42.4	45	31623
28/01/2011	0:45:00	43.2	46	39811
28/01/2011	1:00:00	42.2	46.9	48978
28/01/2011	1:15:00	36.5	41	12589
28/01/2011	1:30:00	36.3	42.5	17783
28/01/2011	1:45:00	44.5	54.7	295121
28/01/2011	2:00:00	43.7	48.4	69183
28/01/2011	2:15:00	39.5	44.7	29512
28/01/2011	2:30:00	44.2	56.7	467735
28/01/2011	2:45:00	44.9	53.2	208930
28/01/2011	3:00:00	43.8	69.3	8511380
28/01/2011	3:15:00	47	67.8	6025596
28/01/2011	3:30:00	44.2	62.4	1737801
28/01/2011	3:45:00	44.8	56.5	446684
28/01/2011	4:00:00	34.1	52.2	165959
28/01/2011	4:15:00	32.4	52.1	162181
28/01/2011	4:30:00	31.1	52.4	173780
28/01/2011	4:45:00	33.4	57.6	575440
28/01/2011	5:00:00	33.7	51.4	138038
28/01/2011	5:15:00	37.3	50.5	112202
28/01/2011	5:30:00	38.8	45.3	33884
28/01/2011	5:45:00	33.9	42.7	18621
28/01/2011	6:00:00	35	48.1	64565
28/01/2011	6:15:00	37.1	52.2	165959
28/01/2011	6:30:00	40.6	59.2	831764
28/01/2011	6:45:00	***33.8***		***39399916***
28/01/2011	7:00:00	45.6	48.7	74131
36		45.9	51.6	144544
28/01/2011	22:15:00	39.4	53.2	208930
28/01/2011	22:30:00	38.5	56.3	426580
28/01/2011	22:45:00	30.9	52.6	181970
28/01/2011	23:00:00			
28/01/2011	23:15:00			

28/01/2011	8:15:00	47.3	68.9	7762471
28/01/2011	8:30:00	50.4	70	10000000
28/01/2011	8:45:00	44.6	66.7	4677351
28/01/2011	9:00:00	45.6	66.4	4365158
28/01/2011	9:15:00	45.9	67.6	5754399
28/01/2011	9:30:00	42.9	66.5	4466836
28/01/2011	9:45:00	47.6	66.7	4677351
28/01/2011	10:00:00	48.8	68.1	6456542
28/01/2011	10:15:00	49.8	73	19952623
28/01/2011	10:30:00	47.6	68	6309573
28/01/2011	10:45:00	50.7	72.4	17378008
28/01/2011	11:00:00	51.3	74.4	27542287
28/01/2011	11:15:00	51.7	72.9	19498446
28/01/2011	11:30:00	49.5	75.2	33113112
28/01/2011	11:45:00	57.4	77.4	54954087
28/01/2011	12:00:00	56.9	78.5	70794578
28/01/2011	12:15:00	54.7	77.9	61659500
28/01/2011	12:30:00	54.7	77.9	61659500
28/01/2011	12:45:00	52.9	78	63095734
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28/01/2011	13:15:00	50.1	78.4	69183097
28/01/2011	13:30:00	48.9	71.3	13489629
28/01/2011	13:45:00	44.8	73.5	22387211
28/01/2011	14:00:00	48.3	76.7	46773514
28/01/2011	14:15:00	43.8	69.6	9120108
28/01/2011	14:30:00	47.8	69.6	9120108
28/01/2011	14:45:00	54.5	77.8	60255959
28/01/2011	15:00:00	50.6	76	39810717
28/01/2011	15:15:00	50.6	76	39810717
28/01/2011	15:30:00	50.5	74.8	30199517
28/01/2011	15:45:00	53.8	74.4	27542287
28/01/2011	16:00:00	46.3	70.8	12022644
28/01/2011	16:15:00	46.3	72.2	16595869
28/01/2011	16:30:00	44.8	68.4	6918310
28/01/2011	16:45:00	47.8	70.1	10232930
28/01/2011	17:00:00	49.1	72.5	17782794
28/01/2011	17:15:00	41.2	67	5011872
28/01/2011	17:30:00	41.4	70.2	10471285
28/01/2011	17:45:00	41.2	65.5	3548134
28/01/2011	18:00:00	39.2	62.8	1905461
44		***41.55***		***1026756760***
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29/01/2011	7:45:00	36.7	48.9	77625
29/01/2011	8:00:00	33.9	45.8	38019
29/01/2011	8:15:00	39.6	54.5	281838
29/01/2011	8:30:00	34.6	47.8	60256
29/01/2011	8:45:00	34.5	46.5	44668
29/01/2011	9:00:00	34.1	43.9	24547
29/01/2011	9:15:00	35	43.8	23988
29/01/2011	9:30:00	37.9	55.3	338844
29/01/2011	9:45:00	41.4	55.7	371535
29/01/2011	10:00:00	37.6	51.6	144544
29/01/2011	10:15:00	37.2	50.5	112202
29/01/2011	10:30:00	42.8	58.5	707946
29/01/2011	10:45:00	43.8	59.9	977237
29/01/2011	11:00:00	42.7	59.8	954993
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29/01/2011	12:15:00	40.4	59.4	870964
29/01/2011	12:30:00	39.7	64.5	2818383
29/01/2011	12:45:00	38.4	59.5	891251
29/01/2011	13:00:00	41.9	63.1	2041738
29/01/2011	13:15:00	47.4	66.6	4570882
29/01/2011	13:30:00	48.1	60.2	1047129
29/01/2011	13:45:00	47.3	64.3	2691535
29/01/2011	14:00:00	51.8	70.1	10232930
29/01/2011	14:15:00	51.5	70.1	10232930
29/01/2011	14:30:00	49	69.1	8128305
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29/01/2011	15:15:00	45.3	71.5	14125375
29/01/2011	15:30:00	39.9	69.8	9549926
29/01/2011	15:45:00	37.6	69.8	9549926
29/01/2011	16:00:00	43.9	70.6	11481536
29/01/2011	16:15:00	37.4	68.1	6456542
29/01/2011	16:30:00	38.2	67.1	5128614
29/01/2011	16:45:00	36.8	61.1	1288250
29/01/2011	17:00:00	38	73.7	23442288
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44		***34.72***		***162847849***
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30/01/2011	8:45:00	34	45	31623
30/01/2011	9:00:00	40.4	47.1	51286
30/01/2011	9:15:00	41.1	47.1	51286
30/01/2011	9:30:00	40.3	49.5	89125
30/01/2011	9:45:00	38.5	50.2	104713
30/01/2011	10:00:00	40.9	59.1	812831
30/01/2011	10:15:00	40.9	53.5	223872
30/01/2011	10:30:00	45.6	57.2	524807
30/01/2011	10:45:00	42.2	59.6	912011
30/01/2011	11:00:00	44.6	60	1000000
30/01/2011	11:15:00	40.9	58.9	776247
30/01/2011	11:30:00	41.3	63.1	2041738
30/01/2011	11:45:00	41.3	58.1	645654
30/01/2011	12:00:00	41.2	61.2	1318257
30/01/2011	12:15:00	41.5	62.9	1949845
30/01/2011	12:30:00	42	61.8	1513561
30/01/2011	12:45:00	40.3	65	3162278
30/01/2011	13:00:00	41.3	63	1995262
30/01/2011	13:15:00	41.6	64.2	2630268
30/01/2011	13:30:00	41.3	65.2	3311311
30/01/2011	13:45:00	40.9	69.1	8128305
30/01/2011	14:00:00	39.6	64.5	2818383
30/01/2011	14:15:00	42.5	67.9	6165950
30/01/2011	14:30:00	40.3	66.4	4365158
30/01/2011	14:45:00	40.7	66.9	4897788
30/01/2011	15:00:00	43.3	72.1	16218101
30/01/2011	15:15:00	41.1	68.9	7762471
30/01/2011	15:30:00	42.1	71.9	15488166
30/01/2011	15:45:00	45.2	71.7	14791084
30/01/2011	16:00:00	40.3	70	10000000
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30/01/2011	16:30:00	45.1	70.2	10471285
30/01/2011	16:45:00	42.3	69.6	9120108
30/01/2011	17:00:00	42.3	69.8	9549926
30/01/2011	17:15:00	42.2	69.2	8317638
30/01/2011	17:30:00	43.3	70	10000000
30/01/2011	17:45:00	45.2	67.8	6025596
30/01/2011	18:00:00	44.9	68.1	6456542
44		***36.58***		***184194498***
31/01/2011	7:15:00	37.2	43	19953
31/01/2011	7:30:00	37.4	46.8	47863
31/01/2011	7:45:00	37.5	42.2	16596
31/01/2011	8:00:00	38.7	45.3	33884
31/01/2011	8:15:00	39.5	49.3	85114
31/01/2011	8:30:00	39.3	48.7	74131
31/01/2011	8:45:00	39.7	52.3	169824
31/01/2011	21:45:00	50.1	78.4	69183097
31/01/2011	22:00:00	50.1	76.8	47863009
16		***43.7***		***451915314***
103		32.5		1189121079
28/01/2011	23:30:00	29.7	41.7	14791
28/01/2011	23:45:00	42.6	49	79433
29/01/2011	0:00:00	44.1	49	79433
29/01/2011	0:15:00	48.7	57.2	524807
29/01/2011	0:30:00	48.7	59.5	891251
29/01/2011	0:45:00	48.2	57	501187
29/01/2011	1:00:00	47.5	51	125893
29/01/2011	1:15:00	47.6	50.1	102329
29/01/2011	1:30:00	48.2	54.6	288403
29/01/2011	1:45:00	46.7	59	794328
29/01/2011	2:00:00	45.1	56.8	478630
29/01/2011	2:15:00	36.8	48	63096
29/01/2011	2:30:00	43.1	46.9	48978
29/01/2011	2:45:00	33.1	46.9	48978
29/01/2011	3:00:00	42.9	48.6	72444
29/01/2011	3:15:00	29.8	47.7	58884
29/01/2011	3:30:00	29.6	51.6	144544
29/01/2011	3:45:00	33.9	52.7	186209
29/01/2011	4:00:00	28.2	41.2	13183
29/01/2011	4:15:00	28.6	34.8	3020
29/01/2011	4:30:00	29.3	36.5	4467
29/01/2011	4:45:00	28.6	41.7	14791
29/01/2011	5:00:00	28.9	35.3	3388
29/01/2011	5:15:00	29.4	34.4	2754
29/01/2011	5:30:00	32	43.9	24547
29/01/2011	5:45:00	37.1	45.1	32359
29/01/2011	6:00:00	33.9	45.1	32359
29/01/2011	6:15:00	34.9	47.8	60256
29/01/2011	6:30:00	34.4	46.3	42658
29/01/2011	6:45:00	32.7	45.7	37154
29/01/2011	7:00:00	31.8	43.2	20893
36		***29.1***		***5831601***
29/01/2011	22:15:00	33.5	45.2	33113
29/01/2011	22:30:00	31.9	39.6	9120
29/01/2011	22:45:00	31.2	41.6	14454
29/01/2011	23:00:00	31.7	36.4	4365
29/01/2011	23:15:00	32.2	39.7	9333
29/01/2011	23:30:00	32.3	38.5	7079
29/01/2011	23:45:00	33	41.5	14125
30/01/2011	0:00:00	32.3	34	2512
30/01/2011	0:15:00	32.9	37.3	5370
30/01/2011	0:30:00	36.9	38.9	7762
30/01/2011	0:45:00	36.7	39.4	8710
30/01/2011	1:00:00	33.9	36	3981
30/01/2011	1:15:00	33	34.9	3090
30/01/2011	1:30:00	32.4	33.6	2291
30/01/2011	1:45:00	31.7	33.1	2042
30/01/2011	2:00:00	32.3	34.1	2570
30/01/2011	2:15:00	31.2	39.3	8511
30/01/2011	2:30:00	31.7	36.7	4677
30/01/2011	2:45:00	32.4	36.9	4898
30/01/2011	3:00:00	32.2	39.3	8511
30/01/2011	3:15:00	29.6	36	3981
30/01/2011	3:30:00	31.3	46.8	47863
30/01/2011	3:45:00	31.1	43	19953
30/01/2011	4:00:00	28.8	36.9	4898
30/01/2011	4:15:00	29.7	37.5	5623
30/01/2011	4:30:00	28.9	35.3	3388
30/01/2011	4:45:00	29	46.9	48978
30/01/2011	5:00:00	29.8	41.3	13490
30/01/2011	5:15:00	29.2	41.2	13183
30/01/2011	5:30:00	29	48.5	70795
30/01/2011	5:45:00	37.2	45.8	38019
30/01/2011	6:00:00	39.5	49.2	83176
30/01/2011	6:15:00	35.2	46.4	43652
30/01/2011	6:30:00	33.9	46.4	43652
30/01/2011	6:45:00	30.8	42.2	16596
30/01/2011	7:00:00	31.2	43	19953
36		***29.1***		***633715***
30/01/2011	22:15:00	42.6	62.7	1862087
30/01/2011	22:30:00	42.1	67.4	5495409
30/01/2011	22:45:00	39.9	60.9	1230269
30/01/2011	23:00:00	38.3	64.4	2754229
30/01/2011	23:15:00	37.9	63.6	2290868
30/01/2011	23:30:00	37.6	64.8	3019952
30/01/2011	23:45:00	38.2	61.7	1479108
31/01/2011	0:00:00	38.7	67.7	5888437
31/01/2011	0:15:00	38.7	64.4	2754229
31/01/2011	0:30:00	39.3	67.5	5623413
31/01/2011	0:45:00	39.2	70.5	11220185
31/01/2011	1:00:00	40	67.9	6165950
31/01/2011	1:15:00	39.1	69.4	8709636
31/01/2011	1:30:00	37.7	69.7	9332543
31/01/2011	1:45:00	35.5	63	1995262
31/01/2011	2:00:00	34.3	50.2	104713
31/01/2011	2:15:00	33.4	47.3	53703
31/01/2011	2:30:00	32.8	40.3	10715
31/01/2011	2:45:00	32.3	45.6	36308
31/01/2011	3:00:00	31.9	46.2	41687
31/01/2011	3:15:00	31.4	42.2	16596
31/01/2011	3:30:00	37.1	41.9	15488
31/01/2011	3:45:00	35.7	39.1	8128
31/01/2011	4:00:00	31.4	39.7	9333
31/01/2011	4:15:00	36.2	39.1	8128
31/01/2011	4:30:00	33.9	37.3	5370
31/01/2011	4:45:00	33.9	38.9	7762
31/01/2011	5:00:00	33.7	39.2	8318
31/01/2011	5:15:00	33.8	39.5	8913
31/01/2011	5:30:00	39.1	44.6	28840
31/01/2011	5:45:00	39.8	45.2	33113
31/01/2011	6:00:00	34.8	45.8	38019
31/01/2011	6:15:00	33.1	47.6	57544
31/01/2011	6:30:00	35.2	45.3	33884
31/01/2011	6:45:00	36.1	45.8	38019
31/01/2011	7:00:00	37.2	43.5	22387
36		***32.55***		***70408544***
31/01/2011	22:15:00	53.2	78.1	64565423
31/01/2011	22:30:00	50.2	76	39810717
31/01/2011	22:45:00	50.7	80.8	120226443
31/01/2011	23:00:00	47.3	77.1	51286138
31/01/2011	23:15:00	50	79.4	87096359
31/01/2011	23:30:00	51.7	77.5	56234133
31/01/2011	23:45:00	53.6	79.4	87096359
1/02/2011	0:00:00	51.9	79.2	83176377
1/02/2011	0:15:00	51.8	79.4	87096359
1/02/2011	0:30:00	53.7	78.9	77624712
1/02/2011	0:45:00	51.2	79.4	87096359
1/02/2011	1:00:00	49.5	76.6	45708819
1/02/2011	1:15:00	50.7	76.8	47863009
1/02/2011	1:30:00	50.3	79.3	85113804
1/02/2011	1:45:00	47.9	79.3	85113804
1/02/2011	2:00:00	48.1	75.4	34673685
1/02/2011	2:15:00	49.6	78.5	70794578
1/02/2011	2:30:00	50.1	78.6	72443596
1/02/2011	2:45:00	51	80.9	123026877
1/02/2011	3:00:00	51	79.7	93325430
1/02/2011	3:15:00	50	78.5	70794578
1/02/2011	3:30:00	47.5	74.2	26302680
1/02/2011	3:45:00	45.7	77.2	52480746
1/02/2011	4:00:00	46.1	75.6	36307805
1/02/2011	4:15:00	43.9	74	25118864
1/02/2011	4:30:00	44.5	71.7	14791084
1/02/2011	4:45:00	44.7	71.6	14454398
1/02/2011	5:00:00	44.8	75.2	33113112
1/02/2011	5:15:00	45	75.3	33884416
1/02/2011	5:30:00	45.8	71.9	15488166
1/02/2011	5:45:00	43.4	71.2	13182567
1/02/2011	6:00:00	42.7	69.6	9120108

31/01/2011	9:00:00	40.4	54.1	257040
31/01/2011	9:15:00	40.2	56	398107
31/01/2011	9:30:00	39.6	57.9	616595
31/01/2011	9:45:00	40.4	59.2	831764
31/01/2011	10:00:00	41.7	65.1	3235937
31/01/2011	10:15:00	43.4	66	3981072
31/01/2011	10:30:00	42.4	66.1	4073803
31/01/2011	10:45:00	40.8	69.3	8511380
31/01/2011	11:00:00	42	69.1	8128305
31/01/2011	11:15:00	46.8	73.8	23988329
31/01/2011	11:30:00	46	73.2	20892961
31/01/2011	11:45:00	45.4	71.5	14125375
31/01/2011	12:00:00	45.6	74	25118864
31/01/2011	12:15:00	45.3	74.7	29512092
31/01/2011	12:30:00	47.9	74.4	27542287
31/01/2011	12:45:00	50.1	77.5	56234133
31/01/2011	13:00:00	47.5	74.9	30902954
31/01/2011	13:15:00	48.3	77.9	61659500
31/01/2011	13:30:00	47.9	77	50118723
31/01/2011	13:45:00	48.2	74.9	30902954
31/01/2011	14:00:00	48	75.9	38904514
31/01/2011	14:15:00	43.3	73.1	20417379
31/01/2011	14:30:00	45.3	75.4	34673685
31/01/2011	14:45:00	44.7	75.7	37153523
31/01/2011	15:00:00	46.7	76.7	46773514
31/01/2011	15:15:00	43	73	19952623
31/01/2011	15:30:00	44.5	75.4	34673685
31/01/2011	15:45:00	45.1	74.2	26302680
31/01/2011	16:00:00	46.9	75	31622777
31/01/2011	16:15:00	44.4	74.7	29512092
31/01/2011	16:30:00	44.3	74.2	26302680
31/01/2011	16:45:00	44.7	72.8	19054607
31/01/2011	17:00:00	43.1	75.4	34673685
31/01/2011	17:15:00	42.2	70.7	11748976
31/01/2011	17:30:00	43.8	72.7	18620871
31/01/2011	17:45:00	43.9	72.7	18620871
31/01/2011	18:00:00	42.2	70.4	10964782
44		***39.36***		***861452487***
1/02/2011	7:15:00	43.9	73.6	22908677
1/02/2011	7:30:00	43.6	71.7	14791084
1/02/2011	7:45:00	45.3	72	15848932
1/02/2011	8:00:00	44.5	70.3	10715193
1/02/2011	8:15:00	45	70	10000000
1/02/2011	8:30:00	44.4	69.7	9332543
1/02/2011	8:45:00	43.6	68.7	7413102
1/02/2011	9:00:00	43.4	71.8	15135612
1/02/2011	9:15:00	45.4	72.8	19054607
1/02/2011	9:30:00	45.9	76.7	46773514
1/02/2011	9:45:00	46.5	71.8	15135612
1/02/2011	10:00:00	46.9	75.3	33884416
1/02/2011	10:15:00	44.9	74.1	25703958
1/02/2011	10:30:00	44.7	74.7	29512092
1/02/2011	10:45:00	47.1	74.9	30902954
1/02/2011	11:00:00	47.1	76	39810717
1/02/2011	11:15:00	47.1	80.4	109647820
1/02/2011	11:30:00	46.2	74	25118864
1/02/2011	11:45:00	47.5	74.1	25703958
1/02/2011	12:00:00	48.3	76.9	48977882
1/02/2011	12:15:00	52.5	81.1	128824955
1/02/2011	12:30:00	50.3	77.2	52480746
1/02/2011	12:45:00	58.7	80.5	112201845
23		***43.66***		***849879084***
308		31.9		5559447958

1/02/2011	6:15:00	44.1	70.5	11220185
1/02/2011	6:30:00	43.8	69.6	9120108
1/02/2011	6:45:00	43.4	69.6	9120108
1/02/2011	7:00:00	43.6	70.4	10964782
36		***43.7***		***1884836690***
216		28.2		3811908065

Third Monitoring Period

Monitoring Results:

Day Period 0715-1800

Date	Day	$L_{Aeq(day)}$	ABL
Total period		**54.3**	
28/02/2011	Mon	52.6	38.8
1/03/2011	Tue	55.1	49.5
2/03/2011	Wed	49.9	36.7
3/03/2011	Thu	57.1	36.3
4/03/2011	Fri	52.5	35.7
5/03/2011	Sat	54.4	40.5
6/03/2011	Sun		
7/03/2011	Mon		

Evening Period 1815-2200

Date	Day	$L_{Aeq(evening)}$	ABL
Total period		**58.4**	
28/02/2011	Mon	53.3	40.0
1/03/2011	Tue	61.6	44.3
2/03/2011	Wed	50.6	39.6
3/03/2011	Thu	55.9	49.5
4/03/2011	Fri	61.8	41.5
5/03/2011	Sat	56.7	47.3
6/03/2011	Sun		
7/03/2011	Mon		

Night Period 2215-0700

Date	Day	$L_{Aeq(night)}$	ABL
Total period		**51.5**	
28/02/2011	Mon	54.2	39.1
1/03/2011	Tue	45.7	35.3
2/03/2011	Wed	29.6	38.5
3/03/2011	Thu	53.2	41.4
4/03/2011	Fri	50.2	41.9
5/03/2011	Sat	46.3	38.5
6/03/2011	Sun		
7/03/2011	Mon		

GEO Link Data from Rion NL21 logger sn 718

Date	*Time*	*L90*	*Laeq*	*$10^{(L_{Aeq(15\ minute)}/10)}$*
28/02/2011	12:15	52	63.9	2454709
28/02/2011	12:30	52.5	53.3	213796
28/02/2011	12:45	52.1	52.6	181970
28/02/2011	13:00	51.9	52.8	190546
28/02/2011	13:15	51.2	52.7	186209
28/02/2011	13:30	49.5	51.2	131826
28/02/2011	13:45	49.5	52.3	169824
28/02/2011	14:00	41.1	46.2	41687
28/02/2011	14:15	39.4	43	19953
28/02/2011	14:30	39.2	44.9	30903
28/02/2011	14:45	39.7	46	39811
28/02/2011	15:00	38.9	50.2	104713
28/02/2011	15:15	38	44.7	29512
28/02/2011	15:30	37.9	45.9	38905
28/02/2011	15:45	38.9	44.4	27542
28/02/2011	16:00	39	48.3	67608
28/02/2011	16:15	40.5	46	39811
28/02/2011	16:30	40.1	44.4	27542
28/02/2011	16:45	39.8	44.3	26915
28/02/2011	17:00	39.8	51.3	134896
28/02/2011	17:15	38.7	46.4	43652
28/02/2011	17:30	40.9	48.9	77625
28/02/2011	17:45	41.9	47.8	60256
28/02/2011	18:00	41.3	45.4	34674
24		***38.76***		***4374884***
1/03/2011	7:15	51.4	52.7	186209
1/03/2011	7:30	51.2	53.1	204174
1/03/2011	7:45	50.8	52.3	169824
1/03/2011	8:00	50.3	51.4	138038
1/03/2011	8:15	49.8	51	125893
1/03/2011	8:30	49.8	50.8	120226
1/03/2011	8:45	49.8	51.1	128825
1/03/2011	9:00	49.5	50.8	120226
1/03/2011	9:15	49.5	51.3	134896
1/03/2011	9:30	50.3	51.9	154882
1/03/2011	9:45	44.3	48.8	75858
1/03/2011	10:00	43.3	52.6	181970
1/03/2011	10:15	39.5	52.6	181970
1/03/2011	10:30	56.7	57.6	575440
1/03/2011	10:45	56.6	57.1	512861
1/03/2011	11:00	56.4	58.2	660693
1/03/2011	11:15	51.3	57.7	588844
1/03/2011	11:30	49.3	52.5	177828
1/03/2011	11:45	52.1	53.5	223872
1/03/2011	12:00	52.5	54	251189
1/03/2011	12:15	52.5	53	199526
1/03/2011	12:30	52.7	53.4	218776
1/03/2011	12:45	52.7	53.3	213796
1/03/2011	13:00	52.6	53.4	218776
1/03/2011	13:15	52.7	53.4	218776
1/03/2011	13:30	52.9	53.5	223872
1/03/2011	13:45	53.3	54.8	301995
1/03/2011	14:00	55.8	58	630957
1/03/2011	14:15	55.8	56.5	446684
1/03/2011	14:30	56.1	56.8	478630
1/03/2011	14:45	56.4	56.6	457088
1/03/2011	15:00	56.4	57.3	537032
1/03/2011	15:15	56.4	56.7	467735
1/03/2011	15:30	56.1	56.6	457088
1/03/2011	15:45	56.1	56.4	436516
1/03/2011	16:00	55.9	56.4	436516
1/03/2011	16:15	56.2	56.4	436516
1/03/2011	16:30	56.2	56.8	478630
1/03/2011	16:45	55.5	56.3	426580
1/03/2011	17:00	54.9	55.9	389045
1/03/2011	17:15	55.7	56.1	407380
1/03/2011	17:30	55.7	56.1	407380
1/03/2011	17:45	54.9	55.9	389045
1/03/2011	18:00	53.9	54.9	309030
44		***49.5***		***14101089***
2/03/2011	7:15	38.3	46	39811
2/03/2011	7:30	38.8	47.2	52481
2/03/2011	7:45	37	46	39811
2/03/2011	8:00	35.7	45.2	33113
2/03/2011	8:15	37.1	43.1	20417
2/03/2011	8:30	37.2	45.7	37154
2/03/2011	8:45	36.8	44.4	27542
2/03/2011	9:00	36.7	43.8	23988
2/03/2011	9:15	37	46.8	47863
2/03/2011	9:30	36.7	45.5	35481
2/03/2011	9:45	38.5	46.7	46774
2/03/2011	10:00	37.7	46.9	48978
2/03/2011	10:15	35	44.3	26915
2/03/2011	10:30	40.4	50.1	102329
2/03/2011	10:45	39.8	46.3	42658
2/03/2011	11:00	36.6	46.7	46774
2/03/2011	11:15	42.1	51	125893
2/03/2011	11:30	39.9	48.6	72444
2/03/2011	11:45	38.6	48.9	77625
2/03/2011	12:00	38.2	49	79433
2/03/2011	12:15	41.3	49.4	87096
2/03/2011	12:30	40.3	47.5	56234
2/03/2011	12:45	38.6	46.8	47863
2/03/2011	13:00	38.1	48.6	72444
2/03/2011	13:15	38.6	53.3	213796
2/03/2011	13:30	39.1	47.5	56234
2/03/2011	13:45	39.8	49.7	93325
2/03/2011	14:00	40.5	48.5	70795
2/03/2011	14:15	40.2	49.5	89125
2/03/2011	14:30	42	47.4	54954
2/03/2011	14:45	42.4	48.4	69183
2/03/2011	15:00	41.5	47.5	56234
2/03/2011	15:15	37.8	46.5	44668
2/03/2011	15:30	40.9	51.7	147911
2/03/2011	15:45	44	53	199526
2/03/2011	16:00	54.8	61.1	1288250
2/03/2011	16:15	42.5	50.3	107152
2/03/2011	16:30	39.3	46.6	45709
2/03/2011	16:45	37.6	45	31623
2/03/2011	17:00	38.8	44.9	30903
2/03/2011	17:15	39.4	51.5	141254
2/03/2011	17:30	41.2	49.5	89125
2/03/2011	17:45	42.6	49.7	93325
2/03/2011	18:00	44.1	51.1	128825

Date	Time	LA90	LAeq	$10^{(L_{Aeq(15\ minute)}/10)}$
28/02/2011	18:15	40.9	45.9	38905
28/02/2011	18:30	39.6	45.5	35481
28/02/2011	18:45	42.9	47.1	51286
28/02/2011	19:00	40.5	45.3	33884
28/02/2011	19:15	41.1	45.7	37154
28/02/2011	19:30	40.1	52.2	165959
28/02/2011	19:45	39.8	51.1	128825
28/02/2011	20:00	44.3	54	251189
28/02/2011	20:15	52.7	55.3	338844
28/02/2011	20:30	52.9	55.2	331131
28/02/2011	20:45	53.5	55.4	346737
28/02/2011	21:00	52.8	55	316228
28/02/2011	21:15	52.6	55.2	331131
28/02/2011	21:30	50.4	54.7	295121
28/02/2011	21:45	48.9	54.8	301995
28/02/2011	22:00	52.7	56	398107
16		***39.95***		***3401977***
1/03/2011	18:15	53.8	54.8	301995
1/03/2011	18:30	54.4	55.1	323594
1/03/2011	18:45	55.5	56.2	416869
1/03/2011	19:00	55.3	61.7	1479108
1/03/2011	19:15	64.3	71.6	14454398
1/03/2011	19:30	52.1	64.7	2951209
1/03/2011	19:45	44.3	62.5	1778279
1/03/2011	20:00	41.1	53.3	213796
1/03/2011	20:15	44.3	54.1	257040
1/03/2011	20:30	46.5	52	158489
1/03/2011	20:45	45	48.5	70795
1/03/2011	21:00	47.5	51.2	131826
1/03/2011	21:15	49.2	51.7	147911
1/03/2011	21:30	49.9	51.8	151356
1/03/2011	21:45	45	50.6	114815
1/03/2011	22:00	47.3	51.4	138038
16		***44.3***		***23089519***
2/03/2011	18:15	39.7	49.4	87096
2/03/2011	18:30	41.2	47.3	53703
2/03/2011	18:45	39.5	46.5	44668
2/03/2011	19:00	38.7	45.8	38019
2/03/2011	19:15	40.6	48.6	72444
2/03/2011	19:30	40.3	48.2	66069
2/03/2011	19:45	43.1	47.1	51286
2/03/2011	20:00	40.8	46.8	47863
2/03/2011	20:15	40.2	49.1	81283
2/03/2011	20:30	48.6	57.4	549541
2/03/2011	20:45	42.2	52	158489
2/03/2011	21:00	43	45.7	37154
2/03/2011	21:15	44.8	50.2	104713
2/03/2011	21:30	47.5	51.9	154882
2/03/2011	21:45	49.2	51.7	147911
2/03/2011	22:00	49.7	51.2	131826
16		***39.6***		***1826947***
3/03/2011	18:15	48.9	54.2	263027
3/03/2011	18:30	49.1	52.6	181970
3/03/2011	18:45	49.8	53.2	208930
3/03/2011	19:00	51.3	55.4	346737
3/03/2011	19:15	51.8	55.9	389045
3/03/2011	19:30	51.9	59.4	870964
3/03/2011	19:45	53.3	55.6	363078
3/03/2011	20:00	55	56.4	436516
3/03/2011	20:15	56.6	59.2	831764
3/03/2011	20:30	52.9	57	501187
3/03/2011	20:45	52.9	55.1	323594
3/03/2011	21:00	52.7	55.2	331131
3/03/2011	21:15	52.6	54.4	275423
3/03/2011	21:30	52.9	54.5	281838
3/03/2011	21:45	52.9	54.2	263027
3/03/2011	22:00	53.1	54.9	309030
16		***49.45***		***6177259***
4/03/2011	18:15	38.4	45.4	34674
4/03/2011	18:30	40.1	50.1	102329
4/03/2011	18:45	43.3	52.8	190546
4/03/2011	19:00	42.8	59.8	954993
4/03/2011	19:15	44.4	72.1	16218101
4/03/2011	19:30	47.8	55.3	338844
4/03/2011	19:45	51	57.1	512861
4/03/2011	20:00	54.1	58.5	707946
4/03/2011	20:15	53.6	58.9	776247
4/03/2011	20:30	55.6	58.2	660693
4/03/2011	20:45	55.1	58.3	676083
4/03/2011	21:00	55.6	58.8	758578
4/03/2011	21:15	55.2	59	794328
4/03/2011	21:30	48.4	57.1	512861
4/03/2011	21:45	51.6	57.6	575440
4/03/2011	22:00	53.9	58.1	645654
16		***41.45***		***24460179***
5/03/2011	18:15	46.9	66.6	4570882
5/03/2011	18:30	47.6	51.2	131826
5/03/2011	18:45	48.5	54.3	269153
5/03/2011	19:00	48.6	53.6	229087
5/03/2011	19:15	48.9	51.7	147911
5/03/2011	19:30	48.5	55.5	354813
5/03/2011	19:45	49.6	53.1	204174
5/03/2011	20:00	49.9	52.4	173780
5/03/2011	20:15	50.2	53.2	208930
5/03/2011	20:30	51.1	53.8	239883
5/03/2011	20:45	51.1	53.3	213796
5/03/2011	21:00	51.1	53.3	213796
5/03/2011	21:15	49.1	52.9	194984
5/03/2011	21:30	49.7	52.5	177828
5/03/2011	21:45	46	50	100000
5/03/2011	22:00	47.8	50.5	112202
16		***47.25***		***7543045***
96		38.4		66498926
6/03/2011	18:15	58.7	60	1000000
6/03/2011	18:30	58.9	60.1	1023293
6/03/2011	18:45	58.7	60.1	1023293
6/03/2011	19:00	58.6	73	19952623
6/03/2011	19:15	58.7	60.1	1023293
6/03/2011	19:30	58.5	59.9	977237
6/03/2011	19:45	57.4	58.3	676083
6/03/2011	20:00	57.9	58.4	691831
6/03/2011	20:15	58.9	60	1000000
6/03/2011	20:30	58.7	59.3	851138
6/03/2011	20:45	58.6	58.9	776247

Date	Time	LA90	Laeq	$10^{(L_{Aeq(15\ mir}$
28/02/2011	22:15	49.3	55.3	338844
28/02/2011	22:30	41.2	52.6	181970
28/02/2011	22:45	52.4	54.6	288403
28/02/2011	23:00	43.9	54.1	257040
28/02/2011	23:15	51	53.6	229087
28/02/2011	23:30	44.9	51.7	147911
28/02/2011	23:45	51.3	54.5	281838
1/03/2011	0:00	39.2	53	199526
1/03/2011	0:15	38.1	52.4	173780
1/03/2011	0:30	50.1	53.7	234423
1/03/2011	0:45	47.9	53.6	229087
1/03/2011	1:00	38.9	53.3	213796
1/03/2011	1:15	41.1	53.8	239883
1/03/2011	1:30	44.2	53.7	234423
1/03/2011	1:45	39	54.4	275423
1/03/2011	2:00	44.9	56.1	407380
1/03/2011	2:15	53.3	56.5	446684
1/03/2011	2:30	52	56.3	426580
1/03/2011	2:45	38.9	54.9	309030
1/03/2011	3:00	47.1	53.6	229087
1/03/2011	3:15	52.5	55.3	338844
1/03/2011	3:30	51.8	55.2	331131
1/03/2011	3:45	51	54.9	309030
1/03/2011	4:00	52	55.2	331131
1/03/2011	4:15	43.3	51.3	134896
1/03/2011	4:30	42.9	47.6	57544
1/03/2011	4:45	42	44.6	28840
1/03/2011	5:00	40.3	44.8	30200
1/03/2011	5:15	41.5	53	199526
1/03/2011	5:30	51	54.8	301995
1/03/2011	5:45	49.6	54.8	301995
1/03/2011	6:00	48.4	55.1	323594
1/03/2011	6:15	52.6	56.1	407380
1/03/2011	6:30	53.6	56.5	446684
1/03/2011	6:45	51.1	56.8	478630
1/03/2011	7:00	51	52.8	190546
36		***39.1***		***9556160***
1/03/2011	22:15	48.5	51.7	147911
1/03/2011	22:30	46.5	50	100000
1/03/2011	22:45	45.8	49.3	85114
1/03/2011	23:00	38	45.2	33113
1/03/2011	23:15	38.1	38.9	7762
1/03/2011	23:30	37.8	38.9	7762
1/03/2011	23:45	37.6	51.9	154882
2/03/2011	0:00	38.1	49.4	87096
2/03/2011	0:15	38.2	46.9	48978
2/03/2011	0:30	38.2	46.6	45709
2/03/2011	0:45	35.5	40.5	11220
2/03/2011	1:00	35.6	37.7	5888
2/03/2011	1:15	35.5	37.7	5888
2/03/2011	1:30	36	40.8	12023
2/03/2011	1:45	35.2	37	5012
2/03/2011	2:00	35.2	37.2	5248
2/03/2011	2:15	35.4	36.7	4677
2/03/2011	2:30	35.3	36.2	4169
2/03/2011	2:45	35.7	45.4	34674
2/03/2011	3:00	35.7	37.2	5248
2/03/2011	3:15	35.6	36.9	4898
2/03/2011	3:30	35.2	37.7	5888
2/03/2011	3:45	34.8	35.8	3802
2/03/2011	4:00	35.3	37.4	5495
2/03/2011	4:15	36.6	38.1	6457
2/03/2011	4:30	36.1	37.4	5495
2/03/2011	4:45	36.5	41.3	13490
2/03/2011	5:00	36.9	39.7	9333
2/03/2011	5:15	37.2	41	12589
2/03/2011	5:30	37.8	45.5	35481
2/03/2011	5:45	41.6	50.7	117490
2/03/2011	6:00	39.1	50.1	102329
2/03/2011	6:15	39.1	46.4	43652
2/03/2011	6:30	39.9	46.5	44668
2/03/2011	6:45	38.7	45.7	37154
2/03/2011	7:00	38.1	49.4	87096
36		***35.25***		***1347692***
2/03/2011	22:15	50.3	52.2	165959
2/03/2011	22:30	50.7	51.8	151356
2/03/2011	22:45	48.6	49.9	97724
2/03/2011	23:00	46.5	47.5	56234
2/03/2011	23:15	46.6	47.9	61660
2/03/2011	23:30	47.3	48.7	74131
2/03/2011	23:45	47.5	49.2	83176
3/03/2011	0:00	48.1	49.5	89125
3/03/2011	0:15	48.8	50.1	102329
3/03/2011	0:30	48.8	50.3	107152
3/03/2011	0:45	50.4	51.7	147911
3/03/2011	1:00	50.6	51.8	151356
3/03/2011	1:15	51	52.7	186209
3/03/2011	1:30	52.4	53.4	218776
3/03/2011	1:45	50.1	51.6	144544
3/03/2011	2:00	50.4	51.6	144544
3/03/2011	2:15	48.8	50.6	114815
3/03/2011	2:30	48.4	50	100000
3/03/2011	2:45	49.6	51.1	128825
3/03/2011	3:00	48.9	51.2	131826
3/03/2011	3:15	48.1	52	158489
3/03/2011	3:30	44.7	47.9	61660
3/03/2011	3:45	47.5	49.8	95499
3/03/2011	4:00	49.7	52	158489
3/03/2011	4:15	49.3	50.7	117490
3/03/2011	4:30	51.2	53.3	213796
3/03/2011	4:45	51.6	53.1	204174
3/03/2011	5:00	53.5	55	316228
3/03/2011	5:15	54.7	57.8	602560
3/03/2011	5:30	50.8	53.1	204174
3/03/2011	5:45	46.7	49.2	83176
3/03/2011	6:00	47.8	49.9	97724
3/03/2011	6:15	44.1	51	125893
3/03/2011	6:30	44.6	55.6	363078
3/03/2011	6:45	41.7	53.1	204174
3/03/2011	7:00	38.5	45.2	33113
36		***44.65***		***5497368***
3/03/2011	22:15	52.7	83.9	245470892
3/03/2011	22:30	53.2	54.6	288403
3/03/2011	22:45	52.6	54.1	257040

44		***36.73***		***4343037***
3/03/2011	7:15	39.4	53.6	229087
3/03/2011	7:30	40.2	51.5	141254
3/03/2011	7:45	37.5	44.3	26915
3/03/2011	8:00	37.4	49.4	87096
3/03/2011	8:15	38.5	47.1	51286
3/03/2011	8:30	40.5	44.2	26303
3/03/2011	8:45	40.7	46.1	40738
3/03/2011	9:00	39.5	48.7	74131
3/03/2011	9:15	36.9	45.4	34674
3/03/2011	9:30	36.7	48.2	66069
3/03/2011	9:45	36.4	50	100000
3/03/2011	10:00	37.3	44.5	28184
3/03/2011	10:15	36.5	45.9	38905
3/03/2011	10:30	36.3	47.4	54954
3/03/2011	10:45	36	47.6	57544
3/03/2011	11:00	35.8	47	50119
3/03/2011	11:15	36	45.9	38905
3/03/2011	11:30	35.7	43.3	21380
3/03/2011	11:45	36.8	44.6	28840
3/03/2011	12:00	37.2	47.6	57544
3/03/2011	12:15	37	48.2	66069
3/03/2011	12:30	37.8	44.5	28184
3/03/2011	12:45	37.5	45	31623
3/03/2011	13:00	37.7	53.1	204174
3/03/2011	13:15	38.7	46.5	44668
3/03/2011	13:30	40.2	51.5	141254
3/03/2011	13:45	38.6	47.2	52481
3/03/2011	14:00	37.7	45.8	38019
3/03/2011	14:15	37.9	45.6	36308
3/03/2011	14:30	38.4	65.3	3388442
3/03/2011	14:45	38.1	47.1	51286
3/03/2011	15:00	37.7	46.2	41687
3/03/2011	15:15	37	45.2	33113
3/03/2011	15:30	37.8	47.1	51286
3/03/2011	15:45	41.5	47.6	57544
3/03/2011	16:00	37.9	71.4	13803843
3/03/2011	16:15	36.7	44.4	27542
3/03/2011	16:30	37.6	43.3	21380
3/03/2011	16:45	39.3	44.3	26915
3/03/2011	17:00	39.9	45.4	34674
3/03/2011	17:15	42.2	49.9	97724
3/03/2011	17:30	48.3	62.3	1698244
3/03/2011	17:45	47.4	60.7	1174898
3/03/2011	18:00	48.6	55.9	389045
44		***36.33***		***22794328***
4/03/2011	7:15	36.8	44.9	30903
4/03/2011	7:30	35.8	45.8	38019
4/03/2011	7:45	36.7	45.3	33884
4/03/2011	8:00	35.7	45	31623
4/03/2011	8:15	35.7	44.1	25704
4/03/2011	8:30	35.2	44	25119
4/03/2011	8:45	36.5	45.9	38905
4/03/2011	9:00	35.8	48.9	77625
4/03/2011	9:15	37.3	50.4	109648
4/03/2011	9:30	43.9	49.4	87096
4/03/2011	9:45	36.6	49	79433
4/03/2011	10:00	36.7	46.7	46774
4/03/2011	10:15	35.5	47.5	56234
4/03/2011	10:30	36.8	45.6	36308
4/03/2011	10:45	35.6	45.9	38905
4/03/2011	11:00	35.9	51.6	144544
4/03/2011	11:15	37	44.3	26915
4/03/2011	11:30	37.5	48.5	70795
4/03/2011	11:45	37.3	52.6	181970
4/03/2011	12:00	37.7	47	50119
4/03/2011	12:15	40	56.2	416869
4/03/2011	12:30	37.8	54.7	295121
4/03/2011	12:45	37.2	46.7	46774
4/03/2011	13:00	38.2	48.6	72444
4/03/2011	13:15	36.6	46.4	43652
4/03/2011	13:30	35.8	46.5	44668
4/03/2011	13:45	36.6	45.3	33884
4/03/2011	14:00	37.4	44.4	27542
4/03/2011	14:15	37.5	45.7	37154
4/03/2011	14:30	37.2	57.5	562341
4/03/2011	14:45	35.7	47.4	54954
4/03/2011	15:00	39.9	47.9	61660
4/03/2011	15:15	36.4	54.5	281838
4/03/2011	15:30	37.6	66.3	4265795
4/03/2011	15:45	37.9	43.8	23988
4/03/2011	16:00	35.7	44.7	29512
4/03/2011	16:15	36.3	48.6	72444
4/03/2011	16:30	36.7	42.9	19498
4/03/2011	16:45	36.9	44.2	26303
4/03/2011	17:00	37.6	46.3	42658
4/03/2011	17:15	36	43.9	24547
4/03/2011	17:30	36.6	47	50119
4/03/2011	17:45	38	46.6	45709
4/03/2011	18:00	39.7	46.7	46774
44		***35.7***		***7856768***
5/03/2011	7:15	44.6	57.5	562341
5/03/2011	7:30	54.3	63.4	2187762
5/03/2011	7:45	47.1	59.2	831764
5/03/2011	8:00	41.5	55	316228
5/03/2011	8:15	50.2	57.2	524807
5/03/2011	8:30	49.8	54.9	309030
5/03/2011	8:45	47.3	53.4	218776
5/03/2011	9:00	45.5	55.4	346737
5/03/2011	9:15	43.6	49.6	91201
5/03/2011	9:30	47.9	57.1	512861
5/03/2011	9:45	45.1	54.3	269153
5/03/2011	10:00	47.4	52.2	165959
5/03/2011	10:15	46.2	53.2	208930
5/03/2011	10:30	46.7	60	1000000
5/03/2011	10:45	44.4	53.4	218776
5/03/2011	11:00	40.9	47.5	56234
5/03/2011	11:15	40.8	48.5	70795
5/03/2011	11:30	39	47.4	54954
5/03/2011	11:45	39.9	51.4	138038
5/03/2011	12:00	43.8	49.3	85114
5/03/2011	12:15	42.5	48.6	72444
5/03/2011	12:30	42.2	49.8	95499
5/03/2011	12:45	41.1	62.7	1862087
5/03/2011	13:00	40.1	48.5	70795
5/03/2011	13:15	40.5	48.3	67608
5/03/2011	13:30	39.1	47.1	51286
5/03/2011	13:45	40.5	46.8	47863
5/03/2011	14:00	42.6	50.5	112202
5/03/2011	14:15	42.2	49.6	91201
5/03/2011	14:30	42.6	48.9	77625
5/03/2011	14:45	45.1	50.9	123027
5/03/2011	15:00	41.9	50.6	114815
5/03/2011	15:15	41.4	47.5	56234
5/03/2011	15:30	42.2	48.2	66069
5/03/2011	15:45	42	50.3	107152
5/03/2011	16:00	44.1	50.7	117490
5/03/2011	16:15	46	50.5	112202
5/03/2011	16:30	44.4	51.2	131826
5/03/2011	16:45	43.9	50	100000
5/03/2011	17:00	44.7	49	79433
5/03/2011	17:15	45.6	48.7	74131
6/03/2011	21:00	58.5	58.9	776247
6/03/2011	21:15	58.6	58.9	776247
6/03/2011	21:30	58.5	58.9	776247
6/03/2011	21:45	58.3	58.7	741310
6/03/2011	22:00	57.9	58.4	691831
16		57.9		32756921
112		38.4		99255847
3/03/2011	23:00	51	53.3	213796
3/03/2011	23:15	52.6	54.6	288403
3/03/2011	23:30	55.3	56.2	416869
3/03/2011	23:45	55.3	56.2	416869
4/03/2011	0:00	51	53.9	245471
4/03/2011	0:15	51.1	53.8	239883
4/03/2011	0:30	53.9	54.9	309030
4/03/2011	0:45	48.2	51.1	128825
4/03/2011	1:00	48.7	51.2	131826
4/03/2011	1:15	48.4	52.8	190546
4/03/2011	1:30	51.6	57.8	602560
4/03/2011	1:45	49.8	51.3	134896
4/03/2011	2:00	50.4	55.8	380189
4/03/2011	2:15	45.3	53.5	223872
4/03/2011	2:30	44.9	49.2	83176
4/03/2011	2:45	43.4	47.3	53703
4/03/2011	3:00	42.2	48.6	72444
4/03/2011	3:15	43.7	50.7	117490
4/03/2011	3:30	51.6	54.3	269153
4/03/2011	3:45	41.9	52.8	190546
4/03/2011	4:00	41.1	47.6	57544
4/03/2011	4:15	41.9	50	100000
4/03/2011	4:30	41.4	50.5	112202
4/03/2011	4:45	42.1	51.7	147911
4/03/2011	5:00	44.5	54.9	309030
4/03/2011	5:15	44	54.5	281838
4/03/2011	5:30	41.5	53	199526
4/03/2011	5:45	42.1	51.5	141254
4/03/2011	6:00	42.6	52.4	173780
4/03/2011	6:15	44.8	53.2	208930
4/03/2011	6:30	43.9	53.4	218776
4/03/2011	6:45	38.8	46.6	45709
4/03/2011	7:00	38	45.3	33884
35		***41.44***		***7285375***
4/03/2011	22:15	53.8	58	630957
4/03/2011	22:30	44.7	55.8	380189
4/03/2011	22:45	43.4	48	63096
4/03/2011	23:00	42.4	46.3	42658
4/03/2011	23:15	42.8	47.3	53703
4/03/2011	23:30	42.5	53.4	218776
4/03/2011	23:45	43.2	53.6	229087
5/03/2011	0:00	43.8	50.2	104713
5/03/2011	0:15	43.7	46.4	43652
5/03/2011	0:30	42.9	47	50119
5/03/2011	0:45	45.1	49.1	81283
5/03/2011	1:00	44.7	51.7	147911
5/03/2011	1:15	43.9	47.9	61660
5/03/2011	1:30	42.7	45.5	35481
5/03/2011	1:45	43.6	46.8	47863
5/03/2011	2:00	43.6	46.6	45709
5/03/2011	2:15	42.8	46	39811
5/03/2011	2:30	42.1	44.5	28184
5/03/2011	2:45	41.9	45.3	33884
5/03/2011	3:00	42.6	45.9	38905
5/03/2011	3:15	41.8	45	31623
5/03/2011	3:30	41.5	45.5	35481
5/03/2011	3:45	41.4	46	39811
5/03/2011	4:00	40	44.2	26303
5/03/2011	4:15	42.1	46	39811
5/03/2011	4:30	42.9	49.2	83176
5/03/2011	4:45	42	52	158489
5/03/2011	5:00	43.4	47	50119
5/03/2011	5:15	43.4	47.9	61660
5/03/2011	5:30	45.4	50	100000
5/03/2011	5:45	45.9	50.7	117490
5/03/2011	6:00	45.8	52.8	190546
5/03/2011	6:15	45.4	52.5	177828
5/03/2011	6:30	44.2	50.4	109648
5/03/2011	6:45	44.7	48.6	72444
5/03/2011	7:00	42.9	48.2	66069
36		***41.85***		***3738136***
5/03/2011	22:15	46.7	49.8	95499
5/03/2011	22:30	46.5	48.8	75858
5/03/2011	22:45	45.8	48.7	74131
5/03/2011	23:00	43.4	46.4	43652
5/03/2011	23:15	42.5	44.9	30903
5/03/2011	23:30	43.5	45.9	38905
5/03/2011	23:45	43.6	47.2	52481
6/03/2011	0:00	40.9	45.7	37154
6/03/2011	0:15	43.2	46.3	42658
6/03/2011	0:30	43.6	46.7	46774
6/03/2011	0:45	42.7	46.6	45709
6/03/2011	1:00	42	46.3	42658
6/03/2011	1:15	39.1	43.9	24547
6/03/2011	1:30	40.5	43.9	24547
6/03/2011	1:45	40	43.1	20417
6/03/2011	2:00	38.7	41.5	14125
6/03/2011	2:15	39.8	44.5	28184
6/03/2011	2:30	42.6	47.2	52481
6/03/2011	2:45	40.4	45.5	35481
6/03/2011	3:00	41.6	47.1	51286
6/03/2011	3:15	37.9	42.3	16982
6/03/2011	3:30	38.1	41.4	13804
6/03/2011	3:45	38.6	43.2	20893
6/03/2011	4:00	38.4	42.7	18621
6/03/2011	4:15	41.9	50.8	120226
25		***38.48***		***1067975***
204		34.8		28492706
6/03/2011	4:30	48.5	49.5	89125
6/03/2011	4:45	49.5	50.6	114815
6/03/2011	5:00	49.3	49.6	91201
6/03/2011	5:15	49.6	49.9	97724
6/03/2011	5:30	50.4	51.3	134896
6/03/2011	5:45	52.9	53.6	229087
6/03/2011	6:00	54.4	55.2	331131
6/03/2011	6:15	55.7	56.3	426580
6/03/2011	6:30	56.8	57.4	549541
6/03/2011	6:45	57.1	57.5	562341
6/03/2011	7:00	57.1	57.4	549541
38		38.456		33804638
6/03/2011	22:15	58.2	58.5	707946
6/03/2011	22:30	58.1	58.3	676083
6/03/2011	22:45	57.9	58.1	645654
6/03/2011	23:00	58.1	58.3	676083
6/03/2011	23:15	58.2	58.3	676083
6/03/2011	23:30	58.1	58.2	660693
6/03/2011	23:45	58	58.2	660693
7/03/2011	0:00	58.1	58.3	676083
7/03/2011	0:15	58.2	58.4	691831
7/03/2011	0:30	58.3	58.5	707946
7/03/2011	0:45	58.1	58.9	776247
7/03/2011	1:00	58.5	58.8	758578
7/03/2011	1:15	58.3	58.7	741310
7/03/2011	1:30	58.5	58.8	758578
7/03/2011	1:45	58.4	58.6	724436
7/03/2011	2:00	58.5	58.7	741310
7/03/2011	2:15	58.4	58.5	707946
7/03/2011	2:30	58.3	58.4	691831
7/03/2011	2:45	58.3	58.4	691831
7/03/2011	3:00	58.1	58.3	676083
7/03/2011	3:15	58.3	59	794328

5/03/2011	17:30	46.1	50.4	109648
5/03/2011	17:45	46.4	50.3	107152
5/03/2011	18:00	46.1	49.7	93325
44		***40.5***		***12110574***
244		35.00		65580679

6/03/2011	7:15	57.2	57.6	575440
6/03/2011	7:30	57.2	57.6	575440
6/03/2011	7:45	57	57.5	562341
6/03/2011	8:00	57	57.4	549541
6/03/2011	8:15	57.1	57.7	588844
6/03/2011	8:30	57.2	57.6	575440
6/03/2011	8:45	57.3	58	630957
6/03/2011	9:00	57	57.9	616595
6/03/2011	9:15	57.2	57.8	602560
6/03/2011	9:30	57.3	59	794328
6/03/2011	9:45	57.2	57.8	602560
6/03/2011	10:00	57	57.3	537032
6/03/2011	10:15	56.9	57.4	549541
6/03/2011	10:30	56.4	57.1	512861
6/03/2011	10:45	56.4	57.1	512861
6/03/2011	11:00	56.4	56.9	489779
6/03/2011	11:15	56.5	56.9	489779
6/03/2011	11:30	56.1	56.6	457088
6/03/2011	11:45	56	57	501187
6/03/2011	12:00	56.2	57	501187
6/03/2011	12:15	55.7	56.6	457088
6/03/2011	12:30	56.5	57.4	549541
6/03/2011	12:45	55.8	56.6	457088
6/03/2011	13:00	55.4	56.7	467735
6/03/2011	13:15	55.4	57.4	549541
6/03/2011	13:30	57	57.6	575440
6/03/2011	13:45	57	57.8	602560
6/03/2011	14:00	57.4	58.2	660693
6/03/2011	14:15	57.1	57.8	602560
6/03/2011	14:30	57.1	57.8	602560
6/03/2011	14:45	57.6	59.2	831764
6/03/2011	15:00	58.5	59	794328
6/03/2011	15:15	58.5	58.8	758578
6/03/2011	15:30	58.4	58.5	707946
6/03/2011	15:45	58.1	58.3	676083
6/03/2011	16:00	57.9	58.2	660693
6/03/2011	16:15	57.8	58.1	645654
6/03/2011	16:30	58.1	59.1	812831
6/03/2011	16:45	58.3	58.6	724436
6/03/2011	17:00	58.3	58.9	776247
6/03/2011	17:15	58.1	58.7	741310
6/03/2011	17:30	58.1	58.3	676083
6/03/2011	17:45	57.8	58.2	660693
6/03/2011	18:00	57.8	58.6	724436
44		56.03		26941249
7/03/2011	7:15	56.7	57.1	512861
7/03/2011	7:30	57	57.3	537032
7/03/2011	7:45	57	57.5	562341
7/03/2011	8:00	57	57.6	575440
7/03/2011	8:15	57.4	58	630957
7/03/2011	8:30	56.8	57.4	549541
7/03/2011	8:45	56.4	57	501187
7/03/2011	9:00	56.2	56.7	467735
7/03/2011	9:15	56.5	57.1	512861
7/03/2011	9:30	57	57.7	588844
7/03/2011	9:45	56.6	57.2	524807
7/03/2011	10:00	56	56.5	446684
7/03/2011	10:15	55.5	56.2	416869
7/03/2011	10:30	55.4	55.7	371535
7/03/2011	10:45	55.3	55.7	371535
7/03/2011	11:00	55.5	55.8	380189
7/03/2011	11:15	55.5	56	398107
7/03/2011	11:30	55.9	56.3	426580
7/03/2011	11:45	55.8	56.3	426580
7/03/2011	12:00	55.8	56.2	416869
20		55.49		9618556

7/03/2011	3:30	58.7	59.3	851138
7/03/2011	3:45	58.3	58.9	776247
7/03/2011	4:00	58.3	58.9	776247
7/03/2011	4:15	58.6	58.8	758578
7/03/2011	4:30	57.3	58.5	707946
7/03/2011	4:45	56.6	57.3	537032
7/03/2011	5:00	56.6	56.9	489779
7/03/2011	5:15	56	56.5	446684
7/03/2011	5:30	55.8	56	398107
7/03/2011	5:45	55.9	56.1	407380
7/03/2011	6:00	56	56.2	416869
7/03/2011	6:15	56.1	56.6	457088
7/03/2011	6:30	56.1	56.7	467735
7/03/2011	6:45	56.4	57	501187
7/03/2011	7:00	56.7	57	501187
36		56.05		23334778
253		34.8		84564147