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TO **Euan Kellie**
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BDP.

CC

FROM **Paul Edwards**

DATE 29/03/12
FILE REF P2004588/(COR)U001

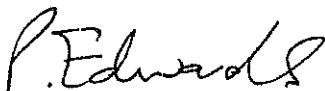
SUBJECT **NORTHCOTE STUD FARM**
Noise impact assessment report: P2004588/(REP)U001, Rev: B

Euan,

The noise measurements used as part of our noise impact assessment were undertaken in August 2011.

We are not aware of any changes to site conditions or proposals in the intervening period which would materially change the recommendations within our assessment report.

Yours sincerely
for BDP Acoustics



Paul Edwards
Senior Acoustic Consultant
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Northcote Stud Farm

Noise Impact Assessment

Doc No: P2004588/(REP)U001
Issue: Final
Rev: C
Date: April 2012

Prepared for:

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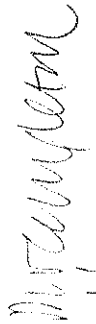
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1 Introduction

BDP Acoustics has been commissioned by Mr & Mrs Mizon to assess the potential acoustic impact of proposed outdoor show jumping competitions at Northcote Stud Farm, Northcote Road, Langho, Blackburn BB6 8BE ('the site').

This report has been prepared to accompany an application for the discharge of a Unilateral Undertaking dated 20 March 2007 offered by Mr and Mrs Mizon to Ribbles Valley Borough Council in connection with planning permission ref. 3/2007/0029 granted on 4 April 2007 ("the 2007 planning permission"), which permission authorised the use of the site as a riding centre. Paragraph 2.1 of the Schedule to the Undertaking contains the following restriction:

Not to allow the indoor and outdoor riding arenas the subject of the Development to be used for competitive events gymkhanas or other such events other than internal activities using the centre's own residential horses.

The application for the discharge of the above-mentioned Unilateral Undertaking is accompanied by an application for the removal of condition 12 of the 2007 planning permission, which condition requires the 2007 planning permission to be implemented in accordance with the Unilateral Undertaking.

In summary this report addresses the following issues:

- The current noise climate at the site;
- The likely changes in noise levels due to traffic flows on local roads during events;
- Noise from amplified announcements during proposed events.

2 Noise measurements

2.1 Site and Local Area Description

The site is located adjacent to Northcote Road in Langho.

On the opposite side of Northcote Road is a football field and to the south is Northcote Manor. Northcote Manor operates a restaurant and hotel and is taken as the closest noise sensitive receptor to the outdoor riding arena.

To the south and south-east of the site and Northcote Manor is a large roundabout and the A59.

2.2 Survey Details

Unattended noise level measurements were undertaken continuously between 10:15 hours on Friday 05/08/11 and 23:30 hours on Thursday 11/08/11.

The unattended measurements were supplemented by manned noise measurements between 11:32 and 12:49 hours on Tuesday 09/08/11 during a show jumping clinic at the site. August is within the peak period for such activities. The weather conditions during the manned noise survey were dry with a light breeze.

The readings were taken at a height of approximately 1.5m above the ground in free field positions.

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The noise monitoring locations were as follows:

Position 1 (unattended, long-term monitoring position) – Adjacent to the boundary between the site and Northcote Manor

Position 2 – On Northcote Road opposite the outdoor riding arena

Position 3 – On Northcote Road, near to the boundary between the site and Northcote Manor.

A site plan detailing the measurement positions is shown in Section 2.7.

2.3 Survey Procedure

The instrumentation used during the unattended noise measurements was 1 no. Rion NA-28 Class 1 Sound Level Meter in a suitable weatherproof housing. The instrumentation used during the manned supplementary measurements was 1 no. Rion NA-28 Class 1 Sound Level Meter on a tripod.

The sound level meters were calibrated before and after the surveys using Rion NC-74 calibrator, no drift in level was observed.

A-weighted fast response levels were measured throughout.

Continuous 5 minute measurements were undertaken at the unattended noise monitoring location.

Sample 5 minute measurements were undertaken over 15 minute periods at the manned monitoring locations. 30 minutes of data was collected at each position.

2.4 Description of Noise Climate

The background noise level (L_{A90}), at all positions was controlled distant road traffic noise.

The ambient noise level (L_{Aeq}), at all positions was controlled by road traffic on Northcote Road. Other noise sources included: aircraft, a distant lawnmower, voices from boys playing football on the playing fields.

2.5 Survey Results

Table 1 summarises the results of the spot measurements carried out at noise monitoring Positions 2 and 3.

Detailed noise level data measured during the manned noise survey can be found in Appendix II. Graphs of the noise level data measured during the unattended noise survey can be found in Appendix III.

Table 1: Summary of A-weighted statistical noise levels measured on 09/08/11

Location	Period	$L_{Aeq}(15 \text{ min}), \text{ dB}$	$L_{A90}(5 \text{ min}), \text{ dB}$
Position 2	11:32 – 11:47	64	49 – 50
	12:11 – 12:27	62	50 – 54
Position 3	11:49 – 12:04	64	48 – 50
	12:29 – 12:44	63	49 – 50

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2.6 Comments on Survey Results

From the graphs provided in Appendix III, it can be seen by comparing consecutive days that the daytime noise climate varies very little day-by-day, even during the show jumping clinic on 09/08/11.

The exception to this pattern is Saturday 06/08/11 which shows some significant peaks in noise level, however it is our understanding that there was some atypical police activity on Northcote Road following a traffic collision.

This implies that the use of the outdoor riding arena has little or no affect on the ambient or background noise level at the boundary with Northcote Manor.

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3 Noise Impact Assessment

3.1 Introduction

During the competitive show jumping events which are proposed, changes to the existing noise climate may include increased road traffic noise and announcements through a public address system.

The potential impact of these new noise sources is assessed as follows.

3.2 Road Traffic

During our noise surveys, the noise levels at noise monitoring Positions 1 and 3, i.e. those closest to Northcote Manor were dominated by existing road traffic noise.

A report of future traffic flows has been produced by SK Transport Planning Limited, reference: SK21112_TS03, dated 04/04/12. This report concludes that *'...if competitive events were to operate at the site, there would be no material change to the traffic flows to and from the site over the existing situation.'*

It is therefore expected that there would be no increase in road traffic noise levels during competitive events.

3.3 Public Address System

During competitive events, a public address system may be used to make announcements to the riders and spectators in the vicinity of the outdoor riding arena.

Competitive events would be planned to finish by 19:00 hours, with the competitors and spectators expected to leave the site by 20:00 hours.

3.3.1 Existing background noise level

The lowest background noise level (L_{90}) measured between 19:00-20:00 hours at noise monitoring Position 1 (adjacent to the closest noise sensitive receptor, Northcote Manor), is provided below:

Table 2: Lowest L_{90} measured between the hours of 19:00-20:00 (actual measurement 19:55-20:00 hours, Sunday 07/08/11)

L_{90} (dB) at Octave Band Centre Frequency (Hz)								L_{A90} (dB)
63	125	250	500	1000	2000	4000	8000	
48	39	32	35	37	29	19	16	40

3.3.2 Proposed public address noise limit

There is approximately 75m between the edge of the outdoor riding arena and noise monitoring Position 1 and a further 35m to the closest façade of Northcote Manor.

We propose a public address system noise limit inside Northcote Manor (with the windows open), 10 dB below the lowest existing background noise level (see Table 2) in each octave band. This approach should ensure that the outdoor riding arena public address system is 'inaudible' within Northcote Manor, assuming a conservative 10 dB reduction through an open window.

The above noise limit equates to the following maximum public address noise level in the outdoor riding arena:

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Table 3: Maximum public address noise level within the outdoor riding arena

L_{eq} (dB) at Octave Band Centre Frequency (Hz)								L_{Aeq} (dB)
63	125	250	500	1000	2000	4000	8000	
89	80	73	76	78	70	60	57	80

3.3.3 Recommendations

We offer the following recommendations:

1. Should a public address system be needed during competitive events, it should be limited to a noise level not exceeding the values in Table 3. This is a cumulative noise level from all speakers operating at once.
2. Loudspeakers should be pointed directly into the outdoor riding arena / spectator viewing areas. Pointing loudspeakers away from the outdoor riding arena towards Northcote Manor should be avoided.
3. The public address system should be switched off by 20:00 hours.

4 Conclusions

BDP Acoustics has been commissioned by Mr & Mrs Mizon to assess the potential acoustic impact of proposed outdoor show jumping competitions at Northcote Stud Farm, Northcote Road, Langho, Blackburn BB6 8BE ("the site").

This report has been prepared to accompany an application for the discharge of a Unilateral Undertaking dated 20 March 2007 offered by Mr and Mrs Mizon to Ribbles Valley Borough Council in connection with planning permission ref. 3/2007/0029 granted on 4 April 2007 ("the 2007 planning permission"), which permission authorised the use of the site as a riding centre. Paragraph 2.1 of the Schedule to the Undertaking contains the following restriction:

Not to allow the indoor and outdoor riding arenas the subject of the Development to be used for competitive events gymkhanas or other such events other than internal activities using the centre's own residential horses.

The application for the discharge of the above-mentioned Unilateral Undertaking is accompanied by an application for the removal of condition 12 of the 2007 planning permission, which condition requires the 2007 planning permission to be implemented in accordance with the Unilateral Undertaking.

It can be seen from our continuous noise level measurements that the daytime noise climate varies very little day-by-day, even during the show jumping clinic on 09/08/11.

Taking account of the transport report prepared by SK Transport Planning Limited, this report concludes that there would be no additional impact from road traffic noise during competitive events.

Should a public address system be needed during competitive events, a noise limit is recommended to protect the closest noise sensitive receptors to the site.

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In conclusion, the noise impact of proposed outdoor show jumping competitions at the site, taking account of our recommendations with regard to the possible use of a public address system, would not be expected to have an adverse impact on local amenity. As such, we anticipate no reason to refuse consent for the above-mentioned applications on noise grounds.

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Appendix I – Glossary of Acoustic Terms

A-Weighting

Normal hearing covers the frequency range from about 20Hz to 20kHz but sensitivity is greatest between about 500Hz and 8kHz. The 'A-Weighting' is an electronic filters network incorporated in sound level meters which approximately corresponds to the frequency response of the ear. The unit of measurement of A-weighted sound level is dBA.

Decibel, dB

This is the unit to measure sound. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro-Pascals to 100 Pascals). We therefore use a logarithmic scale to describe sound pressure level, intensities and sound power levels. Subjectively, an increase of 10 dB corresponds to a doubling in the perceived loudness of sound.

Equivalent Continuous Sound Level L_{eq} or L_{Aeq}

The continuous equivalent sound level, L_{Aeq} is a notional sound level. It is the sound level, which, if maintained for a given length of time, would produce the same acoustic energy as a fluctuating noise over the same time period. The A-weighted L_{eq} is widely used to measure any environmental noise which varies considerably with time and is denoted as the L_{Aeq} .

Octave and Third Octave Bands

The human ear is sensitive to sound over a range of approximately 20Hz to 20kHz, and is generally more sensitive to medium and high frequencies than to low frequencies. In order to define the frequency content of a noise, the spectrum is divided into frequency bands, and the sound pressure level is measured in each band. The most commonly used frequency bands are octave bands, in which the mid frequency of each band is twice that of the band below it. (For instance the octave bands above and below the 500Hz octave band are 1kHz and 250Hz respectively). For finer analysis, each octave

band may be split into three one-third octave bands or in some cases, fine frequency bands.

Statistical Level: L_{90} or L_{A90}

Sound pressure level that is exceeded for 90% of the measurement time. Consequently it is indicative of the general background noise level in the absence of any higher level short duration events that occur during the period.

Statistical Level: L_{max} or L_{Amax}

The maximum RMS sound pressure level measured during the measurement period.

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Appendix II – Detailed noise measurement results (Positions 2 and 3)

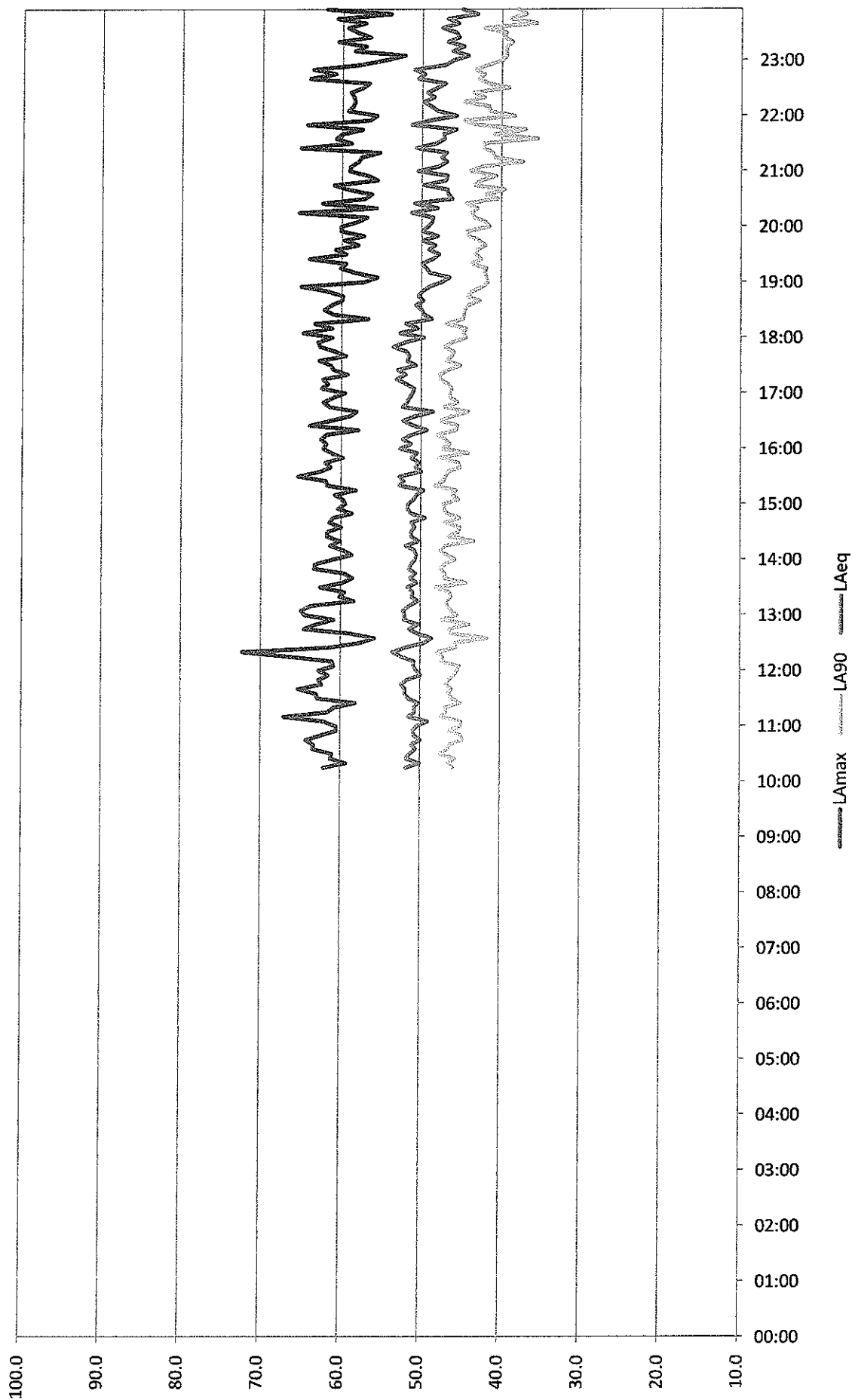
Position	Time (hh:mm)	L _{eq} dB, Octave Band Centre Frequency (Hz)									L ₉₀ dB, Octave Band Centre Frequency (Hz)									L _{Amax} dB
		63	125	250	500	1k	2k	4k	8k	A	63	125	250	500	1k	2k	4k	8k	A	
Position 2 – On Northcote Road opposite the outdoor riding arena	11:32 – 11:37	69.4	62.9	57.8	58.8	61.4	56.0	47.4	40.8	63.9	60.3	53.4	47.3	44.6	46.1	39.4	33.8	29.5	50.0	82.3
	11:37 – 11:42	67.6	61.0	58.2	60.3	61.3	55.9	48.2	41.4	64.1	56.7	49.4	43.7	43.2	45.1	39.6	32.8	28.5	49.7	83.1
	11:42 – 11:47	69.0	58.6	57.4	58.5	61.3	56.0	47.7	40.0	63.8	55.3	47.6	42.4	42.7	45.6	39.1	32.7	29.1	48.6	80.3
	12:11 – 12:16	65.1	66.9	60.3	53.6	57.3	50.8	43.8	36.9	60.3	59.3	62.7	54.1	46.8	47.2	41.8	35.7	29.9	53.8	78.9
	12:16 – 12:21	69.7	65.4	59.6	56.9	59.9	54.5	46.5	39.9	62.7	57.1	54.8	47.9	45.5	46.1	38.7	30.5	26.6	51.1	79.4
	12:22 – 12:27	65.3	62.6	58.5	56.8	60.8	54.7	44.9	36.9	63.0	57.4	52.3	45.8	41.9	44.9	37.8	29.4	23.8	49.5	81.6
Position 3 – On Northcote Road, near to the boundary between the site and Northcote Manor	11:49 – 11:54	67.1	58.7	55.4	56.7	60.9	55.8	46.6	38.9	63.2	53.2	46.1	37.0	40.1	45.3	37.3	29.4	25.6	47.6	80.0
	11:54 – 11:59	68.0	61.9	59.1	60.7	63.1	58.1	49.3	42.0	65.7	55.1	47.0	37.5	42.1	48.1	38.7	28.4	23.3	49.7	82.0
	11:59 – 12:04	61.4	58.8	55.3	56.6	60.9	55.3	44.3	34.6	63.0	55.9	49.0	37.9	40.3	47.2	37.8	27.3	21.7	48.9	79.5
	12:29 – 12:34	65.9	58.7	55.6	56.7	61.3	55.4	46.1	38.7	63.3	57.0	54.4	44.8	41.8	45.8	37.5	30.1	25.0	49.0	80.6
	12:34 – 12:39	65.1	58.4	55.9	57.9	62.0	56.4	47.0	39.7	64.1	55.6	53.3	44.6	42.9	47.8	38.8	28.9	23.5	50.4	80.3
	12:39 – 12:44	65.0	57.8	54.7	56.4	60.2	55.3	46.3	39.7	62.6	56.1	45.6	39.0	43.3	45.7	38.0	34.7	29.9	48.9	79.8

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Appendix III – Graphical noise measurement data (Position 1)

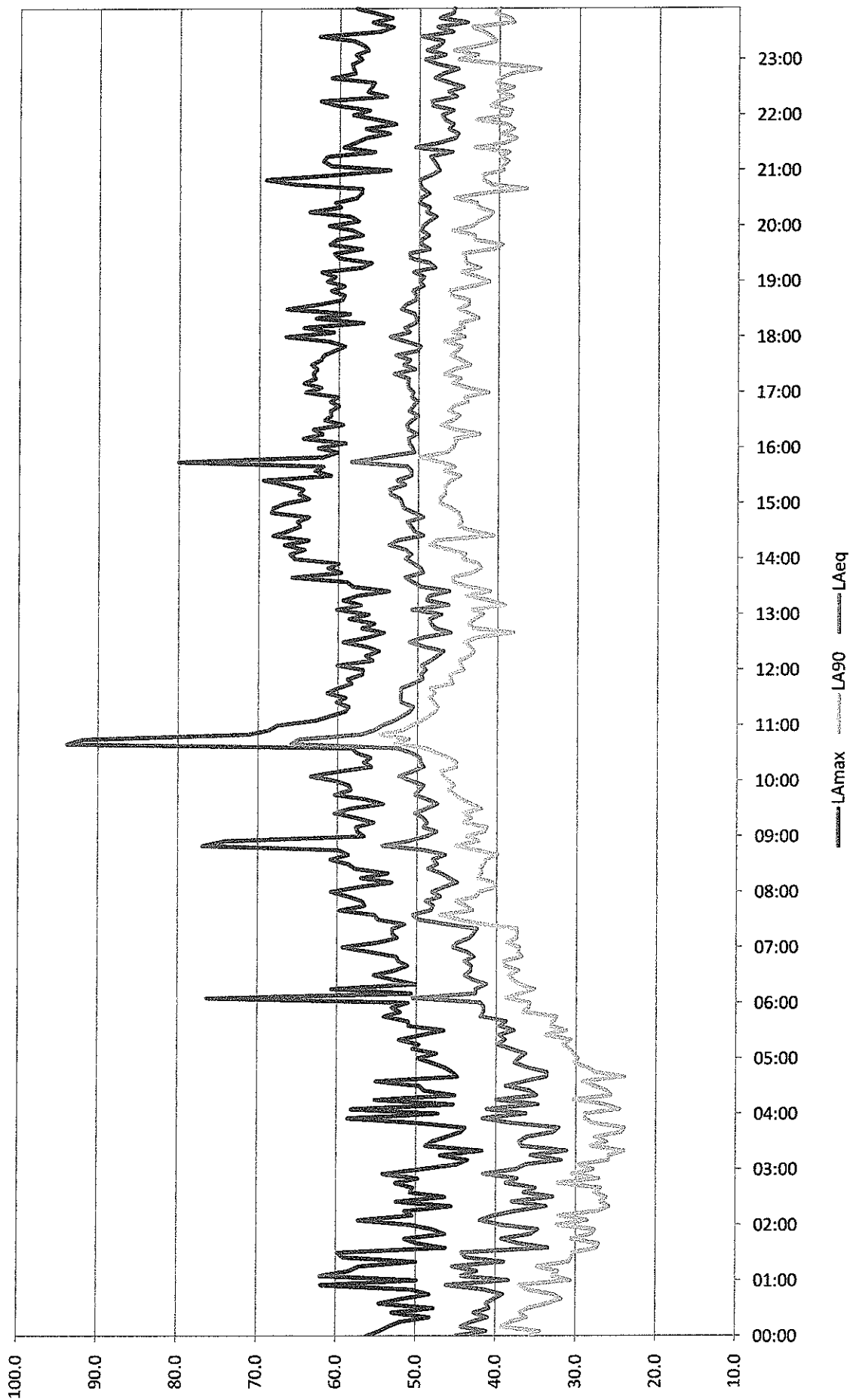
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Northcote Stud Farm, Position 1, Fri 05/08/11



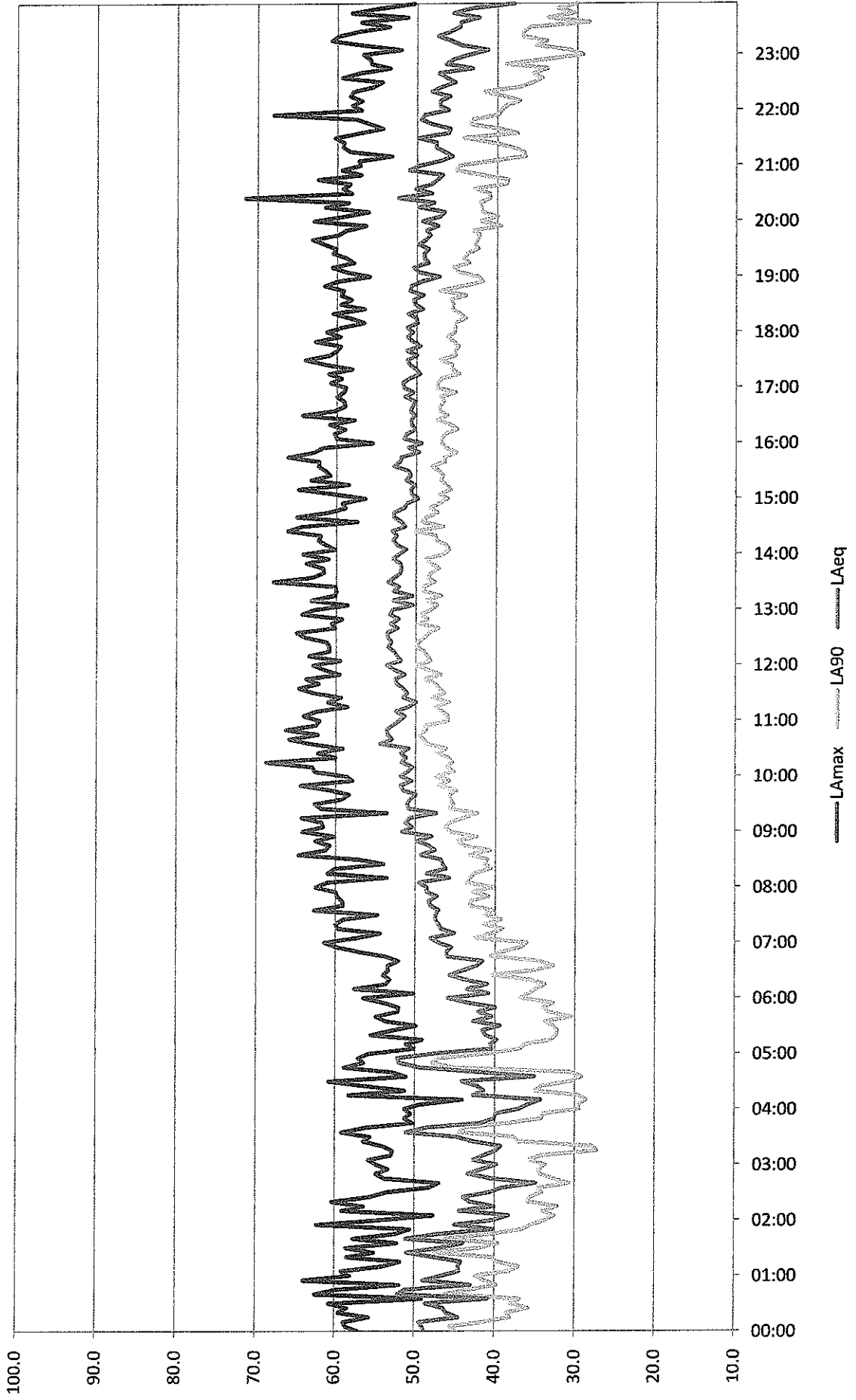
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Northcote Stud Farm, Position 1, Sat 06/08/11



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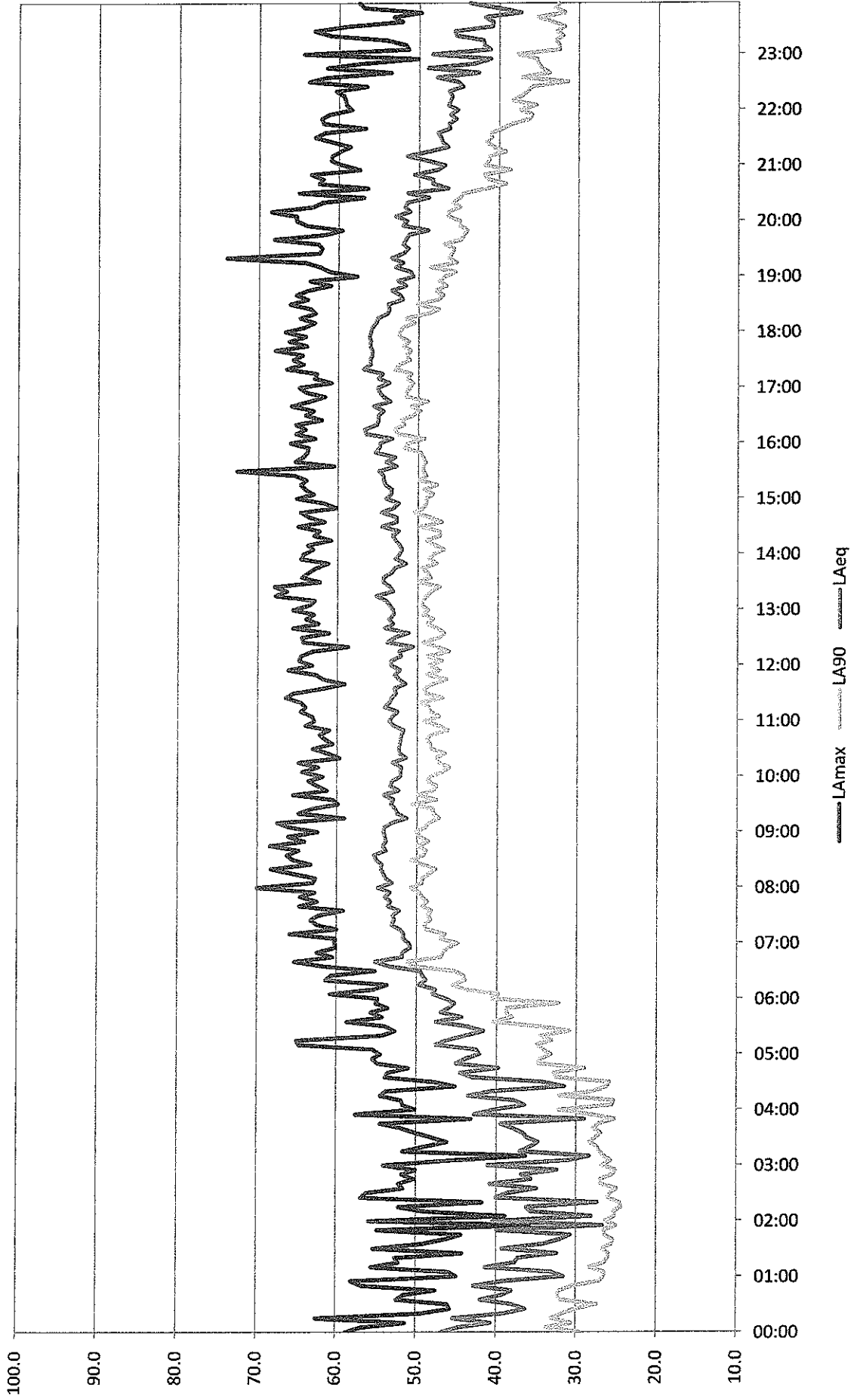
Northcote Stud Farm, Position 1, Sun 07/08/11



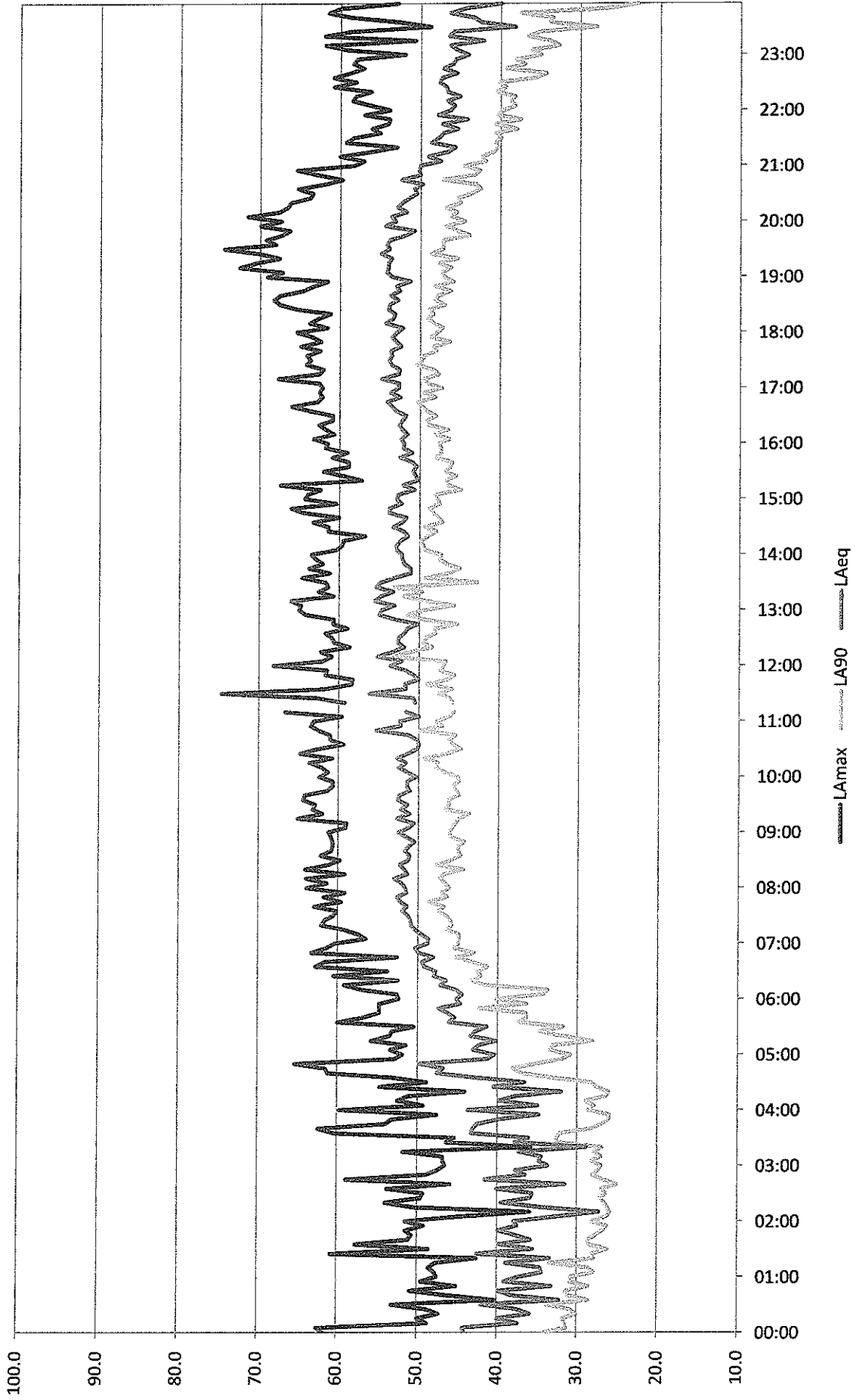
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Northcote Stud Farm, Position 1, Mon 08/08/11

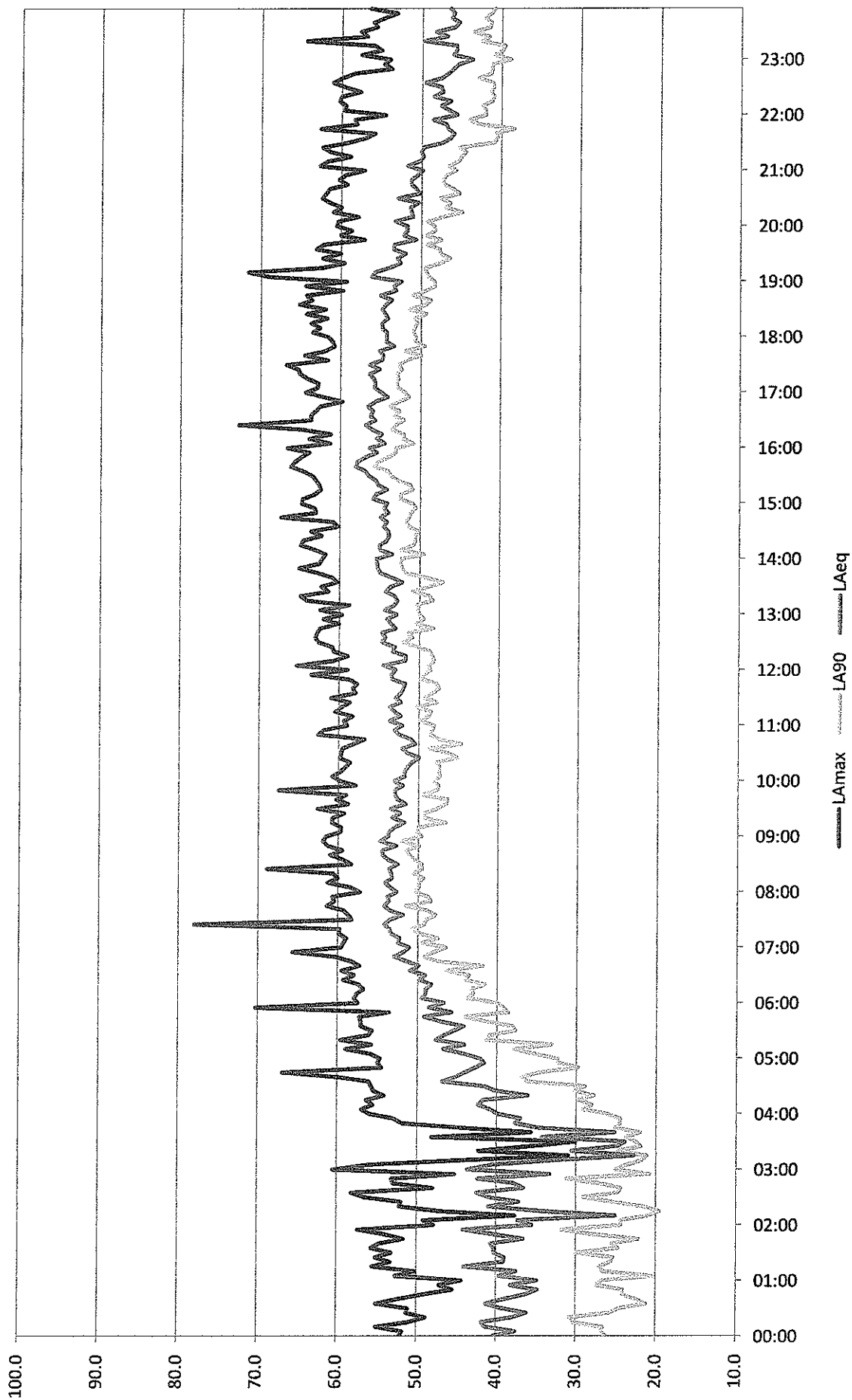


Northcote Stud Farm, Position 1, Tue 09/08/11



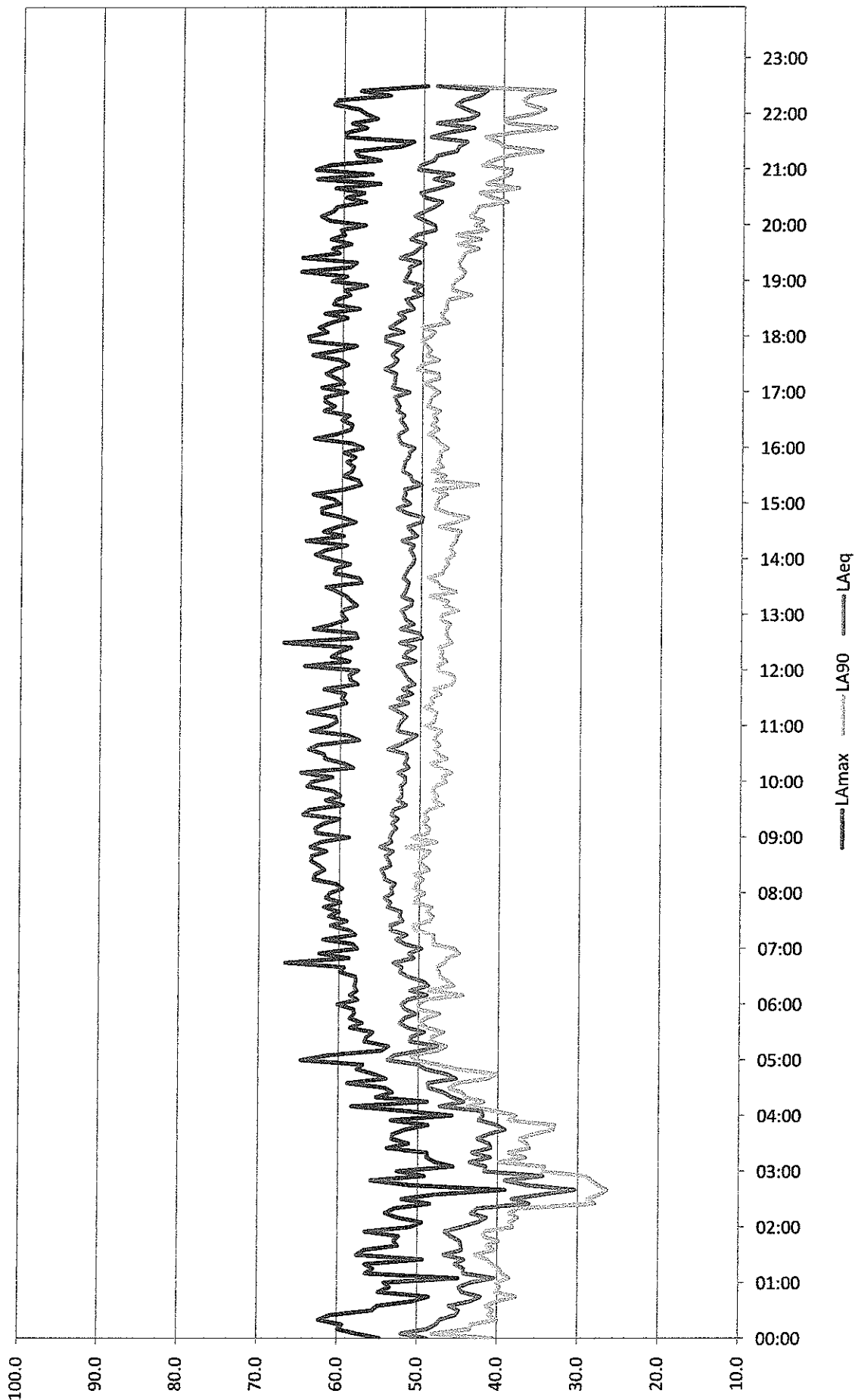
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Northcote Stud Farm, Position 1, Wed 10/08/11



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Northcote Stud Farm, Position 1, Thu 11/08/11



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