Noise Management Plan For Public Register

Agilent Technologies

Agilent Technologies LDA UK Ltd

Essex Road, Church Stretton, Shropshire, SY6 6AX

Prepared by:

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Basis of Report

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1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by Agilent Technologies LDA UK Ltd (Agilent) to prepare an application for an Environmental Permit (EP) for the existing organic polymer manufacturing site located at Essex Road, Church Stretton, Shropshire, SY6 6AX (the site). The EP application will be submitted to the Environment Agency (EA) for determination.

The site manufactures silica and organic polymers for use in laboratory consumables and industrial applications at a rate of less than 5 tonnes per year. This is considered to be a listed activity as per the Environmental Permitting (England and Wales) Regulations (EPR) 2016 (as amended):

- Section 4.1 Part A(1)(a)(viii) activity, i.e., producing organic chemicals such as plastic materials (for example polymers, synthetic fibres and cellulose based fibres).

A Noise Management Plan (NMP) has been completed to support the EP application. This NMP will refer to the results of the Noise Impact Assessment (NIA) for the site (refer 410.064951.00001_NIA).

The NMP should be undertaken in accordance with the EA guidance document Noise and vibration management: environmental permits (NVM).

1.1 Report Structure

This report presents:

- The objectives and status of a NMP.
- A description of the applicable guidance.
- The site setting and background.
- Noise predictions from the NIA.
- Appropriate measures to minimise the generation of noise.
- The maintenance program.
- Noise surveillance program.
- The complaints procedure.

Whilst reasonable effort has been made to ensure that this report is easy to understand, it is technical in nature; to assist the reader, a glossary of terminology is included in Appendix 01.

2.0 Objectives and Status of the Plan

2.1 Objectives

This NMP serves to aid the decision-making process on the choice of controls, general site design, and operational practice in line with current industry best practice. The NMP is a working document with the specific aim of ensuring:

- Noise and vibration impacts are considered as part of routine operations.
- The minimisation of the risk of unplanned ‘noisy’ events that could result in offsite complaints.
- Noise and vibration are primarily controlled at source by good operational practices, the correct use and maintenance of plant, and operator training.
- All appropriate measures are taken to prevent or, where that is not reasonably practicable, to minimise noise emanating from the facility.

2.2 Status

1. This NMP is a controlled document, and forms part of the site’s Management System. The specification for the periodic review and update of this NMP will be set out within the Management System and will be on an annual basis, as a minimum. However, this NMP should be reviewed as required should the following occur: Significant changes are made to the plant or operational practices.

2. The EA requests that the NMP is updated, in their role as regulator; complaints are received, which on subsequent investigation result in the identification of further control measures or remedial action, in addition to those set out within this NMP.

3.0 Guidance

3.1 Noise and Vibration Management: Environmental Permits

The EA released the guidance document *Noise and vibration management: environmental permits* (NVM) in July 2021 (updated in January 2022), replacing the previous guidance presented in *Horizontal Guidance for Noise (H3) parts 1 and 2*. The NVM details when a noise assessment is required, the competency required to undertake an assessment and how to carry out a noise impact assessment.

The guidance includes the section *Noise management plans (NMP)* and describes the following considerations that should be included as a minimum:

- Clear statement that you understand and accept your responsibilities for controlling noise impact, and that you will regularly review the effectiveness of your NMP.
- A commitment that either you, or your contractors or subcontractors, will make sure that any noise control equipment is designed, operated and maintained appropriately so it controls noise effectively at all times.
- A risk assessment of noise problems from normal and abnormal situations, including worst case scenarios due to, for example, weather, temperature, breakdowns and accidents.
- Details of the appropriate controls (both physical and management) needed to manage the identified risks.
- Confirmation of the level of monitoring that should be in place.
- Details of the actions you will take, contingencies, and responsibilities, when problems arise (it is particularly important that you include expected actions resulting from exceptional circumstances or where serious pollution may occur).
- Confirmation of the procedures in place to consider reducing or stopping operations to avoid serious noise pollution.
- A procedure for engaging with neighbours to minimise their concerns and respond to complaints.

4.0 Site Setting, Background and Predicted Noise Levels

4.1 Location

The site location and the receptors, have been shown in Figure 4-1. The surrounding area can be described as mixed industrial / commercial / residential use.

Figure 4-1: Site Location Plan

4.2 Noise Assessment Submitted with Permit Application

4.2.1 Noise from the Plant

The following table presents the proposed plant in the extension to the existing site and have been incorporated into the NIA model.

Table 4-1 shows the plant source data used to form the NIA. The method of modelling is detailed in Section 6.0 of the NIA.

Table 4-1: Plant Noise

Model Ref	Name	Type of Source	SWL (dB)
1	External_Trane_DX_AHU_Chiller	Vertical Area Source	86.4
2	External_Climavent_DX_AC_Units	Area Source	76.4
2	Unit_1_External_Trana_DX_AC_Unit_Duct_Breakout	vertical Area Source	71.7
2	Unit_1_External_Trana_DX_AC_Unit_Duct_Breakout	Vertical Area Source	69.9
3	Unit_1_Danfoss_Chiller_Optima_Slim_Pack	Vertical Area Source	70.2
4	Unit_1_Mitsubishi_Mr_Slim_PUZ_ZM100VKA2	Vertical Area Source	50.9
5	Unit_1_Mitsubishi_SUZ_KA50VA	Vertical Area Source	65.6
6	Unit_1_Mitsibishi_MUZ_SF35VE	Area Source	40.3
6	Unit_1_Mitsibishi_MUZ_SF35VE	Vertical Area Source	53.5
7	Unit_3_Stack_of_5_Exhausts	Point Source	61.2
7	Unit_3_Stack_of_5_Exhausts	Point Source	61.2
8	Unit_2_Daikin_RXYSQ4P8V1B	Area Source	50.2
8	Unit_2_Daikin_RXYSQ4P8V1B	Vertical Area Source	60.7
9	Panasonic_inverter_R410A	Area Source	62.4
9	Panasonic_inverter_R410A	Vertical Area Source	69.0
9	Panasonic_inverter_R410A	Point Source	63.4
10	Unit_2_AHU_Exhaust_100	Vertical Area Source	63.9
10	Unit_2_AHU_Exhaust_Setback	Vertical Area Source	58.7[1]
11	Unit_2_AHU_Inlet_100	Vertical Area Source	81.8
11	Unit_2_AHU_Inlet_setback	Vertical Area Source	72.6[1]
12	Unit2_Small_Condenser_unit_MUZ_GF60VE	Area Source	44.8
12	Unit2_Small_Condenser_unit_MUZ_GF60VE	Vertical Area Source	42.1
13	Small_Condenser_MU_GA60VB	Area Source	71.2
13	Small_Condenser_MU_GA60VB	Vertical Area Source	70.6
14	Unit_2_Tall_twin_unit	Area Source	72.0
14	Unit_2_Tall_twin_unit	Vertical Area Source	71.4
15	Unit_3_Stack_of_5_Exhausts	Vertical Area Source	71.9
15	Unit_3_Stack_of_5_Exhausts	Vertical Area Source	71.9
15	Unit_3_Stack_of_5_Exhausts	Vertical Area Source	71.9
15	Unit_3_Stack_of_5_Exhausts	Vertical Area Source	71.9
15	Unit_3_Stack_of_5_Exhausts	Vertical Area Source	71.9
15	Unit_3_Stack_of_5_Exhausts	Point Source	69.6
15	Unit_3_Stack_of_5_Exhausts	Point Source	69.6
15	Unit_3_Stack_of_5_Exhausts	Point Source	69.6
15	Unit_3_Stack_of_5_Exhausts	Point Source	69.6
15	Unit_3_Stack_of_5_Exhausts	Point Source	69.6

Model Ref	Name	Type of Source	SWL (dB)
16	External_Climavent_DX_AC_Units	Area Source	56.7
16	External_Climavent_DX_AC_Units	Area Source	56.7
16	External_Climavent_DX_AC_Units	Area Source	56.7
16	External_Climavent_DX_AC_Units	Area Source	56.5
16	External_Climavent_DX_AC_Units	Area Source	56.5
16	External_Climavent_DX_AC_Units	Vertical Area Source	76.2
16	External_Climavent_DX_AC_Units	Vertical Area Source	76.2
16	External_Climavent_DX_AC_Units	Vertical Area Source	76.0
16	External_Climavent_DX_AC_Units	Vertical Area Source	76.2
16	External_Climavent_DX_AC_Units	Vertical Area Source	75.9
17	Unit_3_Exaust_Metal_Fan_breakout	Area Source	82.2
17	Unit_3_Exaust_Metal_Fan_breakout	Vertical Area Source	76.6
17	Unit_3_Exaust_Metal_Fan_breakout	Point Source	75.3
17	Unit_3_Exaust_Metal_Fan_breakout	Point Source	75.3
18	Unit_3_Exaust_metal	Area Source	64.7
18	Unit_3_Exaust_metal	Vertical Area Source	70.8
18	Unit_3_Exaust_metal	Point Source	67.8
18	Unit_3_Exaust_metal	Point Source	67.8
19	External_Climavent_DX_AC_Units	Area Source	76.7
20	Unit_3_Stack_of_5_Exhausts	Point Source	61.2
20	Unit_3_Stack_of_5_Exhausts	Point Source	61.2
[1]Noise level with setback, which has been used within the night-time model.			

4.2.2 Noise Predictions

From the NIA, the measured background sound level and the predicted specific noise levels for the proposed plant emissions have been presented in Table 4-2. The specific sound level for the plant has been based on sound data from Table 4-1 above. The prediction of noise emissions at the receptor locations have been based on conditions considered to tend towards a worst-case.

Table 4 2: Measured Background Sound Level and Predicted Specific Noise Level at Receptors

Receptor	Assessment Period	Predicted Specific Sound Level, $L_{Aeq,T}$	Predicted Rating Level, $L_{Ar,Tr}$	Referenced Proxy Background Sound Level $L_{A90,T}$	Difference (dB)
Location 1	Daytime	38	41	41	0
	Night-Time	37	40	39	+1
Location 2	Daytime	39	42	38	+4
	Night-Time	40	43	35	+8

An ‘adverse impact’ has been concluded from the NIA BS 4142 assessment. However, while modelling indicates the impact of site on the surrounding area is considered adverse, operating certain plant components at 25% capacity instead of the modelled 100% (due to data limitations) is likely to reduce noise levels at nearby receptors. This coupled with this implementation of the NMP, has the potential to lessen the impact, bringing it to a low impact at the closest receptors.

5.0 Appropriate Measures to Minimise Noise

5.1 Attenuation Measures

The following outline mitigation measures have been considered for best practice plant installation.

- Install proprietary in-duct silencers (atmosphere side), or appropriately selected acoustic attenuators.
- Install noise dampening lagging.
- Orient plant so that emissions are directed into the existing site, as far as practicable.
- Maximise the effect of screening of plant.

It is expected that the above recommendations will reduce noise emissions at the receptors.

Further mitigation may be considered in the form of acoustic screening of the new plant area, using solid close-boarded timber fence or similar, min. mass 10kg / m^2 with full line-of-sight obscured between plant and receptor.

6.0 Maintenance Programme

An important part of the NMP is plant maintenance.

Table 6-1 details the processes and checks that must be carried out to minimise noise emission from operations at the site.

Table 6-1: Processes and Checks Carried out to Minimise Noise Emission from Operations

Noise Source	Minimisation Technique
Air handling units, vents, wet gas scrubber, condensers, boiler exhaust stacks, air conditioning.	Regular inspections by the site management team or designated personnel should be made to ensure that the equipment is well maintained. Maintenance records should be kept up to date and be available upon request. Regular maintenance will be carried out periodically at the end of each week as a minimum. Maintenance records should be kept up to date and be available upon request.
	Carry out periodic maintenance checks, in accordance with the manufacturer's instructions, to ensure efficient running of engine machinery. E.g., lubrication of moving parts to reduce noise.
	Commission plant to operate at suitable duty levels, to minimise noise emissions as far as practicable.
	Carry out periodic checks of plant operation, to ensure that plant is running at the appropriate (lowest) operating duty.

7.0 Noise Surveillance Programme

An essential part of any NMP is to monitor noise from the site regardless of whether a complaint has been received.

The purpose of noise surveillance is to demonstrate to the EA that the new plant is being operated in such a manner as to minimise the noise impact at nearby noise-sensitive receptors. In the event that complaints are received, noise monitoring would prompt remedial actions to ensure ongoing future compliance.

It is recommended that post-installation plant noise measurements are carried by a suitably qualified acoustic consultant, to verify the plant installation and noise levels. Subsequent periodic checks are recommended to be carried out by the site team, to ensure that noise levels are not increasing.

8.0 Complaint Procedure

As part of the NMP, a procedure must be in place to deal with complaint.

If a complaint is received from a local resident, an investigation shall be instigated to identify the cause of the complaint. The Noise Complaint Form detailed in Appendix 02 will be filled in and appropriate action will be taken to remedy the problem should the complaint be validated.

A complaint investigation may involve the identification and cessation of the activity or activities considered to be the cause of the complaint and/or the investigation of mitigation measures to reduce the noise emission levels from the activity or activities. For example, this could include the replacement of noisy plant with quieter alternatives and/or reviewing the recommended mitigation measures described in Section 5 of this report.

If it is not possible to identify the source of the complaint, it may be necessary to undertake a noise survey. If this is needed, a suitably qualified person should be employed to undertake the required survey work.

Appendix A Glossary of Terminology

Noise Management Plan

Agilent Technologies LDA UK Ltd

SLR Project No.: 410.064951.00001

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In order to assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table 01-1 Sound Levels Commonly Found in the Environment

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at 1m away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

Acoustic Terminology

dB (decibel):The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure ($2x10^{-5}$Pa).

dB(A):A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies. L_{Aeq}: L_{Aeq} is defined as the notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.

L_{10} & L_{90} If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.

L_{Amax}: L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.

Appendix B Complaint Form

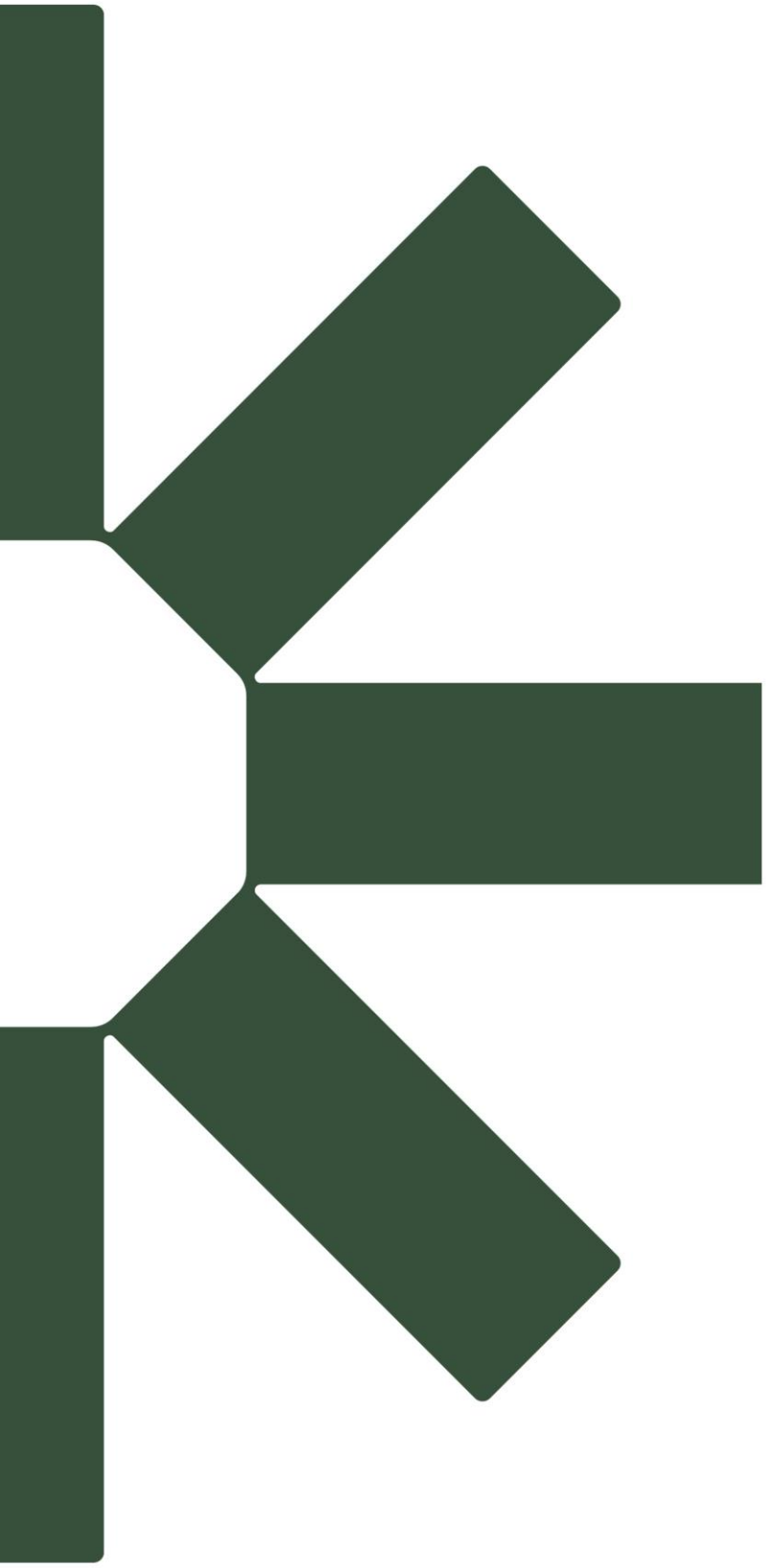
Noise Management Plan For Public Register

Agilent Technologies LDA UK Ltd

SLR Project No.: 410.064951.00001

23 September 2024

Item	Date Recorded:	Reference No:
Name and address of caller		
Telephone		
Location of caller in relation to site		
Time and date of complaint		
Date, time and duration of offending noise		
Callers description of noise		
Has the caller any other comments on noise?		
Weather conditions		
Wind strength and direction		
Any previous complaints relating to this noise?		
Any other relevant information?		
Potential sources that could give rise to the complaint		
Operating conditions at the time of the offending noise		
Follow up – date and time caller contacted		
Action taken		
Amendment requirement to Noise Management Plan		
Form completed by (print)		Signed and date	



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