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INFINITE RENEWABLES LIMITED

KEPAK, PENGARNDU INDUSTRIAL ESTATE

NOISE ASSESSMENT REPORT

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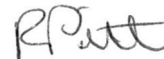
KEPAK, PENGARNDDU INDUSTRIAL ESTATE

Noise Assessment Report

September 2021

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1 INTRODUCTION

- 1.1.1 Wardell Armstrong LLP was commissioned by Infinite Renewables Ltd to undertake a noise assessment to accompany a planning application for a Combined Heat and Power (CHP) generator at Kepak, Pengarnddu Industrial Estate, Merthyr Tydfil.
- 1.1.2 Due to the proximity of the scheme to existing residential receptors a noise assessment is required to assess the potential impact upon those receptors.
- 1.1.3 The proposed development is located on the eastern side of Kepak in Pengarnddu Industrial Estate. To the north of the site lies open land. To the east of the site lies some open land and an unnamed road approximately 200m beyond. A residential property lies approximately 800m to the south-east of the site. To the south of the site lies the Heads of the Valley Salvage, an unnamed road and the A465. To the south-west of the site lie parts of the industrial estate beyond which lies the A465. Approximately 800m to the south-west of the site lies a number of residential properties on Dowlais Top High Street. To the west of the site lies the remainder of the Pengarnddu Industrial Estate.
- 1.1.4 The report assesses the results of a noise survey carried out in accordance with current guidance and considers the impact of noise from the proposed development on existing sensitive receptors.

2 ASSESSMENT METHODOLOGY

2.1 Consultation and Scope of Works

- 2.1.1 The scope of this assessment comprises a consideration of noise at existing sensitive receptor locations, located in the vicinity of the proposed development.
- 2.1.2 The proposed scope and methodology of the assessment was submitted to Rhondda Cynon Taff County Borough Council for approval on 23rd August 2021, however no response has been received to date.

2.2 Noise Surveys

- 2.2.1 An unattended noise survey was undertaken on the 24th to 26th August at 2 locations considered representative of the nearest existing noise sensitive receptors in the vicinity of the proposed noise sources. This data has been used to establish the existing background noise levels at the receptors. The noise survey is discussed in Section 3 of this report.

2.3 Assessment Methodology

- 2.3.1 An assessment is required to consider the potential noise impact of the proposed development on existing sensitive receptors. The potential impacts have been assessed with reference to;
- Planning Policy Wales, 2021;
 - British Standard 4142: 2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Noise.
- 2.3.2 Further details of the guidelines are included in Appendix A of this document.

2.4 Existing Sensitive Receptors

- 2.4.1 The following existing receptors have been identified as those closest to the proposed development. Other receptors may be affected by noise from the proposed development, however the impact at these receptors will be equal to or less than at the receptors identified.
- 2.4.2 The existing sensitive receptors identified are shown in Table 1 and Figure 1 below.

Table 1: Existing Noise Sensitive Receptor Locations					
Receptor		Grid Co-ordinates		Bearing from Site	Distance to Site Boundary
		Easting	Northing		
ESR1	Hight Street, Dowlais Top	307687	208151	South-west	800m
ESR2	Individual property south-east of the site	309027	208703	South-east	800m

Figure 1 – Noise Sensitive Receptor Locations



Image sourced from google earth

3 NOISE SURVEY

- 3.1.1 Wardell Armstrong LLP carried out a noise survey at the existing sensitive receptors on the 24th to 26th August 2021.
- 3.1.2 Unattended noise measurements were taken at two monitoring locations (shown on Figure 1), which were considered to be representative of the closest existing noise sensitive receptors to the proposed noise source. The monitoring locations are as follows:
- Monitoring Location 1: Adjacent to properties on High Street, Dowlais Top
 - Monitoring Location 2: At boundary of individual property on unnamed road approximately 800m south-east of the site.
- 3.1.3 Noise monitoring was carried out between 1600hours on the 24th August and 0700hours on the 26th August to capture background noise during the daytime and night-time at the noise sensitive receptors.
- 3.1.4 The noise measurements were made using a Class 1, integrating sound level meter. The sound level meter was mounted vertically on a tripod 1.5m above the ground and more than 3.5 metres from any other reflecting surfaces.
- 3.1.5 Noise monitoring took place during dry and calm weather conditions. The sound level meter was calibrated to a reference level of 94dB at 1kHz both before, and on completion of, the noise survey. No drift in calibration over 0.5dB was measured during the survey.
- 3.1.6 For the purpose of this assessment daytime hours are taken to be 0700 to 2300 hours and night-time hours to be 2300 to 0700 hours.
- 3.1.7 A-weighted¹ L_{90}^2 noise levels were measured to comply with the requirements of BS4142. The L_{eq}^3 , L_{10}^4 , maximum and minimum sound pressure levels were also measured to provide additional information. The measured noise levels are set out in full in Appendix A.

¹ A' Weighting	An electronic filter in a sound level meter which mimics the human ear's response to sounds at different frequencies under defined conditions
² L_{90}	The noise level which is exceeded for 90% of the measurement period.
³ L_{eqs}	Equivalent continuous noise level; the steady sound pressure which contains an equivalent quantity of sound energy as the time-varying sound pressure levels.
⁴ L_{10}	The noise level which is exceeded for 10% of the measurement period.

3.1.8 Whilst setting up noise survey equipment, observations were made of the significant noise sources which contribute to the noise levels at the site. The observations identified the following:

Road Traffic Noise: Road traffic was the dominant noise source affecting both monitoring locations.

Biffa Trecatti Quarry: Noise from vehicles and machines within the quarry were audible at ML1 during the daytime.

Birdsong: Birdsong was audible at each monitoring location.

4 NOISE IMPACT ASSESSMENT

4.1 BS4142 Assessment

- 4.1.1 The proposed development will include the installation of equipment with noise emissions which may be audible at the nearest existing sensitive receptors. Therefore, an industrial noise assessment has been carried out in accordance with BS4142 to assess the impact of noise from the development on existing sensitive receptors.

Identification of the Specific Noise

- 4.1.2 The proposed CHP will generate noise. In order to establish likely noise levels from the generator when it is in operation, data has been provided by Infinite Renewables Ltd. Infinite Renewables has provided data for the proposed CHP which states that the standard sound pressure level from the equipment is 65dB at 10m.
- 4.1.3 There is potential for the CHP to be operational during the night-time, therefore daytime and night-time assessments have been undertaken.
- 4.1.4 ESR1 and ESR2 are both 800m from the CHP. A point source distance correction of -38dB has therefore been applied to the noise level provided by Infinite Renewables to establish the noise levels at each ESR. No soft ground or screening adjustments have been applied, therefore the noise levels can be considered robust. These are summarised in Table 2 below.

Table 2: Noise Levels of Proposed Development at Existing Sensitive Receptors	
Receptor	Total Noise Level L_{Aeq}
ESR1	27
ESR2	27

- 4.1.5 The noise levels detailed in Table 2 are used as the specific industrial noise levels in the BS4142 assessment described below.

Application of any acoustic feature penalties

- 4.1.6 BS4142 includes guidance on the application of an additional weighting which should be applied should the industrial noise be audibly tonal, impulsive, or intermittent at the existing sensitive receptor.

4.1.7 It is considered likely that the proposed development will be tonal in nature, however due to the distance of the receptors from the CHP, it is unlikely to be noticeable. Therefore, no correction has been added to account for tonality.

4.1.8 The CHP would not be intermittent or impulsive, therefore no penalties has been included for these.

Identification of the Background Noise

4.1.9 Section 8 of BS4142 provides guidance on the selection of the background noise to be used in the assessment. BS4142 states that the background noise levels used for the assessment should be representative of the period being assessed (i.e daytime or night-time periods), and that there is no “single” background sound level.

4.1.10 Therefore, some assessment of the measured noise levels is required to select the most appropriate and representative background sound levels. An assessment has been carried out based upon the measured noise levels.

4.1.11 A summary of the daytime and night-time measured background noise level for use in the assessment is presented in Table 3.

Table 3: Background L ₉₀ Noise Level – (Figures in dB(A))				
Receptor	Existing Sensitive Receptor Locations			
Monitoring Location	ESR1 - Day	ESR1 - Night	ESR2 - Day	ESR2 - Night
Average Value	56	44	52	44
Lowest Measured Value	49	35	45	41
Level to be used in the assessment	49	35	45	41

BS4142 Assessment

4.1.12 In accordance with BS4142, the noise rating levels for the noise sources associated with the proposed development, as received at the existing sensitive receptors, have been compared with the corresponding measured background noise levels as shown in Table 4.

Table 4: BS4142 Assessment of the Noise at Existing Receptors in the vicinity of Proposed Development – (Figures in dB(A))				
Description	Existing Sensitive Receptor Locations			
	ESR1 - day	ESR2 - night	ESR1 - day	ESR2 - night
Specific Sound Level i.e. noise level of the operational activities (including distance correction), dB L _{Aeq}	27	27	27	27
Acoustic Feature Correction, dB	+0	+0	+0	+0
Rating Level, dB	27	27	27	27
Background Noise level Range for Period	49	35	45	41
Excess of rating over Background level	-22	-7	-18	-14

4.1.13 The results of the BS4142 assessment indicate that the exceedance of the noise levels from the proposed development above the existing background noise level is likely to be well below background noise levels during the daytime and night-time.

BS4142 Context Assessment

4.1.14 BS4142:2014 States; “The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound sources exceeds the background sound level and the context in which the sound occurs”. It should be noted that in this case the specific sound will not exceed the background sound level and is unlikely to be audible. However, for completeness, a context assessment has been undertaken.

4.1.15 The first requirement of this statement has been determined within the noise impact assessment section above. To determine the context in which the proposed industrial sound will reside, three factors must be considered, these are;

- The absolute level of sound;
- The character and level of the residual sound compared to the character and level of the specific sound and,
- The sensitivity of the receptor.

Absolute level of Sound

4.1.16 The impact of a given difference between rating level and background noise level will depend upon whether the residual sound level is low or high.

4.1.17 At ERS1 and 2 the existing residual sound level is not particularly low. This would indicate that any audible noise from the proposed development is likely to have a fairly neutral effect at these locations.

Character and Level of Residual Sound compared to the Character and Level of the Specific Sound

4.1.18 At ESR 1 and 2 the dominant noise is road noise, however the residual noise level at these locations is significantly higher than the specific noise level. The proposed development is likely to be inaudible at ESR1 and 2 and would therefore not alter the character or level of the noise at this location.

Sensitivity of Receptor and Existing Acoustic Conditions

4.1.19 ESR1 and ESR2 are residential nature. The sensitivity of these receptors is therefore considered to be high. However, the proposed development is likely to be inaudible and will have no effect on the noise levels at the receptors.

Summary of the BS4142 Assessment

4.1.20 When considering the site context, and in accordance with BS4142, noise from the proposed development will cause a **low impact** at each ESR1 and 2 with no further mitigation in place. This is the lowest category set out by the Standard. Therefore, no additional mitigation measures have been recommended.

5 CONCLUSIONS

- 5.1.1 Wardell Armstrong has carried out a noise impact assessment to support the planning application for a CHP plant at Kepak, Pengarnddu Industrial Estate, Merthyr Tydfil.
- 5.1.2 There is potential for noise from the development to affect existing noise sensitive receptors in the vicinity of the proposed development. The noise sensitive receptors include residential areas at Dowlais Top and individual properties to the south-east of the site.
- 5.1.3 The CHP could be operational during the daytime and night-time, therefore to establish baseline levels at existing sensitive receptors, a noise survey has been carried out during the daytime and night-time.
- 5.1.4 This report assesses the results of the noise survey carried out, together with the noise levels from the proposed operation, in accordance with current guidance. An assessment of the noise has been carried out in accordance with BS4142.
- 5.1.5 When considering the results of the BS4142 assessment in the context of the site and its setting, the noise generated by proposed development will be likely to be inaudible at the nearest receptor. They will therefore have no more than a low impact (the lowest category set by the Standard) at either ESR with no mitigation in place. Therefore, noise is not considered to be an issue for the development and no further mitigation has been recommended to reduce noise emissions.

APPENDICES

Appendix A

Legislation, Policy and Guidance

Policy, Standards and Guidance

Appendix A

Planning Policy Wales

Planning Policy Wales (PPW) is the current planning policy guidance within Wales. The planning guidance defines the primary objective of the document in paragraph 1.2 as follows:

‘...to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales...’

In particular reference to noise Paragraph 6.7.3 of the PPW states:

‘Problematic forms of sound are generally experienced as noise pollution and can affect amenity and be prejudicial to health or a nuisance. Noise action plans drawn up by public bodies aim to prevent and reduce noise levels where necessary and preserve soundscape quality where it is good. Noise levels used to identify priority areas contained in noise actions plans are usually set quite high in order to focus resources on the most polluted areas and noise must meet a number of tests before it qualifies as a statutory nuisance. Lower levels of noise however, can still be annoying or disruptive and impact on amenity and as such should be protected through the planning process wherever necessary.’

Technical Advice Note 11: Noise (TAN 11)

TAN 11 is used to categorise noise levels for proposed residential developments. TAN 11 presents four noise exposure categories (NECs), ranging from A to D, where A represents the lowest noise levels, and D is for sites with higher noise levels. A breakdown of the NECs, and subsequent advice is provided below in Table 1 and 2.

Table 1: Noise exposure categories for road traffic noise and mixed sources ⁽¹⁾				
Time	Noise Exposure Category			
	A	B	C	D
0700-2300	<55	55 - 63	63 - 72	>72
2300-0700 ⁽²⁾	<45	45 - 57	57 - 66	>66

Footnote

⁽¹⁾ **Noise levels:** the noise level(s) ($L_{Aeq,T}$) used when deciding the NEC of a site should be representative of typical conditions.

⁽²⁾ **Night-time noise levels (2300-0700):** sites where individual noise events regularly exceed $82dBL_{Amax}$ (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the $L_{Aeq,8H}$ (except where the $L_{Aeq,8H}$ already puts the site in NEC D).

Table 2: Advice relating to noise exposure category		
NEC	Significance	Advice
A	Negligible	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable.
B	Minor	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection.
C	Moderate	Planning permission should not normally be granted. Where it is considered that permission should be given, for example, because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Major	Planning permission should normally be refused.

TAN 11 also states that:

“This note provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development.”

British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings

British Standard 8233 “Guidance on sound insulation and noise reduction for buildings” 2014, suggests the following guideline noise levels and states that they are based on guidelines issued by the World Health Organisation;

- 35 dB L_{Aeq} (16 hour) during the day time in noise sensitive rooms
- 30 dB L_{Aeq} (8 hour) during the night time in bedrooms
- 45 dB $L_{Amax,F}$ during the night time in bedrooms
- 50 dB L_{Aeq} (16 hour) desirable external noise levels for amenity space such as gardens and patios
- 55 dB L_{Aeq} (16 hour) upper guideline value which would be acceptable in noisier environments.

In addition, for internal noise levels it states;

“Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.”

Furthermore, with regard to external noise, the Standard states;

“However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas,

such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited”.

British Standard 4142:2014+A1:2019 (BS4142), Method for rating and assessing industrial and commercial sound:

BS4142 is used to rate and assess sound of an industrial and/or commercial nature including:

- sound from industrial and manufacturing processes;
- sound from fixed installations which comprise mechanical and electrical plant and equipment;
- sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

The standard is applicable to the determination of the following levels at outdoor locations:

- rating levels for sources of sound of an industrial and/or commercial nature; and
- ambient, background and residual sound levels, for the purposes of:
 - 1) Investigating complaints;
 - 2) Assessing sound from proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and
 - 3) Assessing sound at proposed new dwellings or premises used for residential purposes.

The purpose of the BS4142 assessment procedure is to assess the significance of sound of an industrial and/or commercial nature.

BS4142 refers to noise from the industrial source as the ‘specific noise’ and this is the term used in this report to refer to noise which is predicted to occur due to equipment associated

with the proposed development. The 'specific noise' levels, of the proposed development are detailed in Section 4 of this report.

BS4142 assesses the significance of impacts by comparing the specific noise level to the background noise level (L_{A90}). Section 3 provides details of the background noise survey undertaken.

Certain acoustic features can increase the significance of impacts over that expected from a simple comparison between the specific noise level and the background noise level. In particular BS4142 identifies that the absolute level of sound, the character, and the residual sound and the sensitivity of receptor should all be taken into consideration. BS4142 includes allowances for a rating penalty to be added if it is found that the specific noise source contains a tone, impulse and/or other characteristic, or is expected to be present. The specific noise level along with any applicable correction is referred to as the 'rating level'.

The greater the increase between the rating level over the background noise level, the greater the magnitude of the impact. The assessment criteria given by BS4142 are as follows:

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

During the daytime, BS4142 requires that noise levels are assessed over 1-hour periods. However, during the night-time, noise levels are required to be assessed over 15-minute periods.

Where the initial estimate of the impact needs to be modified due to context, BS4142 states that all pertinent factors should be taken into consideration, including:

- The absolute level of sound;
- The character and level of the residual sound compared to the character and level of the specific sound; and

- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.

Appendix B

Noise monitoring Results

Appendix B

Noise Monitoring Results

Monitoring Location 1 – South-west of site on Dowlais Top High Street, approximately 800m from the site						
Time	L _{Aeq} (dB)	L _A min (dB)	L _A max (dB)	L _{A90} (dB)	L _{A10} (dB)	Comments
24/08/2021 – Daytime						
1600-1700	62.5	55.3	77.9	59.0	64.5	Traffic noise from the High Street, the A465 and the A4060. Distant noise the Biffa Trecatti Quarry. Birdsong
1700-1800	62.5	55.3	75.0	58.9	64.7	
1800-1900	62.7	54.6	83.4	57.6	65.1	
1900-2000	60.5	51.1	72.5	55.1	63.9	
2000-2100	59.3	49.7	71.9	53.3	62.8	
2100-2200	57.9	44.5	72.6	51.6	61.5	
2200-2300	56.4	44.2	72.5	48.6	60.0	
24-25/08/2021 – Night-time						
2300-2315	53.5	44.1	69.3	46.5	56.0	Traffic noise from the High Street, the A465 and the A4060. Birdsong
2315-2330	53.2	44.3	66.1	46.9	55.4	
2330-2345	52.3	42.9	66.0	45.3	54.6	
2345-0000	51.3	41.5	65.1	44.4	54.2	
0000-0015	52.9	42.6	64.8	44.4	55.5	
0015-0030	51.8	41.9	66.5	44.7	54.0	
0030-0045	52.1	40.0	69.6	42.6	54.3	
0045-0100	47.7	39.3	59.4	40.9	51.3	
0100-0115	49.7	38.0	64.8	40.3	52.4	
0115-0130	48.0	38.2	60.6	39.7	51.4	
0130-0145	49.5	37.3	64.9	39.8	52.2	
0145-0200	50.9	37.4	70.2	39.5	53.2	
0200-0215	49.2	36.8	63.3	39.4	52.9	
0215-0230	50.4	36.2	67.3	39.1	52.7	
0230-0245	49.9	35.7	65.3	38.0	52.9	
0245-0300	50.3	34.5	67.9	36.4	51.7	
0300-0315	49.0	32.6	66.7	34.9	52.0	
0315-0330	53.6	32.9	76.7	36.7	53.7	
0330-0345	51.1	36.0	65.2	39.4	55.0	
0345-0400	51.9	33.3	66.6	35.7	54.3	
0400-0415	51.4	33.1	67.9	37.7	53.9	
0415-0430	50.9	34.8	65.9	38.2	53.6	
0430-0445	52.3	38.2	66.1	42.3	55.9	
0445-0500	56.0	39.9	67.8	45.6	59.7	
0500-0515	57.6	43.5	68.8	48.7	62.1	
0515-0530	59.0	43.7	67.7	51.3	63.1	
0530-0545	60.1	48.9	73.6	54.9	63.2	
0545-0600	59.9	50.5	68.2	53.9	63.7	
0600-0615	61.1	50.5	77.1	54.9	63.4	
0615-0630	60.1	49.9	69.0	54.7	63.4	
0630-0645	60.7	50.8	69.5	55.5	63.8	
0645-0700	60.2	49.8	67.1	55.5	63.5	
25/08/2021 - Daytime						
0700-0800	61.8	53.4	74.2	57.6	64.6	Traffic noise from the High Street, the A465 and the A4060. Distant noise the Biffa Trecatti Quarry. Birdsong
0800-0900	62.2	54.6	76.3	58.1	64.6	
0900-1000	61.6	53.2	74.2	57.0	64.5	
1000-1100	62.2	54.7	73.2	58.0	64.9	
1100-1200	62.8	53.1	79.2	57.9	65.1	
1200-1300	62.8	53.3	75.9	58.2	65.3	
1300-1400	61.5	50.6	76.0	56.4	64.5	

Monitoring Location 2 – South east of site on unnamed road approximately 170m south of the A465 and 800m from the site						
Time	L _{Aeq} (dB)	L _A min (dB)	L _A max (dB)	L _{A90} (dB)	L _{A10} (dB)	Comments
25/08/2021 – Daytime						
1500-1600	67.3	47.8	87.9	52.7	70.2	Traffic on adjacent road and from the A465 dominant. Birdsong
1600-1700	67.4	49.4	87.6	54.0	71.4	
1700-1800	68.3	50.3	87.7	54.7	72.5	
1800-1900	67.0	49.5	86.5	54.1	70.5	
1900-2000	65.7	45.9	83.1	52.4	69.0	
2000-2100	63.4	43.4	87.0	50.9	64.7	
2100-2200	61.2	43.3	82.2	49.0	61.0	
2200-2300	59.3	40.7	80.6	45.0	58.0	
25-26/08/2021 – Night-time						
2300-2315	50.9	41.2	61.8	43.9	54.3	Traffic on adjacent road and from the A465 dominant. Birdsong
2315-2330	55.8	39.8	78.9	43.2	55.4	
2330-2345	51.1	39.1	69.3	41.2	53.7	
2345-0000	57.2	40.2	79.2	42.5	56.9	
0000-0015	47.0	39.2	59.6	40.7	49.7	
0015-0030	51.7	41.3	74.1	42.5	52.5	
0030-0045	50.9	40.5	74.4	42.3	51.1	
0045-0100	53.0	40.0	77.0	41.5	52.4	
0100-0115	51.6	39.3	75.2	42.0	52.7	
0115-0130	49.3	41.4	74.0	42.3	48.8	
0130-0145	47.6	42.3	60.2	43.6	50.0	
0145-0200	48.5	41.3	72.1	41.9	49.2	
0200-0215	54.6	40.4	79.2	41.6	51.8	
0215-0230	49.3	41.2	60.8	42.4	53.0	
0230-0245	54.4	40.1	79.9	41.6	48.8	
0245-0300	56.0	41.0	79.7	41.9	49.2	
0300-0315	53.6	41.8	80.4	43.3	49.2	
0315-0330	47.5	42.0	58.3	43.2	50.0	
0330-0345	52.1	43.0	74.2	43.7	52.3	
0345-0400	49.9	39.2	71.9	42.5	49.8	
0400-0415	50.6	39.2	75.7	41.4	49.2	
0415-0430	56.0	41.3	81.2	42.7	52.9	
0430-0445	56.2	41.6	78.6	43.4	52.4	
0445-0500	61.2	42.7	84.6	45.1	54.9	
0500-0515	56.9	44.0	77.0	46.1	54.7	
0515-0530	61.0	45.9	79.6	47.7	61.9	
0530-0545	61.4	47.0	81.2	49.4	61.7	
0545-0600	64.5	47.5	86.0	50.4	63.4	
0600-0615	66.2	47.0	88.3	51.3	67.1	
0615-0630	65.7	46.4	87.8	50.6	63.1	
0630-0645	66.5	47.9	86.5	52.4	68.9	
0645-0700	65.0	50.2	81.5	52.7	67.9	