

# HUNTER VALLEY OPERATIONS



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## Environment Protection Licence 640 Monitoring Data – May 2022 Published

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**Owner:** Environment and Community Officer

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# 1 Overview

<b>Environmental Protection Licence Number:</b>	640
<b>Licence Holder:</b>	HV Operations Pty Ltd (HVO)
<b>Address of Premises:</b>	Hunter Valley Operations, Lemington Road, Singleton, NSW, 2330
<b>Licence Holder Postal Address:</b>	PO Box 315, Singleton, NSW, 2330
<b>EPA Public Register Link:</b>	<a href="https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=640&amp;id=640&amp;option=licence&amp;searchrange=licence&amp;range=POEO%20licence&amp;prp=no&amp;status=Issued">https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=640&amp;id=640&amp;option=licence&amp;searchrange=licence&amp;range=POEO%20licence&amp;prp=no&amp;status=Issued</a>

The locations of each sampling or monitoring point number identified in EPL 640 are displayed in **Figure 1**.

# 2 Definitions

Abbreviation	Explanation
DNR	Data Not Received
mm/s	Millimetres per Second
dB	Decibels
g/m <sup>2</sup> /month	Grams per Metre Square per Month
µg/m <sup>3</sup>	Micrograms per Cubic Meter of Air
µS/cm	Microsiemens per Centimetre
pH	A measure of the acidity or alkalinity of a solution
mg/L	Milligrams per Litre
NTU	Nephelometric Turbidity Units
ML/day	Megalitres per Day (1ML = 1,000,000L)
KL/day	Kilolitres per Day
PM10	Particulate Matter of 10 Microns in diameter or smaller
HVAS	High Volume Air Sampler
TEOM	Tapered Element Oscillating Microbalance
TSP	Total Suspended Particles
TSS	Total Suspended Solids
t	tonnes
YTD	Year To Date - rolling 12 month average

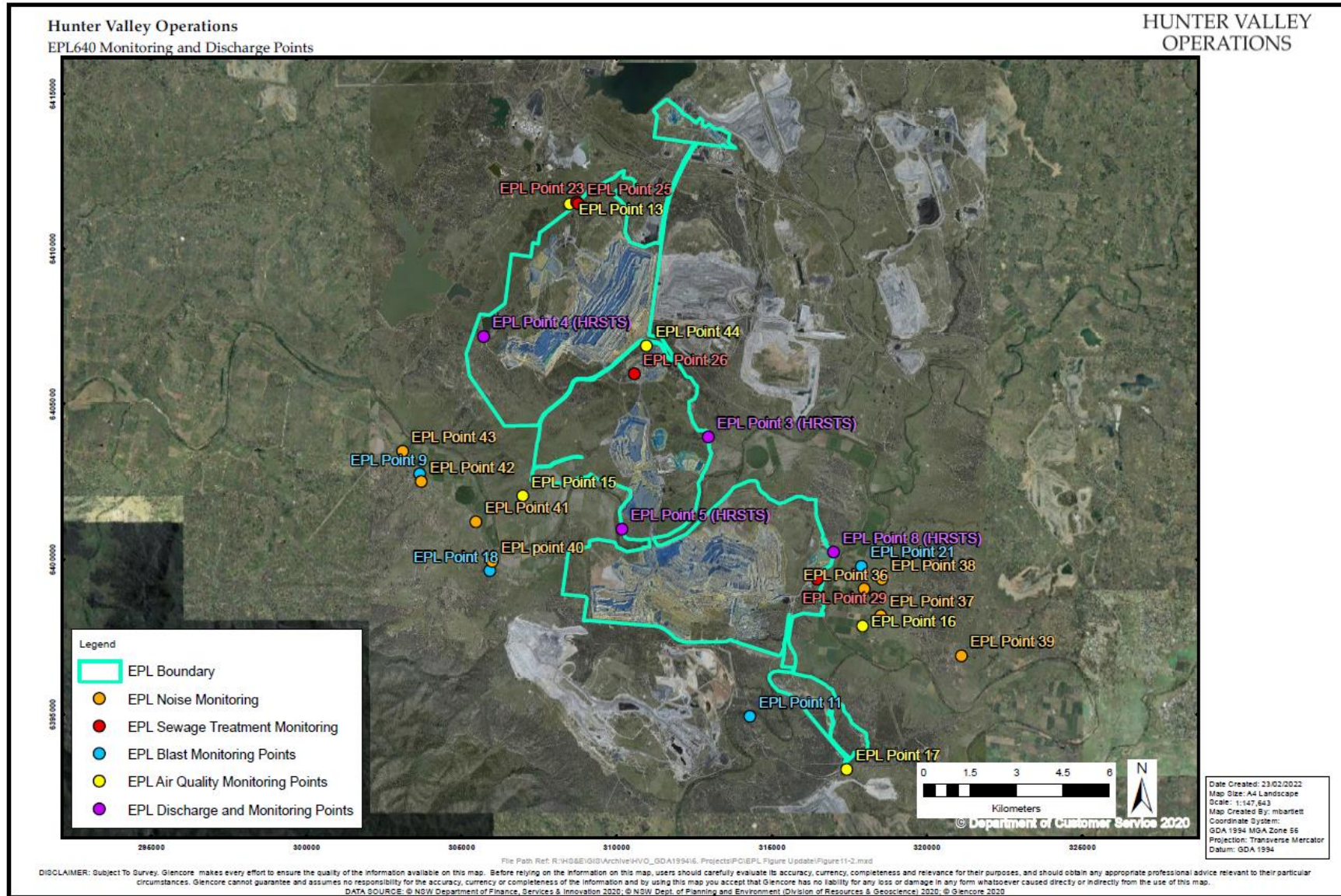


Figure 1 - EPL 640 Monitoring Locations

### 3 Air Quality

Date Last Sampled: 31/05/2022

Date Obtained: 1/06/2022

Table 1- Particulate Matter Monitoring (<10µm)

Date	Unit of Measure	Monitoring Frequency & Capture	EPL ID 13 (Howick)	EPL ID 15 (Wandewoi)	EPL ID 16 (Knodlers Lane)	EPL ID 17 (Golden Highway)	EPL ID 44 (North CHPP)
1/05/2022	µg/m <sup>3</sup>	Continuous	23.1	14.9	9.3	14.2	21.2
2/05/2022	µg/m <sup>3</sup>		25.8	15.4	10.1	14.5	32.1
3/05/2022	µg/m <sup>3</sup>		26.8	15.2	12.6	35.5	31.9
4/05/2022	µg/m <sup>3</sup>		37.9	16.9	17.0	46.1	43.0
5/05/2022	µg/m <sup>3</sup>		10.5	16.1	16.9	21.9	31.8
6/05/2022	µg/m <sup>3</sup>		10.1	8.4	15.1	12.9	30.2
7/05/2022	µg/m <sup>3</sup>		13.9	7.9	12.6	14.5	36.6
8/05/2022	µg/m <sup>3</sup>		28.8	13.0	11.3	38.1	31.7
9/05/2022	µg/m <sup>3</sup>		36.3	17.3	18.2	40.2	61.2
10/05/2022	µg/m <sup>3</sup>		33.4	17.5	10.2	14.6	13.5
11/05/2022	µg/m <sup>3</sup>		28.9	15.6	7.8	10.5	12.4
12/05/2022	µg/m <sup>3</sup>		10.1	10.0	7.0	8.8	13.7
13/05/2022	µg/m <sup>3</sup>		9.1	9.7	7.6	11.8	9.5
14/05/2022	µg/m <sup>3</sup>		18.5	11.9	10.6	17.6	19.8
15/05/2022	µg/m <sup>3</sup>		13.4	10.9	11.0	13.6	22.9
16/05/2022	µg/m <sup>3</sup>		11.0	8.8	10.9	10.3	28.1
17/05/2022	µg/m <sup>3</sup>		14.1	8.4	7.3	12.0	28.4
18/05/2022	µg/m <sup>3</sup>		*	8.5	*	11.4	43.4
19/05/2022	µg/m <sup>3</sup>		28.5	15.3	13.0	21.2	30.2
20/05/2022	µg/m <sup>3</sup>		39.1	21.0	12.0	26.0	22.2
21/05/2022	µg/m <sup>3</sup>		20.3	12.9	8.4	15.1	15.1
22/05/2022	µg/m <sup>3</sup>		13.2	8.9	6.3	10.3	14.8

Date	Unit of Measure	Monitoring Frequency & Capture	EPL ID 13 (Howick)	EPL ID 15 (Wandewoi)	EPL ID 16 (Knodlers Lane)	EPL ID 17 (Golden Highway)	EPL ID 44 (North CHPP)
23/05/2022	µg/m <sup>3</sup>		22.2	10.2	6.4	10.5	9.9
24/05/2022	µg/m <sup>3</sup>		21.9	11.3	7.6	12.3	13.9
25/05/2022	µg/m <sup>3</sup>		31.1	16.3	19.2	25.2	35.1
26/05/2022	µg/m <sup>3</sup>		30.4	20.5	15.6	25.2	49.8
27/05/2022	µg/m <sup>3</sup>		21.8	14.5	14.5	32.4	36.9
28/05/2022	µg/m <sup>3</sup>		14.2	9.5	16.7	16.5	40.0
29/05/2022	µg/m <sup>3</sup>		13.7	4.2	8.3	7.9	35.7
30/05/2022	µg/m <sup>3</sup>		19.5	11.7	12.9	12.7	62.5
31/05/2022	µg/m <sup>3</sup>		13.3	11.2	14.7	11.9	17.4
<b>Monthly Meaningful Data</b>							
May	µg/m <sup>3</sup>	Minimum	9.1	4.2	6.3	7.9	9.5
	µg/m <sup>3</sup>	Mean	21.4	12.7	11.7	18.6	28.9
	µg/m <sup>3</sup>	Maximum	39.1	21.0	19.2	46.1	62.5
	µg/m <sup>3</sup>	Median	21.1	11.9	11.1	14.5	30.2

\* Howick and Knodlers Lane annual zero filter test hence data miscapture on 18 May

## 4 Surface Water Monitoring Data

**Date Sampled:** 2 May, 10 – 12 May, 16 – 19 May

**Date Obtained:** 3 May, 11 and 12 May, 16 and 17 May, 19 and 20 May

*Table 2 – Mine Water Discharge Monitoring*

Discharge Point	Pollutant	Unit of Measure	Licence Limits	No. Samples Required by Licence	No. Samples Collected and Analysed
EPL ID 3 (Dam 11N)	pH	pH	6.5-9.5	0	0
	Total Suspended Solids	Milligrams per Litre	120	0	0
EPL ID 4 (Dam 9W)	pH	pH	6.5-9.5	0	0
	Total Suspended Solids	Milligrams per Litre	120	0	0
EPL ID 8 (Dam 15S)	pH	pH	6.5-9.5	8	8
	Total Suspended Solids	Milligrams per Litre	120	8	8

# 5 Blast Monitoring Data

Date Last Sampled: 30/5/2022

Date Obtained: 1/06/2022

Table 3 – Blast Monitoring (Air Blast Overpressure and Ground Vibration))

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 21	Warkworth EPL ID 11
RW37GMC02A	2/05/2022 10:05	dB(L)	All blasts 100%	115	120	98.64	96.14	84.14	88.49
WS44BAR03A	3/05/2022 13:08	dB(L)		115	120	86.79	87.16	79.51	80.81
P208PF106B	4/05/2022 14:13	dB(L)		115	120	88.45	86.2	96.46	91.61
P20904503A	4/05/2022 14:15	dB(L)		115	120	86.5	93.58	98.01	101.14
WS44BAR01B	9/05/2022 13:05	dB(L)		115	120	98	92.27	99.16	85.04
WN49BAY07A	9/05/2022 13:07	dB(L)		115	120	95.22	105.7	94.35	95.65
P208PF107A	11/05/2022 12:59	dB(L)		115	120	107.53	95.7	99.48	95.16



Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 21	Warkworth EPL ID 11
RW37GMA03/04A_RW37GMP04A	11/05/2022 14:11	dB(L)	All blasts 100%	115	120	106.66	94.21	85.4	85.86
RW35AFA01A_RW35BFP01A	16/05/2022 10:44	dB(L)		115	120	95.24	98.14	88.85	96.48
WS44BAR03B	16/05/2022 13:17	dB(L)		115	120	97.07	100.48	90.39	90.15
P20905506A_P20906001A	19/05/2022 16:02	dB(L)		115	120	92.98	90.65	99.75	102.41
RW34BFA02A	20/05/2022 12:03	dB(L)		115	120	98.16	99.95	86.32	85.05
P125WK301A	20/05/2022 12:50	dB(L)		115	120	94.9	98.46	87.86	85.84
WS44BAR02A	21/05/2022 13:01	dB(L)		115	120	98.42	101.94	86.34	81.79
WS45BAR01B	23/05/2022 13:19	dB(L)		115	120	93.93	95.23	87.22	80.8
WN45BAR02A	24/05/2022 15:37	dB(L)		115	120	87.01	92.09	78.11	88.7
P208PF405A	25/05/2022 13:21	dB(L)		115	120	86.12	94.73	85	84.08

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 21	Warkworth EPL ID 11
P20905506B	25/05/2022 13:22	dB(L)		115	120	89.2	97.17	93.49	96.6
WN49BAP01A	26/05/2022 13:06	dB(L)		115	120	81.14	87.15	86.86	83.79
P125WK302A	26/05/2022 14:40	dB(L)		115	120	93.23	85.34	88.74	85.26
RW34BFA02B	27/05/2022 14:18	dB(L)		115	120	94.07	87.17	83.37	87.06
RW35AFA01B_RW35BFP01C	27/05/2022 14:19	dB(L)		115	120	90.54	86.71	85.34	89.58
P208BR501A_P208BYP01A	28/05/2022 17:17	dB(L)		115	120	81.6	87.32	94.19	89.32
WN45BAR03A	30/05/2022 16:35	dB(L)		115	120	98.63	90.75	102.91	95.44
<b>Monthly Meaningful Data</b>									
<b>May</b>	dB(L)	Minimum	115	120	81.14	85.34	78.11	80.80	
	dB(L)	Mean	115	120	93.33	93.51	90.05	89.42	
	dB(L)	Maximum	115	120	107.53	105.70	102.91	102.41	
	dB(L)	Median	115	120	94.00	93.90	88.30	88.60	

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 21	Warkworth EPL ID 11
RW37GMC02A	2/05/2022 10:05	mm/s	All Blasts 100%	5	10	0.13	0.03	0.07	1.28
WS44BAR03A	3/05/2022 13:08	mm/s		5	10	0.15	0.07	0.28	2.68
P208PF106B	4/05/2022 14:13	mm/s		5	10	0.11	0.03	0.08	0.97
P20904503A	4/05/2022 14:15	mm/s		5	10	0.14	0.05	0.26	0.75
WS44BAR01B	9/05/2022 13:05	mm/s		5	10	0.14	0.06	0.08	0.24
WN49BAY07A	9/05/2022 13:07	mm/s		5	10	0.12	0.04	0.07	0.24
P208PF107A	11/05/2022 12:59	mm/s		5	10	0.1	0.03	0.07	1.17
RW37GMA03/04A_RW37GMP04A	11/05/2022 14:11	mm/s		5	10	0.25	0.04	0.08	0.33
RW35AFA01A_RW35BFP01A	16/05/2022 10:44	mm/s		5	10	0.16	0.03	0.07	0.18
WS44BAR03B	16/05/2022 13:17	mm/s		5	10	0.15	0.04	0.06	0.08
P20905506A_P20906001A	19/05/2022 16:02	mm/s		5	10	0.18	0.04	0.22	0.67

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 21	Warkworth EPL ID 11
RW34BFA02A	20/05/2022 12:03	mm/s		5	10	0.28	0.06	0.11	0.23
P125WK301A	20/05/2022 12:50	mm/s		5	10	0.15	0.12	0.16	0.46
WS44BAR02A	21/05/2022 13:01	mm/s		5	10	0.17	0.08	0.11	0.66
WS45BAR01B	23/05/2022 13:19	mm/s		5	10	0.13	0.05	0.07	0.17
WN45BAR02A	24/05/2022 15:37	mm/s		5	10	0.2	0.25	0.16	0.27
P208PF405A	25/05/2022 13:21	mm/s		5	10	0.1	0.02	0.15	0.27
P20905506B	25/05/2022 13:22	mm/s		5	10	0.13	0.03	0.15	0.37
WN49BAP01A	26/05/2022 13:06	mm/s		5	10	0.15	0.05	0.07	0.13
P125WK302A	26/05/2022 14:40	mm/s		5	10	0.1	0.03	0.05	0.22
RW34BFA02B	27/05/2022 14:18	mm/s			5	10	0.2	0.04	0.06
RW35AFA01B_RW35BFP01C	27/05/2022 14:19	mm/s	5		10	0.13	0.04	0.07	0.22

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 21	Warkworth EPL ID 11
P208BR501A_P208BYP01A	28/05/2022 17:17	mm/s		5	10	0.1	0.02	0.06	0.23
WN45BAR03A	30/05/2022 16:35	mm/s		5	10	0.16	0.11	0.12	0.23

Monthly Meaningful Data									
May	mm/s	Minimum	5	10	0.10	0.02	0.05	0.08	
	mm/s	Mean	5	10	0.15	0.06	0.11	0.51	
	mm/s	Maximum	5	10	0.28	0.25	0.28	2.68	
	mm/s	Median	5	10	0.15	0.04	0.08	0.26	

# 6 Sewage Treatment Plant Monitoring Data

Date Sampled: 1 June 2022

Date Obtained: 8 June 2022

**Table 4 Sewage Treatment Plant Monitoring**

Monitoring Site	Date & Time	Pollutant	Unit of Measure	Monitoring Result
EPA ID 23	01/06/2022 10:20:00	Faecal Coliforms	Colony forming units/100ml	630000
		pH	pH	7.12
EPA ID 25	01/06/2022 10:30:00	Faecal Coliforms	Colony forming units/100ml	73000
		pH	pH	7.45
EPA ID 26	01/06/2022 08:15:00	Faecal Coliforms	Colony forming units/100ml	1100000
		pH	pH	7.49
EPA ID 29	01/06/2022 11:30:00	Faecal Coliforms	Colony forming units/100ml	460
		pH	pH	7.29

# 7 Noise Monitoring Data

Date Sampled: 17/05/2022

Date Obtained: 16/06/2022

**Table 5 Night LAeq,15minute Generated by HVO Against EPL Criteria**

Location	Date & Time	Wind Speed (m/s) <sup>1</sup>	Stability Class <sup>1</sup>	Criterion dB	Criterion Applies? <sup>2</sup>	HVO LAeq dB <sup>3,4</sup>	Exceedance dB <sup>4,5</sup>
EPA ID 36	17/05/2022 21:00	4.2	E	41	No	31	NA
EPA ID 37	17/05/2022 21:44	3.7	D	40	No	32	NA
EPA ID 38	17/05/2022 21:23	4.5	D	39	No	31	NA
EPA ID 39	17/05/2022 22:32	4.8	E	37	No	<25	NA
EPA ID 40	17/05/2022 23:16	5.8	D	39	No	IA	NA
EPA ID 41	17/05/2022 22:55	5.2	D	39	No	IA	NA
EPA ID 42	17/05/2022 21:25	4.5	D	40	No	IA	NA
EPA ID 43	17/05/2022 21:03	4.2	E	40	No	IA	NA

**Notes:**

1. Atmospheric data is sourced from the HVO Cheshunt AWS using logged meteorological data;
2. Noise criteria apply under all meteorological conditions except during periods of rain or hail, wind speeds greater than 3 m/s measured at 10 metres above ground level, stability category F conditions and wind speeds greater than 2 m/s measured at 10m above ground level, or stability category G conditions;
3. Site-only LAeq,15minute attributed to HVO, including modifying factors if applicable;
4. Bold results in red indicate exceedance of criterion; and
5. NA in exceedance column means atmospheric conditions outside specified in approval, therefore criterion was not applicable.

**Table 6 Night  $L_{A1,1minute}$  Generated by HVO Against EPL Criteria**

Location	Date & Time	Wind Speed (m/s) <sup>1</sup>	Stability Class <sup>1</sup>	Criterion dB	Criterion Applies? <sup>2</sup>	HVO $L_{Aeq}$ dB <sup>3,4</sup>	Exceedance dB <sup>4,5</sup>
EPA ID 36	17/05/2022 21:00	4.2	E	46	No	<b>36</b>	NA
EPA ID 37	17/05/2022 21:44	3.7	E	46	No	35	NA
EPA ID 38	17/05/2022 21:23	4.5	D	46	No	34	NA
EPA ID 39	17/05/2022 22:32	4.8	E	46	No	28	NA
EPA ID 40	17/05/2022 23:16	5.8	E	46	No	IA	NA
EPA ID 41	17/05/2022 22:55	5.2	D	46	No	IA	NA
EPA ID 42	17/05/2022 21:25	4.5	D	46	No	IA	NA
EPA ID 43	17/05/2022 21:03	4.2	E	46	No	IA	NA

Notes:

1. Atmospheric data is sourced from the HVO Cheshunt AWS using logged meteorological data;
2. Noise criteria apply under all meteorological conditions except during periods of rain or hail, wind speeds greater than 3 m/s measured at 10 metres above ground level, stability category F conditions and wind speeds greater than 2 m/s measured at 10m above ground level, or stability category G conditions;
3. Site-only  $L_{A1,1minute}$  attributed to HVO;
4. Bold results in red indicate exceedance of criterion; and
5. NA in criterion column indicates no criterion is applicable at this location. NA in exceedance column means atmospheric conditions outside specified in approval, therefore criterion was not applicable.