

# HUNTER VALLEY OPERATIONS



## **Environment Protection Licence 640 Monitoring Data – August 2022 Report**



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**Number:** HVOOC-1797567310-4366

**Status:** Approved

**Effective:** 26/09/2022

**Owner:** Environment and Community Officer

**Version:** 1.0

**Review:** [Planned  
Review Date]

# 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

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TSS	Total Suspended Solids
t	tonnes
YTD	Year To Date - rolling 12 month average

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**Number:** HVOOC-1797567310-4366

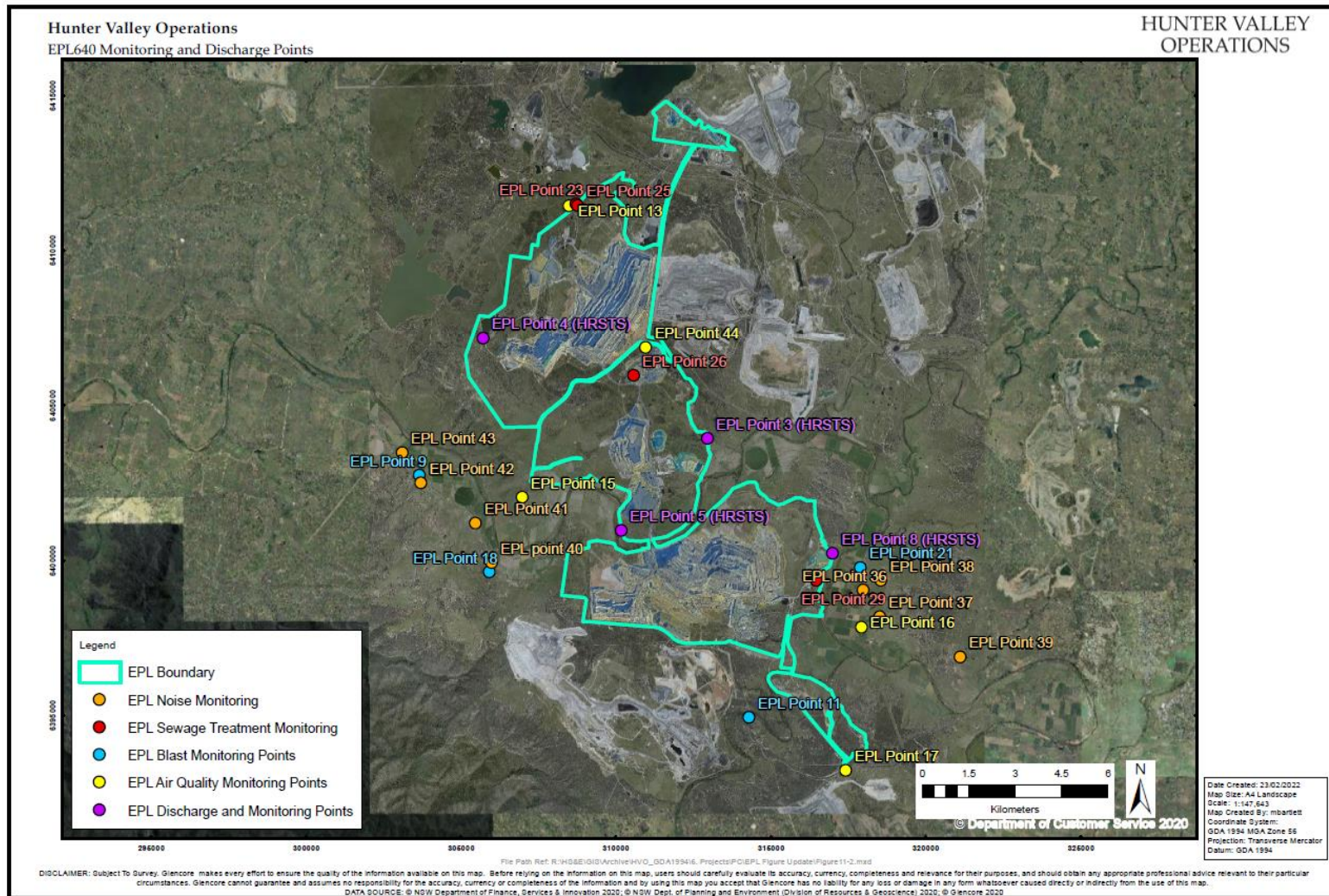
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**Figure 1 - EPL 640 Monitoring Locations**

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### 3. Air Quality

**Date Last Sampled:** 1/08/2022

**Date Obtained:** 1/09/2022

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 (West Pit)
1/08/2022	µg/m <sup>3</sup>	Continuous	12.4	8.9	13.9	27.2	38.1
2/08/2022	µg/m <sup>3</sup>		10.6	5.2	12.1	20.1	*
3/08/2022	µg/m <sup>3</sup>		*	10.9	23.0	32.4	*
4/08/2022	µg/m <sup>3</sup>		*	*	*	*	*
5/08/2022	µg/m <sup>3</sup>		*	*	*	*	*
6/08/2022	µg/m <sup>3</sup>		7.2	5.6	9.4	9.0	23.5
7/08/2022	µg/m <sup>3</sup>		11.3	5.7	8.5	9.7	21.9
8/08/2022	µg/m <sup>3</sup>		14.0	7.0	9.3	14.6	17.7
9/08/2022	µg/m <sup>3</sup>		10.9	7.1	13.3	18.7	25.2
10/08/2022	µg/m <sup>3</sup>		21.4	13.2	13.2	22.2	15.9
11/08/2022	µg/m <sup>3</sup>		34.9	21.1	20.7	36.1	39.2
12/08/2022	µg/m <sup>3</sup>		13.7	9.9	12.3	15.9	24.4
13/08/2022	µg/m <sup>3</sup>			5.9	6.2	5.6	12.0
14/08/2022	µg/m <sup>3</sup>		7.2	4.7	7.0	4.3	23.2
15/08/2022	µg/m <sup>3</sup>		8.8	5.2	8.6	5.6	27.7
16/08/2022	µg/m <sup>3</sup>		*	*	*	*	*
17/08/2022	µg/m <sup>3</sup>		*	*	*	*	*
18/08/2022	µg/m <sup>3</sup>		9.8	9.3	16.3	13.5	54.1
19/08/2022	µg/m <sup>3</sup>		14.6	5.6	15.7	14.7	25.2
20/08/2022	µg/m <sup>3</sup>		13.6	8.6	15.3	10.9	41.3

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 (West Pit)
21/08/2022	µg/m <sup>3</sup>		33.0	16.8	20.8	57.0	44.0
22/08/2022	µg/m <sup>3</sup>		28.0	13.0	34.1	29.0	161.7
23/08/2022	µg/m <sup>3</sup>		13.6	10.6	18.8	20.6	87.5
24/08/2022	µg/m <sup>3</sup>		4.8	5.4	7.2	6.5	7.9
25/08/2022	µg/m <sup>3</sup>		14.8	9.3	9.3	13.1	24.0
26/08/2022	µg/m <sup>3</sup>		22.2	14.0	17.4	19.0	34.0
27/08/2022	µg/m <sup>3</sup>		26.7	14.6	10.1	14.0	28.0
28/08/2022	µg/m <sup>3</sup>		34.8	22.3	16.5	16.0	63.1
29/08/2022	µg/m <sup>3</sup>		19.0	13.9	10.4	17.9	32.0
30/08/2022	µg/m <sup>3</sup>		18.1	12.6	22.2	27.6	67.3
<b>Monthly Meaningful Data</b>							
August	µg/m <sup>3</sup>	Minimum	4.8	4.7	6.2	4.3	7.9
	µg/m <sup>3</sup>	Mean	17.2	10.4	14.3	18.4	38.4
	µg/m <sup>3</sup>	Maximum	34.9	22.3	34.1	57.0	161.7
	µg/m <sup>3</sup>	Median	14.0	9.3	13.3	15.9	27.7

\*TEOM Data Miscapture - less than 75% data captured



## 4. Surface Water Monitoring Data

### Date Sampled:

EPL ID 3: 3/8/22, 4/8/22

EPL ID 4: 2/8/22, 10/8/22, 11/8/22, 12/8/22, 13/8/22, 14/8/22, 15/8/22, 16/8/22, 17/8/22, 18/8/22, 23/8/22, 24/8/22, 29/8/22, 30/8/22, 31/8/22

EPL ID 8: 5/8/22, 6/8/22, 7/8/22, 8/8/22, 9/8/22, 10/8/22, 17/8/22, 18/8/22, 19/8/22, 20/8/22, 21/8/22, 25/8/22, 26/8/22

### Date Obtained:

EPL ID 3: 4/8/22, 5/8/22

EPL ID 4: 4/8/22, 11/8/22, 12/8/22, 13/8/22, 14/8/22, 15/8/22, 16/8/22, 17/8/22, 18/8/22, 19/8/22, 24/8/22, 25/8/22, 30/8/22, 1/9/22, 1/9/22, 2/9/22

EPL ID 8: 7/8/22, 7/8/22, 8/8/22, 9/8/22, 11/8/22, 11/8/22, 17/8/22, 18/8/22, 22/8/22, 22/8/22, 22/8/22, 29/8/22, 29/8/22

Table 2- HRSTS 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	2	2
	Total Suspended Solids	Milligrams per Litre	120	2	2
EPL ID 4 (Dam 9W)	pH	pH	6.5-9.5	15	15
	Total Suspended Solids	Milligrams per Litre	120	15	15
EPL ID 8 (Dam 15S)	pH	pH	6.5-9.5	13	13
	Total Suspended Solids	Milligrams per Litre	120	13	13

## 5. Blast Monitoring Data

**Date Last Sampled:** 31/8/2022

**Date Obtained:** 1/09/2022

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
WS4911005A_WS49BAY07A	1/08/2022 13:01	dB(L)	All blasts 100%	115	120	91.35	92.25	100.24	89.95
P208VA104A	2/08/2022 13:06	dB(L)		115	120	84.64	107.5	101.41	96.25
P209WK603A	3/08/2022 13:25	dB(L)		115	120	86.47	93.51	101.3	99.5
P125WK303A	6/08/2022 10:02	dB(L)		115	120	103.63	107.14	106.38	95.66
P208BYP02A_P208B5P02A	8/08/2022 13:50	dB(L)		115	120	95.29	91.15	84.25	84
P20903506A	8/08/2022 13:53	dB(L)		115	120	93.2	90.35	103	98.22
WN47ULP01A	9/08/2022 13:19	dB(L)		115	120	95.11	94.38	94.71	87.91

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
RW37GMC04A	10/08/2022 13:59	dB(L)	All blasts 100%	115	120	100.95	103.72	83.06	86.61
P125FCL01A	11/08/2022 12:56	dB(L)		115	120	92.86	90.23	94.33	102.04
WN45LLD04/05A	12/08/2022 13:13	dB(L)		115	120	96.94	91.74	103.07	97.52
P208BR502A	13/08/2022 13:28	dB(L)		115	120	103.75	112.17	97.25	91.71
P208BR103A	13/08/2022 13:29	dB(L)		115	120	100.72	109	110.95	97.19
P20904506A_P20903508A	13/08/2022 13:30	dB(L)		115	120	83.27	104.33	98.69	95.5
WS45BAR04C_WN44BAR03A	15/08/2022 13:24	dB(L)		115	120	106.12	112.1	110.24	96.62
WN47ULD01A	17/08/2022 13:08	dB(L)		115	120	100.08	86.29	84.32	86.28
RW37GMC04B_05A_06A	19/08/2022 13:25	dB(L)		115	120	91.29	102.97	97.97	96.24
P210BF407A	20/08/2022 11:01	dB(L)		115	120	99.77	105.6	106.73	112.3

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
WN47ULP02A	20/08/2022 15:22	dB(L)		115	120	85.47	104.12	109.23	103.94
WS4910001A	22/08/2022 16:02	dB(L)		115	120	90.76	104.87	109.65	95.85
WS4913301A	22/08/2022 16:04	dB(L)		115	120	104.98	106.78	104.84	84.95
P20903507A_P209WK604A_P209WK308A	23/08/2022 13:13	dB(L)		115	120	96.66	111	103.89	108.04
RW35BFA01C	24/08/2022 13:59	dB(L)		115	120	88.99	100.17	92.37	98.08
WS49BAY10A	25/08/2022 13:04	dB(L)		115	120	87.14	90.15	98.71	101.77
M1T2ULD05A	26/08/2022 13:03	dB(L)		115	120	90.95	100.7	79.75	80.83
P210WK201A	29/08/2022 13:13	dB(L)		115	120	89.3	83.62	95.68	97.15
WN44BAR03B	31/08/2022 13:04	dB(L)		115	120	94.09	93.82	98.27	80.89
P125WK303B_P125WK502A	31/08/2022 15:04	dB(L)		115	120	100.48	101.28	98.45	94.35

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
<b>Monthly Meaningful Data</b>									
<b>August</b>		dB(L)	Minimum	115	120	83.27	83.62	79.75	80.83
		dB(L)	Mean	115	120	94.60	99.66	98.84	94.79
		dB(L)	Maximum	115	120	106.12	112.17	110.95	112.30
		dB(L)	Median	115	120	94.09	101.28	98.71	96.24

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
WS4911005A_WS49BAY07A	1/08/2022 13:01	mm/s	All Blasts 100%	5	10	0.1	0.03	0.04	0.12
P208VA104A	2/08/2022 13:06	mm/s		5	10	0.11	0.04	0.11	0.95
P209WK603A	3/08/2022 13:25	mm/s		5	10	0.18	0.07	0.29	0.83
P125WK303A	6/08/2022 10:02	mm/s		5	10	0.1	0.02	0.02	0.24
P208BYP02A_P208B5P02A	8/08/2022 13:50	mm/s		5	10	0.17	0.07	0.28	0.35
P20903506A	8/08/2022 13:53	mm/s		5	10	0.15	0.07	0.19	0.54
WN47ULP01A	9/08/2022 13:19	mm/s		5	10	0.15	0.15	0.07	0.28
RW37GMC04A	10/08/2022 13:59	mm/s		5	10	0.18	0.05	0.04	0.24
P125FCL01A	11/08/2022 12:56	mm/s		5	10	0.09	0.03	0.02	0.98
WN45LLD04/05A	12/08/2022 13:13	mm/s		5	10	0.12	0.09	0.03	1.24
P208BR502A	13/08/2022 13:28	mm/s		5	10	0.09	0.03	0.08	0.19
P208BR103A	13/08/2022 13:29	mm/s		5	10	0.12	0.04	0.23	0.47
P20904506A_P20903508A	13/08/2022 13:30	mm/s		5	10	0.09	0.04	0.07	0.28

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
WS45BAR04C_WN44BAR03A	15/08/2022 13:24	mm/s		5	10	0.19	0.14	0.15	0.67
WN47ULD01A	17/08/2022 13:08	mm/s		5	10	0.21	0.19	0.1	0.23
RW37GMC04B_05A_06A	19/08/2022 13:25	mm/s		5	10	0.15	0.05	0.04	0.26
P210BF407A	20/08/2022 11:01	mm/s		5	10	0.13	0.04	0.25	0.48
WN47ULP02A	20/08/2022 15:22	mm/s		5	10	0.16	0.12	0.06	0.23
WS4910001A	22/08/2022 16:02	mm/s		5	10	0.12	0.05	0.04	0.49
WS4913301A	22/08/2022 16:04	mm/s		5	10	0.11	0.06	0.03	0.2
P20903507A_P209WK604A_P209WK308A	23/08/2022 13:13	mm/s		5	10	0.14	0.05	0.15	0.61
RW35BFA01C	24/08/2022 13:59	mm/s		5	10	0.16	0.07	0.07	0.22
WS49BAY10A	25/08/2022 13:04	mm/s		5	10	0.13	0.05	0.05	0.33
M1T2ULD05A	26/08/2022 13:03	mm/s		5	10	0.11	0.08	0.03	0.19
P210WK201A	29/08/2022 13:13	mm/s		5	10	0.09	0.03	0.04	0.76
WN44BAR03B	31/08/2022 13:04	mm/s		5	10	0.14	0.11	0.08	0.13

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
P125WK303B_P125WK502A	31/08/2022 15:04	mm/s		5	10	0.11	0.04	0.04	0.15

Monthly Meaningful Data									
August	mm/s	Minimum	5	10	0.09	0.02	0.02	0.12	
	mm/s	Mean	5	10	0.13	0.07	0.10	0.43	
	mm/s	Maximum	5	10	0.21	0.19	0.29	1.24	
	mm/s	Median	5	10	0.13	0.05	0.07	0.28	



## 6. Sewage Treatment Plant Monitoring Data

**Date Sampled:** 1 August 2022

**Date Obtained:** 11 September 2022

*Table 4 Sewage Treatment Plant Monitoring*

Monitoring Site	Date & Time	Pollutant	Unit of Measure	Monitoring Result
EPA ID 23	1/08/2022 08:50:00	Faecal Coliforms	Colony forming units/100ml	250000
		pH	pH	6.92
EPA ID 25	1/08/2022 09:00:00	Faecal Coliforms	Colony forming units/100ml	1600
		pH	pH	7.22
EPA ID 26	1/08/2022 10:25:00	Faecal Coliforms	Colony forming units/100ml	350000
		pH	pH	7.56
EPA ID 29	1/08/2022 11:45:00	Faecal Coliforms	Colony forming units/100ml	400
		pH	pH	7.52

## 7. Noise Monitoring Data

**Date Sampled:** 17/08/2022

**Date Obtained:** 09/09/2022

*Table 5 Night L<sub>Aeq,15minute</sub> 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 <sub>Aeq</sub> dB <sup>3,4</sup>	Exceedance dB <sup>4,5</sup>
EPA ID 36	Shearers Lane	17/08/2022 21:00	0.7	F	41	Yes	34
EPA ID 37	Knodlers Lane	17/08/2022 21:43	0.7	F	40	Yes	34
EPA ID 38	Maison Dieu	17/08/2022 21:21	0.8	F	39	Yes	34
EPA ID 39	Long Point	17/08/2022 22:34	1.4	E	37	Yes	<30
EPA ID 40	Kilburnie South	17/08/2022 23:13	3.4	E	39	No	IA
EPA ID 41	Jerrys Plains East	17/08/2022 22:53	3.2	E	39	No	<20
EPA ID 42	Jerrys Plains Village	17/08/2022 21:20	0.8	F	40	Yes	IA
EPA ID 43	Jerrys Plain West	17/08/2022 21:01	0.7	F	40	Yes	IA

*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  $L_{A1, 1 \text{ minute}}$  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	Shearers Lane	17/08/2022 21:00	0.7	F	46	Yes	38
EPA ID 37	Knodlers Lane	17/08/2022 21:43	0.7	F	46	Yes	37
EPA ID 38	Maison Dieu	17/08/2022 21:21	0.8	F	46	Yes	36
EPA ID 39	Long Point	17/08/2022 22:34	1.4	E	46	Yes	<30
EPA ID 40	Kilburnie South	17/08/2022 23:13	3.4	E	46	No	IA
EPA ID 41	Jerrys Plains East	17/08/2022 22:53	3.2	E	46	No	<20
EPA ID 42	Jerrys Plains Village	17/08/2022 21:20	0.8	F	46	Yes	IA
EPA ID 43	Jerrys Plain West	17/08/2022 21:01	0.7	F	46	Yes	IA

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  $L_{A1, 1 \text{ minute}}$  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.