

# HUNTER VALLEY OPERATIONS



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## Environment Protection Licence 640 Monitoring Data –July 2021 Published 25<sup>th</sup> August 2021

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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="http://Detail.aspx?instid=640&amp;id=640&amp;option=licence&amp;searchrange=licence&amp;range=POEO%20licence&amp;prp=no&amp;status=Issued">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



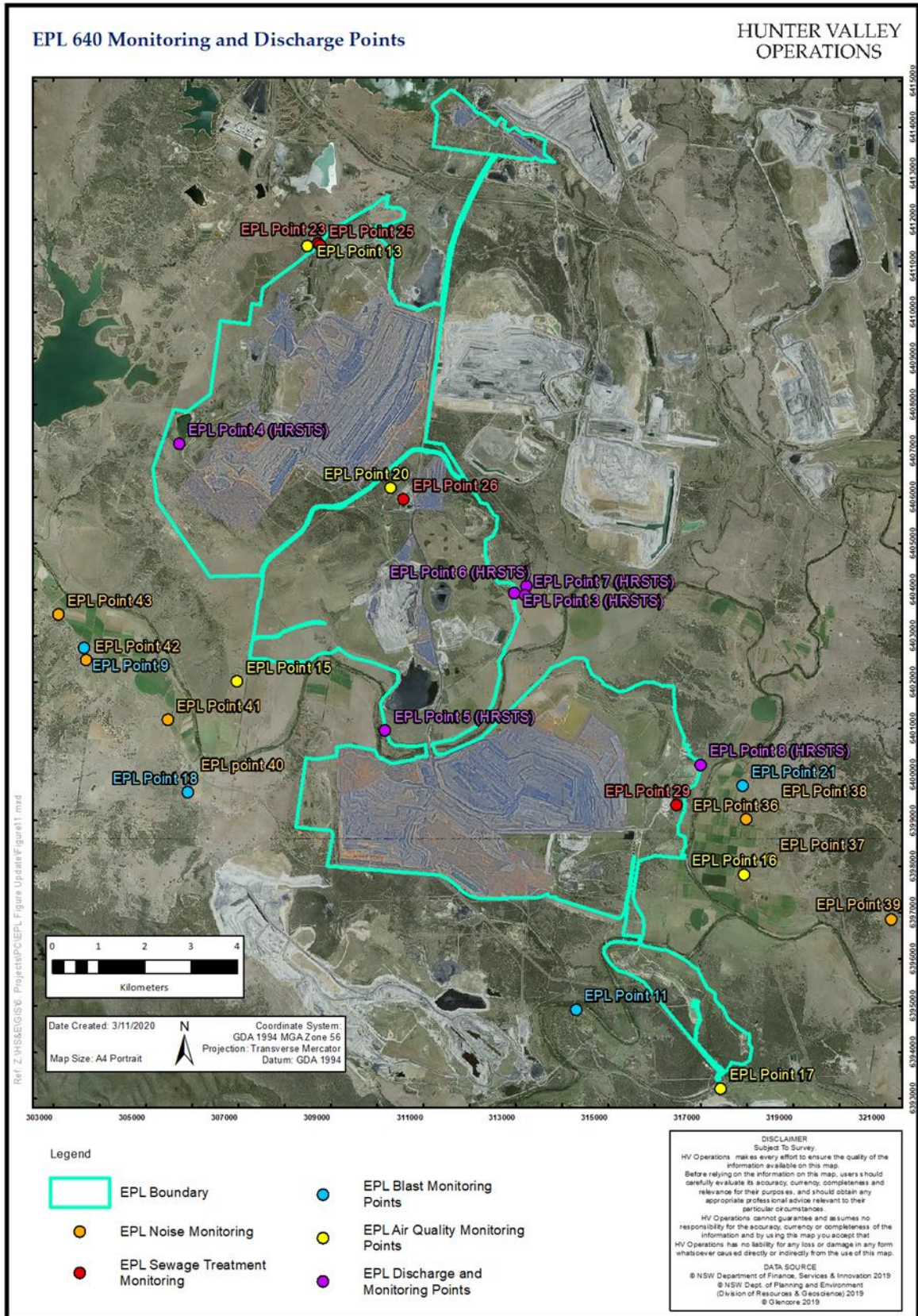


Figure 1 - EPL 640 Monitoring, Sampling and Discharge Point Locations Air Quality Monitoring Data

### 3 Air Quality

Date Last Sampled: 31/07/2021

Date Obtained: 01/08/2021

Table 1 – Particulate Matter <10µm Monitoring

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			EPL ID 13 (Howick)	EPL ID 15 (Wandewoi)	EPL ID 16 (Knodlers Lane)	EPL ID 17 (Golden Highway)	EPL ID 20 (HVS Proposed)
1/07/2021	µg/m <sup>3</sup>	Continuous	17.2	8.2	12.0	12.3	21.8
2/07/2021	µg/m <sup>3</sup>		7.5	5.0	12.2	7.9	8.7
3/07/2021	µg/m <sup>3</sup>		8.6	4.1	14.9	8.5	12.4
4/07/2021	µg/m <sup>3</sup>		10.2	6.8	15.6	9.3	15.5
5/07/2021	µg/m <sup>3</sup>		12.3	4.8	15.7	10.4	20.2
6/07/2021	µg/m <sup>3</sup>		13.1	4.7	17.7	15.9	34.2
7/07/2021	µg/m <sup>3</sup>		31.1	14.5	19.4	23.3	34.7
8/07/2021	µg/m <sup>3</sup>		32.3	19.2	26.5	27.2	47.2
9/07/2021	µg/m <sup>3</sup>		14.3	10.2	18.3	17.8	24.0
10/07/2021	µg/m <sup>3</sup>		8.7	6.4	13.8	15.6	9.7
11/07/2021	µg/m <sup>3</sup>		24.3	14.1	15.6	25.1	28.5
12/07/2021	µg/m <sup>3</sup>		18.5	11.3	14.5	20.2	45.8
13/07/2021	µg/m <sup>3</sup>		17.1	9.4	25.2	13.7	31.4
14/07/2021	µg/m <sup>3</sup>		18.3	9.4	30.0	26.7	38.3
15/07/2021	µg/m <sup>3</sup>		10.5	6.0	15.9	10.0	13.6
16/07/2021	µg/m <sup>3</sup>		14.8	10.0	20.9	15.4	24.7
17/07/2021	µg/m <sup>3</sup>		20.9	13.2	28.0	15.9	26.3
18/07/2021	µg/m <sup>3</sup>		13.8	7.4	17.4	9.2	24.2
19/07/2021	µg/m <sup>3</sup>		13.0	4.3	12.9	6.5	*
20/07/2021	µg/m <sup>3</sup>		14.9	4.5	18.5	7.2	*
21/07/2021	µg/m <sup>3</sup>		19.0	5.9	17.3	29.3	32.4
22/07/2021	µg/m <sup>3</sup>		36.5	14.1	22.6	28.0	42.3

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			EPL ID 13 (Howick)	EPL ID 15 (Wandewoi)	EPL ID 16 (Knodlers Lane)	EPL ID 17 (Golden Highway)	EPL ID 20 (HVS Proposed)
23/07/2021	µg/m <sup>3</sup>		21.2	12.1	22.7	21.8	34.4
24/07/2021	µg/m <sup>3</sup>		14.9	6.0	21.1	12.2	25.7
25/07/2021	µg/m <sup>3</sup>		15.9	7.7	24.2	11.7	31.8
26/07/2021	µg/m <sup>3</sup>		15.3	8.1	26.9	15.0	39.3
27/07/2021	µg/m <sup>3</sup>		18.2	12.2	29.9	27.5	24.7
28/07/2021	µg/m <sup>3</sup>		23.7	11.7	70.8	28.4	64.3
29/07/2021	µg/m <sup>3</sup>		12.3	8.3	23.0	13.4	38.9
30/07/2021	µg/m <sup>3</sup>		18.6	7.7	31.8	37.8	37.9
31/07/2021			20.6	9.9	46.9	33.8	29.1
<b>Monthly Meaningful Data</b>							
July	µg/m <sup>3</sup>	Minimum	7.5	4.1	12.0	6.5	8.7
	µg/m <sup>3</sup>	Mean	17.3	8.9	22.7	18.0	29.7
	µg/m <sup>3</sup>	Maximum	36.5	19.2	70.8	37.8	64.3
	µg/m <sup>3</sup>	Median	15.9	8.2	19.4	15.6	29.1

\*Data unavailable due to data lock up. All data miscaptures are to be recorded in the Annual Return.

## 4 Surface Water Monitoring Data

**Date Sampled:** No HRSTS discharge events recorded for July

**Date Obtained:** N/A

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	0	0
	Total Suspended Solids	Milligrams per Litre	120	0	0

# 5 Blast Monitoring Data

Date Last Sampled: 01/07/2021

Date Obtained: 01/08/2021

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	EPL ID 18 (Moses Crossing)	EPL ID 9 (Jerrys Plains)	EPL ID 12 (Maison Dieu)	EPL ID 11 (Warkworth)
WN47LDP01A	1/07/2021 13:15	dB(L)	All Blasts 100%	115	120	94.88	96.07	103.16	103.09
P123BR613A	3/07/2021 15:03	dB(L)		115	120	86.32	83.86	92.34	97.02
P207BR501A	5/07/2021 13:45	dB(L)		115	120	88.63	88.77	96.93	93.73
P208MA303A	5/07/2021 13:46	dB(L)		115	120	89.11	95.53	93.07	92.45
P12506402A	6/07/2021 13:05	dB(L)		115	120	93.79	95.16	97.43	101.64
P123BR614A	10/07/2021 14:00	dB(L)		115	120	101.1	93.36	104.47	95.43
P207BR503A	12/07/2021 13:21	dB(L)		115	120	80.32	80.07	89.16	91.78



Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	EPL ID 18 (Moses Crossing)	EPL ID 9 (Jerrys Plains)	EPL ID 12 (Maison Dieu)	EPL ID 11 (Warkworth)
P20905501A_P20905502A	12/07/2021 13:23	dB(L)		115	120	94.02	92.17	100.69	107.68
WN47LED01A	13/07/2021 13:15	dB(L)		115	120	97.83	96.57	93.13	93.84
P124WK504A	15/07/2021 16:45	dB(L)		115	120	80.13	89.16	105.41	106.47
P12507201A_P12506402B	15/07/2021 16:46	dB(L)		115	120	89.31	91.8	105.41	106.47
P207BR502A	21/07/2021 13:08	dB(L)		115	120	106.63	98.55	95.68	97.98
P208N0001A	21/07/2021 13:10	dB(L)		115	120	95.76	95.39	98.51	95.98
P123B6P07A	21/07/2021 13:11	dB(L)		115	120	98.51	87.29	103.19	105.11
P210BF401A	22/07/2021 13:11	dB(L)		115	120	93.35	93.2	105.33	106.06
WN4706501A	23/07/2021 16:03	dB(L)		115	120	95.29	91.5	97.37	89.7
P124WK504B	27/07/2021 12:17	dB(L)		115	120	89.96	87.95	94.04	98.24

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	EPL ID 18 (Moses Crossing)	EPL ID 9 (Jerrys Plains)	EPL ID 12 (Maison Dieu)	EPL ID 11 (Warkworth)
P207BR504A	27/07/2021 15:25	dB(L)		115	120	84.47	84.83	92.91	93.39
WS45ULP01B	29/07/2021 13:52	dB(L)		115	120	96.47	86.41	99.59	92.11
RW3711001A	30/07/2021 14:29	dB(L)		115	120	92.38	88.11	95.39	95.11
P208N0001B	31/07/2021 13:14	dB(L)		115	120	97	100.07	100.65	103.22
P123B4P01A	31/07/2021 13:14	dB(L)		115	120	89.16	109.87	98.06	96.42
<b>Monthly Meaningful Data</b>									
<b>July</b>		dB(L)	Minimum	115	120	80.13	80.07	80.53	84.55
		dB(L)	Mean	115	120	92.31	95.24	98.13	97.03
		dB(L)	Maximum	115	120	107.61	111.40	112.53	107.68
		dB(L)	Median	115	120	92.65	95.16	97.37	95.90

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 12	Warkworth EPL ID 11
WN47LDP01A	1/07/2021 13:15	mm/s	All Blasts 100%	5	10	0.22	0.19	0.19	0.25
P123BR613A	3/07/2021 15:03	mm/s		5	10	0.17	0.07	0.15	0.43
P207BR501A	5/07/2021 13:45	mm/s		5	10	0.12	0.05	0.14	0.7
P208MA303A	5/07/2021 13:46	mm/s		5	10	0.1	0.05	0.06	0.22
P12506402A	6/07/2021 13:05	mm/s		5	10	0.13	0.06	0.09	0.91
P123BR614A	10/07/2021 14:00	mm/s		5	10	0.23	0.1	0.44	1.06
P207BR503A	12/07/2021 13:21	mm/s		5	10	0.11	0.04	0.11	0.81
P20905501A_P20905502A	12/07/2021 13:23	mm/s		5	10	0.18	0.08	0.33	0.66
WN47LED01A	13/07/2021 13:15	mm/s		5	10	0.23	0.23	0.16	0.82
P124WK504A	15/07/2021 16:45	mm/s		5	10	0.14	0.05	0.08	0.47

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 12	Warkworth EPL ID 11	
P12507201A_P12506402B	15/07/2021 16:46	mm/s		5	10	0.14	0.05	0.08	0.47	
P207BR502A	21/07/2021 13:08	mm/s		5	10	0.11	0.04	0.13	0.23	
P208N0001A	21/07/2021 13:10	mm/s		5	10	0.13	0.05	0.2	0.37	
P123B6P07A	21/07/2021 13:11	mm/s		5	10	0.23	0.1	0.21	1.25	
P210BF401A	22/07/2021 13:11	mm/s		5	10	0.12	0.05	0.14	0.57	
WN4706501A	23/07/2021 16:03	mm/s		5	10	0.16	0.12	0.1	0.2	
P124WK504B	27/07/2021 12:17	mm/s		5	10	0.1	0.04	0.04	0.36	
P207BR504A	27/07/2021 15:25	mm/s		5	10	0.1	0.05	0.1	0.25	
WS45ULP01B	29/07/2021 13:52	mm/s		5	10	0.35	0.29	0.12	0.55	
RW3711001A	30/07/2021 14:29	mm/s		5	10	0.12	0.05	0.04	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 12	Warkworth EPL ID 11
P208N0001B	31/07/2021 13:14	mm/s		5	10	0.13	0.06	0.32	0.67
P123B4P01A	31/07/2021 13:14	mm/s		5	10	0.16	0.1	0.32	0.67
Monthly Meaningful Data									
July		mm/s	Minimum	5	10	0.10	0.03	0.04	0.13
		mm/s	Mean	5	10	0.16	0.08	0.14	0.49
		mm/s	Maximum	5	10	0.38	0.29	0.44	1.25
		mm/s	Median	5	10	0.14	0.06	0.11	0.41

# 6 Sewage Treatment Plant Monitoring Data

Date Sampled: 1/07/2021

Date Obtained: 10/08/2021

*Table 5 Sewage Treatment Plant Monitoring*

Monitoring Site	Date & Time	Pollutant	Unit of Measure	Monitoring Result
EPA ID 23	6/07/2021 6:45:00 AM	Faecal Coliforms	Colony forming units/100ml	860000
		pH	pH	7.08
EPA ID 25	6/07/2021 6:55:00 AM	Faecal Coliforms	Colony forming units/100ml	<910
		pH	pH	7.46
EPA ID 26	6/07/2021 9:20:00 AM	Faecal Coliforms	Colony forming units/100ml	960000
		pH	pH	6.86
EPA ID 29	6/07/2021 10:15:00 AM	Faecal Coliforms	Colony forming units/100ml	~360
		pH	pH	7.54



# 7 Noise Monitoring Data

Date Sampled: 22/7/2021 and 29/07/2021

Date Obtained: 24/08/2021

Table 1 Night  $L_{Aeq,15minute}$  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 $L_{Aeq}$ dB <sup>3,4</sup>	Exceedance dB <sup>4,5</sup>
EPA ID 36	22/07/2021 21:08	0.9	E	41	Yes	IA	Nil
EPA ID 37	22/07/2021 22:24	0.4	F	40	Yes	IA	Nil
EPA ID 38	22/07/2021 21:49	0.4	F	39	Yes	IA	Nil
EPA ID 39	22/07/2021 23:30	0.6	D	37	Yes	IA	Nil
EPA ID 40	22/07/2021 23:43	0.2	D	39	Yes	IA	Nil
EPA ID 41	22/07/2021 23:16	1.1	E	39	Yes	NM	NA
EPA ID 41 <sup>6</sup>	29/07/2021 21:00	3.9	D	39	No	IA	Nil
EPA ID 42	22/07/2021 21:42	0.4	F	40	Yes	33	Nil
EPA ID 43	22/07/2021 21:18	0.9	E	40	Yes	30	Nil

Notes:

1. Atmospheric data is sourced from the HVO Corporate 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  $L_{Aeq,15minute}$  attributed to HVO;
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.
6. Remeasure

Table 2 Night LA1,1minute 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 <sub>Aeq</sub> dB <sup>3,4</sup>	Exceedance dB <sup>4,5</sup>
EPA ID 36	22/07/2021 21:08	0.9	E	46	Yes	IA	Nil
EPA ID 37	22/07/2021 22:24	0.4	F	46	Yes	IA	Nil
EPA ID 38	22/07/2021 21:49	0.4	F	46	Yes	IA	Nil
EPA ID 39	22/07/2021 23:30	0.6	D	46	Yes	IA	Nil
EPA ID 40	22/07/2021 23:43	0.2	D	46	Yes	IA	Nil
EPA ID 41	22/07/2021 23:16	1.1	E	46	Yes	55	9
EPA ID 41 <sup>6</sup>	29/07/2021 21:00	3.9	D	46	No	IA	NA
EPA ID 42	22/07/2021 21:42	0.4	F	46	Yes	36	Nil
EPA ID 43	22/07/2021 21:18	0.9	E	46	Yes	31	Nil

Notes:

1. Atmospheric data is sourced from the HVO Corporate 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 LA1,1minute attributed to HVO;
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.
6. Remeasure