

HUNTER VALLEY OPERATIONS



Environment Protection Licence 640 Monitoring Data – March 2022 Published

Document Number: HVOOC-1797567310-4018

Status: Approved

Version: 1.0

Effective: 27/04/2022

Owner: Environment and Community Officer

Table of Contents

1	Overview	3
2	Definitions	3
3	Air Quality	5
4	Surface Water Monitoring Data.....	7
5	Blast Monitoring Data	8
6	Sewage Treatment Plant Monitoring Data	13
7	Noise Monitoring Data	14

1 Overview

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

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 ² /month	Grams per Metre Square per Month
µg/m ³	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

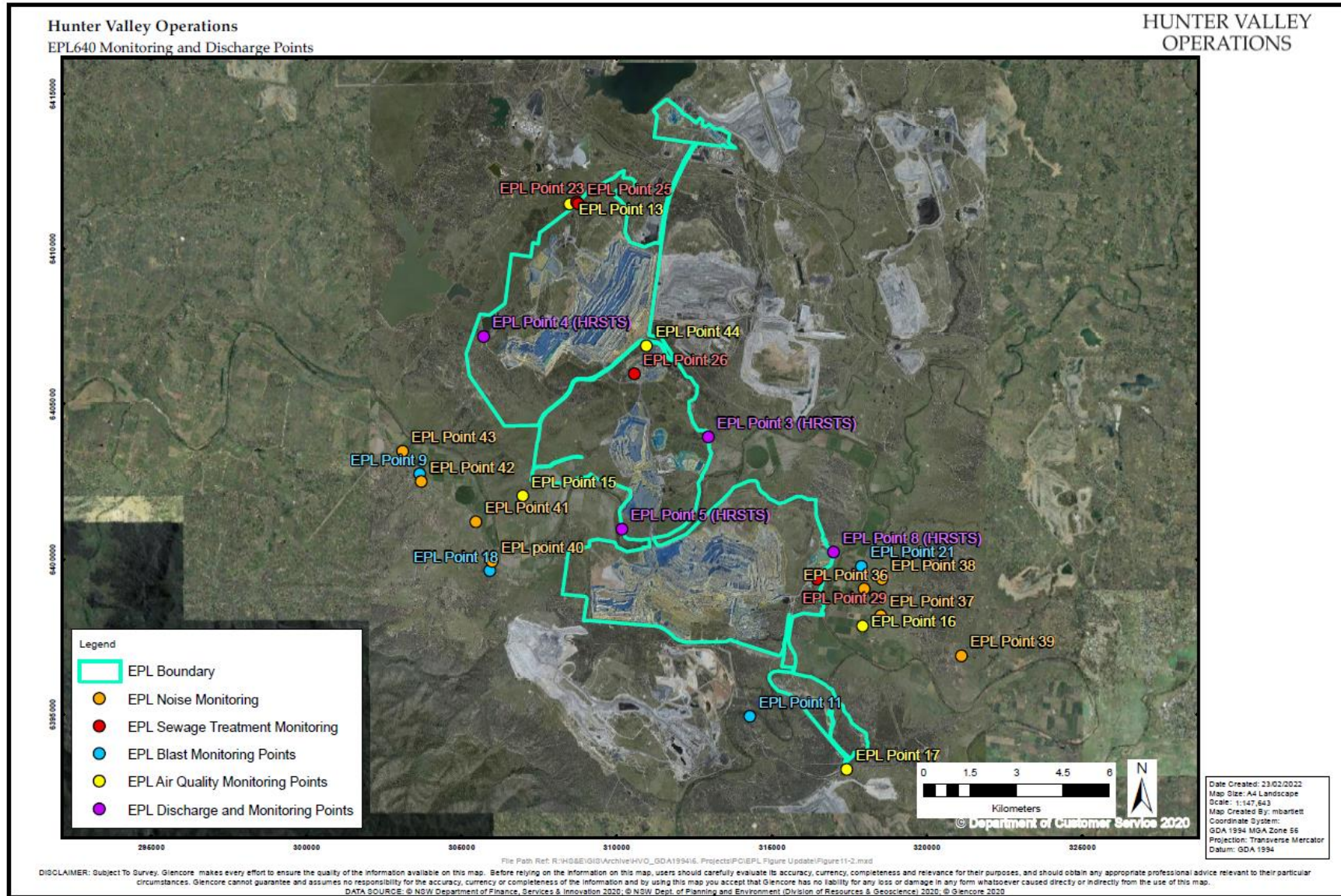


Figure 1 - EPL 640 Monitoring Locations

3 Air Quality

Date Last Sampled: 31/03/2022

Date Obtained: 1/04/2022

Table 1- Particulate Matter Monitoring (<10µm)

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 44 (North CHPP)
1/03/2022	µg/m ³	Continuous	15.8	15.8	12.1	8.2	11.4
2/03/2022	µg/m ³		18.8	18.8	11.4	9.0	9.4
3/03/2022	µg/m ³		8.4	8.4	10.8	9.3	10.9
4/03/2022	µg/m ³		12.3	12.3	10.4	9.5	10.6
5/03/2022	µg/m ³		24.0	24.0	16.9	13.2	17.6
6/03/2022	µg/m ³		9.6	9.6	*	9.0	10.4
7/03/2022	µg/m ³		9.3	9.3	*	8.5	9.5
8/03/2022	µg/m ³		5.1	5.1	*	5.6	5.6
9/03/2022	µg/m ³		6.5	6.5	10.7	6.9	9.2
10/03/2022	µg/m ³		17.2	17.2	15.7	11.9	16.7
11/03/2022	µg/m ³		28.2	28.2	20.8	14.4	21.9
12/03/2022	µg/m ³		25.9	25.9	17.2	10.0	17.3
13/03/2022	µg/m ³		20.5	20.5	18.4	10.7	17.3
14/03/2022	µg/m ³		23.1	23.1	18.3	9.5	21.1
15/03/2022	µg/m ³		27.1	27.1	17.5	11.2	18.2
16/03/2022	µg/m ³		25.2	25.2	19.5	12.7	18.9
17/03/2022	µg/m ³		26.2	26.2	21.6	11.4	17.5
18/03/2022	µg/m ³		32.0	32.0	22.9	12.9	25.3
19/03/2022	µg/m ³		26.7	26.7	19.3	13.5	30.0
20/03/2022	µg/m ³		32.9	32.9	21.8	20.8	31.4
21/03/2022	µg/m ³		33.7	33.7	20.6	17.3	29.0
22/03/2022	µg/m ³		32.9	32.9	25.8	23.9	38.5

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 44 (North CHPP)
23/03/2022	µg/m ³		37.3	37.3	*	29.2	40.7
24/03/2022	µg/m ³		9.2	9.2	*	7.0	9.0
25/03/2022	µg/m ³		16.0	16.0	*	11.3	17.3
26/03/2022	µg/m ³		9.2	9.2	12.0	8.0	12.5
27/03/2022	µg/m ³		10.8	10.8	10.4	8.8	13.2
28/03/2022	µg/m ³		11.8	11.8	12.2	9.0	12.0
29/03/2022	µg/m ³		9.6	9.6	10.7	9.9	*
30/03/2022	µg/m ³		12.7	12.7	14.0	13.9	15.4
31/03/2022	µg/m ³		10.9	10.9	10.9	12.6	17.7
Monthly Meaningful Data							
March	µg/m ³	Minimum	5.1	5.1	10.4	5.6	5.6
	µg/m ³	Mean	19.0	19.0	16.1	11.9	17.9
	µg/m ³	Maximum	37.3	37.3	25.8	29.2	40.7
	µg/m ³	Median	17.2	17.2	16.9	10.7	17.3

* Data miscapture from equipment downtime.

4 Surface Water Monitoring Data

Date Sampled: EPL ID 3 – 7/3/2022, 10/3/2022, 11/3/2022.

EPL ID 4 – 8/3/2022, 11/3/2022, 12/3/2022, 18/3/2022, 21/3/2022, 28/3/2022, 29/3/2022.

EPL ID 8 – 4/3/2022, 5/3/2022, 6/3/2022, 7/3/2022, 8/3/2022, 9/3/2022, 10/3/2022, 16/3/2022, 17/3/2022, 18/3/2022, 29/3/2022, 30/3/2022

Date Obtained: EPL ID 3 – 8/3/2022, 11/3/2022, 12/3/2022

EPL ID 4 – 9/3/2022, 12/3/2022, 13/3/2022, 19/3/2022, 22/3/2022, 30/3/2022, 31/3/2022

EPL ID 8 – 5/3/2022, 6/3/2022, 8/3/2022, 8/3/2022, 10/3/2022, 11/3/2022, 11/3/2022, 17/3/2022, 18/3/2022, 19/3/2022, 31/3/2022, 31/3/2022

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	3	3
	Total Suspended Solids	Milligrams per Litre	120	3	3
EPL ID 4 (Dam 9W)	pH	pH	6.5-9.5	7	7
	Total Suspended Solids	Milligrams per Litre	120	7	7
EPL ID 8 (Dam 15S)	pH	pH	6.5-9.5	12	12
	Total Suspended Solids	Milligrams per Litre	120	12	12

5 Blast Monitoring Data

Date Last Sampled: 26/3/2022

Date Obtained: 1/04/2022

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
P208FCL12B	1/03/2022 13:41	dB(L)	All blasts 100%	115	120	105.35	104.02	103.73	86.96
P20905101A	1/03/2022 13:43	dB(L)		115	120	109.54	104.3	105.97	83.82
WN45LLD03A_WN45BAP05A	3/03/2022 13:31	dB(L)		115	120	98.01	89.41	102.21	95.08
P124FCL02A	7/03/2022 16:22	dB(L)		115	120	92.91	95.5	96.65	86.42
P124FCL02B	11/03/2022 13:00	dB(L)		115	120	94.14	91.73	87.76	83.01
P208BR301A	12/03/2022 14:56	dB(L)		115	120	94.29	106.03	101.58	94.95
P208BR301B	15/03/2022 13:04	dB(L)		115	120	94.02	107	102.02	93.56

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing	Jerrys Plains	Maison Dieu	Warkworth
						EPL ID 18	EPL ID 9	EPL ID 21	EPL ID 11
P20906502A_P209045P01A	16/03/2022 14:01	dB(L)	All blasts 100%	115	120	96.36	99.82	90.65	102.75
P208BR301C	19/03/2022 15:02	dB(L)		115	120	90.95	90.96	106.16	89.72
P210WK302A	19/03/2022 15:03	dB(L)		115	120	93.04	87.98	98.79	86.77
WN45LLD03B	21/03/2022 13:04	dB(L)		115	120	93.92	104.79	95.94	86.39
P208MA309A	21/03/2022 15:01	dB(L)		115	120	101.37	89.35	89.34	91.14
P20903503A	24/03/2022 13:44	dB(L)		115	120	99.94	99.21	100.62	93.51
P210WK302B	24/03/2022 13:45	dB(L)		115	120	101.29	101.31	97.61	87.86
WN47UAP01A	25/03/2022 13:01	dB(L)		115	120	97.25	102.58	101.29	86.2
RW3711002A_RW37GMP03A	25/03/2022 14:33	dB(L)		115	120	98.31	94.66	85.9	88.24
P12400901A	26/03/2022 8:54	dB(L)		115	120	107.41	104.14	87.65	91.1

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
Monthly Meaningful Data									
March		dB(L)	Minimum	115	120	90.95	87.98	85.90	83.01
		dB(L)	Mean	115	120	98.12	98.40	97.29	89.85
		dB(L)	Maximum	115	120	109.54	107.00	106.16	102.75
		dB(L)	Median	115	120	97.25	99.82	98.79	88.24

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
P208FCL12B	1/03/2022 13:41	mm/s	All Blasts 100%	5	10	0.1	0.02	0.05	0.13
P20905101A	1/03/2022 13:43	mm/s		5	10	0.11	0.02	0.06	0.12
WN45LLD03A_WN45BAP05A	3/03/2022 13:31	mm/s		5	10	0.17	0.17	0.11	0.87
P124FCL02A	7/03/2022 16:22	mm/s		5	10	0.09	0.02	0.05	0.24
P124FCL02B	11/03/2022 13:00	mm/s		5	10	0.11	0.02	0.04	0.23
P208BR301A	12/03/2022 14:56	mm/s		5	10	0.19	0.08	0.38	0.57
P208BR301B	15/03/2022 13:04	mm/s		5	10	0.15	0.05	0.36	0.96
P20906502A_P209045P01A	16/03/2022 14:01	mm/s		5	10	0.26	0.08	0.29	0.96
P208BR301C	19/03/2022 15:02	mm/s		5	10	0.14	0.03	0.23	0.72
P210WK302A	19/03/2022 15:03	mm/s		5	10	0.1	0.02	0.06	0.25
WN45LLD03B	21/03/2022 13:04	mm/s		5	10	0.13	0.11	0.06	0.09

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
P208MA309A	21/03/2022 15:01	mm/s		5	10	0.1	0.02	0.06	0.37
P20903503A	24/03/2022 13:44	mm/s		5	10	0.16	0.05	0.32	0.97
P210WK302B	24/03/2022 13:45	mm/s		5	10	0.1	0.02	0.06	0.24
WN47UAP01A	25/03/2022 13:01	mm/s		5	10	0.12	0.05	0.07	0.14
RW3711002A_RW37GMP03A	25/03/2022 14:33	mm/s		5	10	0.36	0.09	0.09	0.31
P12400901A	26/03/2022 8:54	mm/s		5	10	0.19	0.06	0.17	0.89
Monthly Meaningful Data									
March		mm/s	Minimum	5	10	0.09	0.02	0.04	0.09
		mm/s	Mean	5	10	0.15	0.05	0.14	0.47
		mm/s	Maximum	5	10	0.36	0.17	0.38	0.97
		mm/s	Median	5	10	0.13	0.05	0.07	0.31

6 Sewage Treatment Plant Monitoring Data

Date Sampled: 1 March 2022

Date Obtained: 14 April 2022

Table 4 Sewage Treatment Plant Monitoring

Monitoring Site	Date & Time	Pollutant	Unit of Measure	Monitoring Result
EPA ID 23	01/03/2022 10:45	Faecal Coliforms	Colony forming units/100ml	530000
		pH	pH	7.39
EPA ID 25	01/03/2022 112:00	Faecal Coliforms	Colony forming units/100ml	*Too shallow
		pH	pH	
EPA ID 26	01/03/2022 9:00	Faecal Coliforms	Colony forming units/100ml	540000
		pH	pH	7.53
EPA ID 29	01/03/2022 13:40	Faecal Coliforms	Colony forming units/100ml	~100
		pH	pH	7.39

7 Noise Monitoring Data

Date Sampled: 17/03/2022

Date Obtained: 10/04/2022

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

Location	Date & Time	Wind Speed (m/s) ¹	Stability Class ¹	Criterion dB	Criterion Applies? ²	HVO LAeq dB ^{3,4}	Exceedance dB ^{4,5}
EPA ID 36	17/03/2022 21:00	2.9	E	41	Yes	IA	Nil
EPA ID 37	17/03/2022 21:45	3	E	40	No	IA	NA
EPA ID 38	17/03/2022 21:23	3.8	D	39	No	IA	NA
EPA ID 39	17/03/2022 22:37	3.6	E	37	No	IA	NA
EPA ID 40	17/03/2022 23:17	2.8	E	39	Yes	<30	Nil
EPA ID 41	17/03/2022 22:56	2.9	E	39	Yes	32	Nil
EPA ID 42	17/03/2022 21:31	3.8	D	40	No	<30	NA
EPA ID 43	17/03/2022 21:07	3.1	D	40	No	<30	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 $L_{A1,1\text{minute}}$ Generated by HVO Against EPL Criteria

Location	Date & Time	Wind Speed (m/s) ¹	Stability Class ¹	Criterion dB	Criterion Applies? ²	HVO L_{Aeq} dB ^{3,4}	Exceedance dB ^{4,5}
EPA ID 36	17/03/2022 21:00	2.9	E	46	Yes	IA	Nil
EPA ID 37	17/03/2022 21:45	3	E	46	No	IA	NA
EPA ID 38	17/03/2022 21:23	3.8	D	46	No	IA	NA
EPA ID 39	17/03/2022 22:37	3.6	E	46	No	IA	NA
EPA ID 40	17/03/2022 23:17	2.8	E	46	Yes	<30	Nil
EPA ID 41	17/03/2022 22:56	2.9	E	46	Yes	35	Nil
EPA ID 42	17/03/2022 21:31	3.8	D	46	No	33	NA
EPA ID 43	17/03/2022 21:07	3.1	D	46	No	<30	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 $L_{A1,1\text{minute}}$ 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.