

HUNTER VALLEY OPERATIONS



Environment Protection Licence 640 Monitoring Data – December 2021 Published 28th January 2022

Document Number: HVOOC-1797567310-4018

Status: Approved

Version: 1.0

Effective: 28/01/2022

Owner: Environment and Community Officer

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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
PM11	Particulate Matter of 11 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

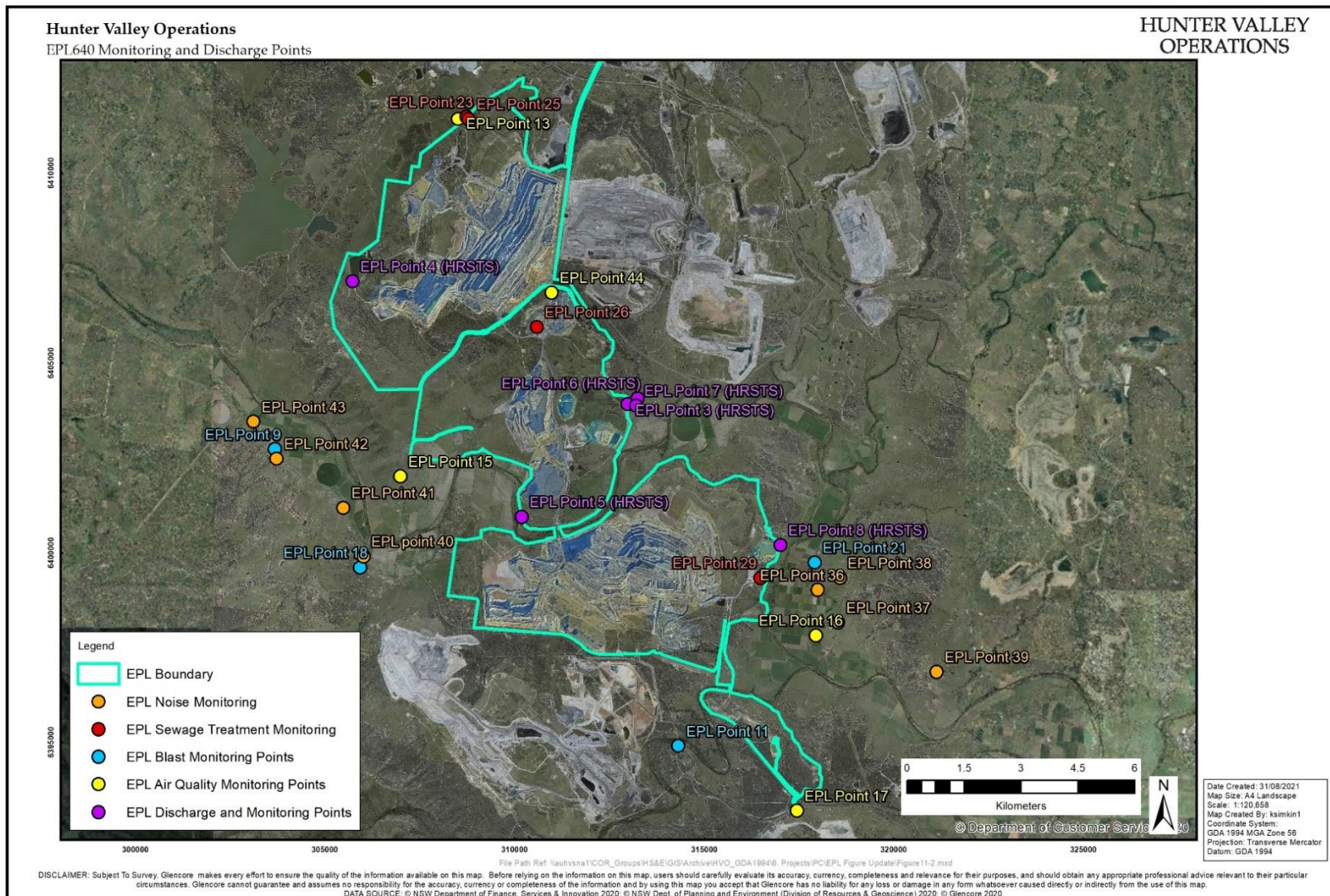


Figure 1 - EPL 640 Monitoring, Sampling and Discharge Point Locations Air Quality Monitoring Data

3 Air Quality

Date Last Sampled: 31/12/2021

Date Obtained: 11/01/2022

Table 1- Particulate Matter <11µm 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 44 (North CHPP)
1/12/2021	µg/m ³	Continuous	12.4	10.8	6.8	6.6	6.8
2/12/2021	µg/m ³		19.1	13.0	8.3	7.9	6.8
3/12/2021	µg/m ³		27.3	19.1	19.8	31.0	*
4/12/2021	µg/m ³		28.0	22.9	21.2	20.2	*
5/12/2021	µg/m ³		25.0	16.0	15.3	16.8	*
6/12/2021	µg/m ³		28.0	17.1	16.3	24.0	*
7/12/2021	µg/m ³		16.1	10.9	12.9	13.1	15.1
8/12/2021	µg/m ³		16.4	11.8	11.5	11.4	14.2
9/12/2021	µg/m ³		14.1	9.6	10.2	10.5	9.5
11/12/2021	µg/m ³		11.9	10.3	24.1	15.8	8.5
11/12/2021	µg/m ³		21.6	10.9	10.9	19.0	8.6
12/12/2021	µg/m ³		25.9	16.7	14.5	15.4	13.9
13/12/2021	µg/m ³		40.9	25.1	21.1	21.8	24.3
14/12/2021	µg/m ³		36.8	23.0	20.1	22.0	28.1
15/12/2021	µg/m ³		42.1	25.5	35.2	41.4	26.7
16/12/2021	µg/m ³		32.3	19.7	19.1	22.2	27.3
17/12/2021	µg/m ³		33.3	21.5	22.6	19.9	28.3
18/12/2021	µg/m ³		26.8	19.5	29.7	25.6	31.5
19/12/2021	µg/m ³		27.4	19.8	34.7	29.3	22.4
20/12/2021	µg/m ³		21.6	14.4	24.6	25.1	20.6
21/12/2021	µg/m ³		36.3	26.3	29.7	28.8	34.1
22/12/2021	µg/m ³		21.0	#	22.3	18.7	27.0

Date	Unit of Measure	Monitoring Frequency & Capture	EPL ID 13 (Howick)	EPL ID 15 (Wandewoi)	Monitoring Point EPL ID 16 (Knodlers Lane)	EPL ID 17 (Golden Highway)	EPL ID 44 (North CHPP)
23/12/2021	µg/m ³		18.3	#	21.9	21.3	32.7
24/12/2021	µg/m ³		12.8	13.3	19.7	13.8	15.0
25/12/2021	µg/m ³		11.1	11.3	16.6	9.0	14.3
26/12/2021	µg/m ³		10.9	11.0	14.2	9.4	11.5
27/12/2021	µg/m ³		8.5	10.3	10.5	11.8	16.4
28/12/2021	µg/m ³		6.8	8.5	10.1	8.6	11.7
29/12/2021	µg/m ³		9.9	10.1	10.5	9.6	9.3
30/12/2021	µg/m ³		11.9	11.4	12.4	10.8	9.7
31/12/2021	µg/m ³		22.5	13.6	9.6	11.9	15.4
Monthly Meaningful Data							
December	µg/m ³	Minimum	6.8	8.5	6.8	6.6	6.8
	µg/m ³	Mean	21.8	15.6	17.9	17.8	18.1
	µg/m ³	Maximum	42.1	26.3	35.2	41.4	34.1
	µg/m ³	Median	21.6	13.6	16.6	16.8	15.1

*No data due to failure of the instrumentation

#No data capture recorded on these days due to power failure

4 Surface Water Monitoring Data

Date Sampled: 11N (16/12, 17/12), 15S (1/12, 2/12, 6/12, 7/12, 8/12, 9/12), 9W (10/12,13/12, 14/12, 15/12)

Date Obtained: 11N (17/12, 21/12), 15S (2/12, 3/12, 8/12, 8/12, 9/12, 10/12), 9W (11/12, 14/12, 15/12, 16/12)

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	2	2
	Total Suspended Solids	Milligrams per Litre	120	2	2
EPL ID 4 (Dam 9W)	pH	pH	6.5-9.5	4	4
	Total Suspended Solids	Milligrams per Litre	120	4	4
EPL ID 8 (Dam 15S)	pH	pH	6.5-9.5	6	6
	Total Suspended Solids	Milligrams per Litre	120	6	6

5 Blast Monitoring Data

Date Last Sampled: 21/12/2021

Date Obtained: 4/01/2022

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 12	Warkworth EPL ID 11
P207BAC03A	2/12/2021 13:37	dB(L)	All blasts 100%	115	120	106.54	92.42	91.88	0.58
RW34WHP01B_RW35WHP01A	6/12/2021 10:28	dB(L)		115	120	95.14	105.17	100.44	0.46
WS45LLD01A_WS44LLD02A_WS45LLD02A	6/12/2021 11:20	dB(L)		115	120	96.03	97.77	95.95	0.17
P123BR617A	10/12/2021 15:18	dB(L)		115	120	109.23	105.7	114.49	0.84
P207BAC04A	11/12/2021 14:10	dB(L)		115	120	96.33	84.88	97.24	0.34
RW35WHG01A_RW35WHP01B	15/12/2021 13:00	dB(L)		115	120	99.22	89.14	94.16	0.6
P208MA305A_P208FCL08A	16/12/2021 12:58	dB(L)		115	120	88.82	87.82	87.73	0.21

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 12	EPL ID 11
WS45BAP04A	17/12/2021 13:48	dB(L)	All blasts 100%	115	120	85.9	88.81	80.61	0.69
WS45LLD01B	17/12/2021 13:49	dB(L)		115	120	83.8	87.78	92.71	0.69
WN44BAR01A	20/12/2021 13:25	dB(L)		115	120	89.96	91.73	93.4	0.25
P208MA306A	21/12/2021 12:03	dB(L)		115	120	89.83	84.54	92.66	0.19
P208FCL09A	21/12/2021 12:04	dB(L)		115	120	87.96	87.49	91.8	0.17
Monthly Meaningful Data									
December		dB(L)	Minimum	115	120	83.80	84.54	84.54	82.05
		dB(L)	Mean	115	120	94.06	91.94	91.94	93.05
		dB(L)	Maximum	115	120	109.23	105.70	105.70	104.64
		dB(L)	Median	115	120	92.55	88.98	88.98	94.02

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
P207BAC03A	2/12/2021 13:37	mm/s	All Blasts 100%	5	10	0.12	0.02	0.17	0.58
RW34WHP01B_RW35WHP01A	6/12/2021 10:28	mm/s		5	10	0.31	0.09	0.09	0.46
WS45LLD01A_WS44LLD02A_WS45LLD02A	6/12/2021 11:20	mm/s		5	10	0.22	0.11	0.09	0.17
P123BR617A	10/12/2021 15:18	mm/s		5	10	0.2	0.06	0.18	0.84
P207BAC04A	11/12/2021 14:10	mm/s		5	10	0.12	0.03	0.31	0.34
RW35WHG01A_RW35WHP01B	15/12/2021 13:00	mm/s		5	10	0.41	0.11	0.2	0.6
P208MA305A_P208FCL08A	16/12/2021 12:58	mm/s		5	10	0.09	0.02	0.05	0.21
WS45BAP04A	17/12/2021 13:48	mm/s		5	10	0.2	0.24	0.09	0.69
WS45LLD01B	17/12/2021 13:49	mm/s		5	10	0.17	0.07	0.05	0.69
WN44BAR01A	20/12/2021 13:25	mm/s		5	10	0.14	0.14	0.07	0.25
P208MA306A	21/12/2021 12:03	mm/s		5	10	0.09	0.03	0.03	0.19

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
P208FCL09A	21/12/2021 12:04	mm/s		5	10	0.09	0.03	0.03	0.17
Monthly Meaningful Data									
December		mm/s	Minimum	5	10	0.09	0.02	0.03	0.17
		mm/s	Mean	5	10	0.18	0.08	0.11	0.43
		mm/s	Maximum	5	10	0.41	0.24	0.31	0.84
		mm/s	Median	5	10	0.16	0.07	0.09	0.40

6 Sewage Treatment Plant Monitoring Data

Date Sampled: 7 December 2021

Date Obtained: 17 January 2022

Table 4 Sewage Treatment Plant Monitoring

Monitoring Site	Date & Time	Pollutant	Unit of Measure	Monitoring Result
EPA ID 23	7/12/2021 9:25:00 AM	Faecal Coliforms	Colony forming units/100ml	450,000
		pH	pH	7.22
EPA ID 25	7/12/2021 9:35:00 AM	Faecal Coliforms	Colony forming units/100ml	~4000
		pH	pH	7.23
EPA ID 26	7/12/2021 11:05:00 AM	Faecal Coliforms	Colony forming units/100ml	2800000
		pH	pH	7.65
EPA ID 29	7/12/2021 1:25:00 PM	Faecal Coliforms	Colony forming units/100ml	~110
		pH	pH	8.71

7 Noise Monitoring Data

Date Sampled: 13/12/2021

Date Obtained: 10/01/2022

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	13/12/2021 21:22	4.9	E	41	No	IA	NA
EPA ID 37	13/12/2021 21:46	4.9	D	40	No	IA	NA
EPA ID 38	13/12/2021 21:00	6.3	D	39	No	IA	NA
EPA ID 39	13/12/2021 22:38	4.3	E	37	No	IA	NA
EPA ID 40	13/12/2021 23:14	4.9	E	39	No	33	NA
EPA ID 41	13/12/2021 22:50	4.3	E	39	No	28	NA
EPA ID 42	13/12/2021 21:22	4.9	E	40	No	<25	NA
EPA ID 43	13/12/2021 21:02	6.3	D	40	No	<25	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) ¹	Stability Class ¹	Criterion dB	Criterion Applies? ²	HVO L_{Aeq} dB ^{3,4}	Exceedance dB ^{4,5}
EPA ID 36	13/12/2021 21:22	4.9	E	46	No	IA	NA
EPA ID 37	13/12/2021 21:46	4.9	D	46	No	IA	NA
EPA ID 38	13/12/2021 21:00	6.3	D	46	No	IA	NA
EPA ID 39	13/12/2021 22:38	4.3	E	46	No	IA	NA
EPA ID 40	13/12/2021 23:14	4.9	E	46	No	35	NA
EPA ID 41	13/12/2021 22:50	4.3	E	46	No	30	NA
EPA ID 42	13/12/2021 21:22	4.9	E	46	No	25	NA
EPA ID 43	13/12/2021 21:02	6.3	D	46	No	<25	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.