

HUNTER VALLEY OPERATIONS



Environment Protection Licence 640 Monitoring Data – September 2022 Report



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Number: HVOOC-1797567310-4403

Status: Approved

Effective: 28/11/2022

Owner: Environment and Community Officer

Version: 1.0

Review: [Planned
Review Date]

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

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

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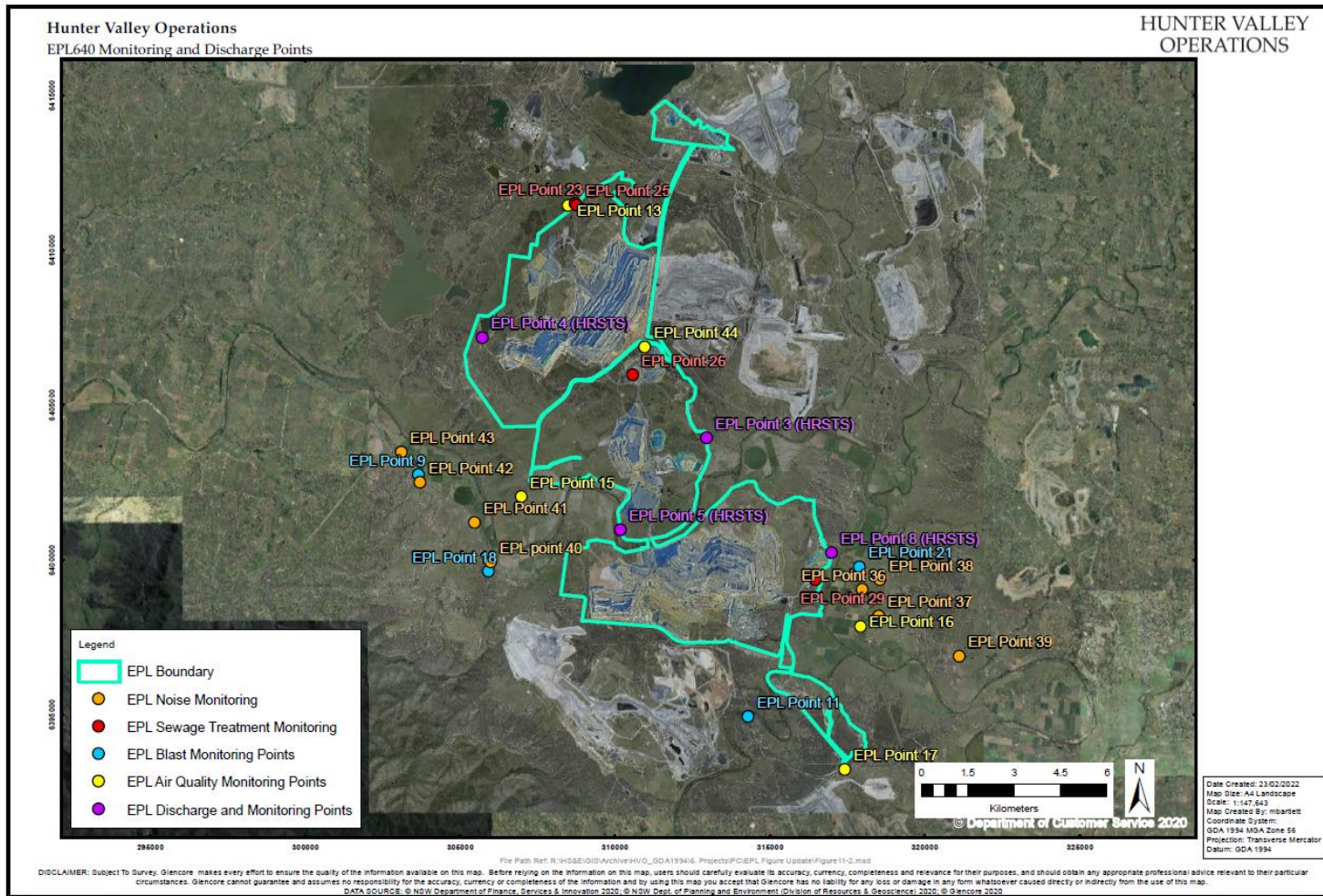


Figure 1 - EPL 640 Monitoring Locations

Number: HVOOC-1797567310-4403

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3. Air Quality

Date Last Sampled: 30/09/2022

Date Obtained: 1/10/2022

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)
1/09/2022	µg/m ³	Continuous	24.3	15.1	13.3	22.0	31.1
2/09/2022	µg/m ³		22.1	13.6	15.8	30.7	33.4
3/09/2022	µg/m ³		9.1	8.2	6.4	9.0	17.9
4/09/2022	µg/m ³		11.4	8.9	6.9	8.9	17.4
5/09/2022	µg/m ³		18.5	10.5	10.0	14.7	21.8
6/09/2022	µg/m ³		28.1	14.7	13.1	15.3	28.8
7/09/2022	µg/m ³		22.7	16.3	11.3	13.1	38.6
8/09/2022	µg/m ³		28.8	40.7	10.2	23.7	35.6
9/09/2022	µg/m ³		16.2	12.8	11.3	16.0	22.3
10/09/2022	µg/m ³		7.5	6.0	9.3	9.6	25.9
11/09/2022	µg/m ³		11.1	7.2	12.1	9.8	35.6
12/09/2022	µg/m ³		15.5	13.0	16.7	21.7	46.3
13/09/2022	µg/m ³		26.9	12.4	16.7	19.5	21.3
14/09/2022	µg/m ³		31.4	18.5	12.0	15.8	18.4
15/09/2022	µg/m ³		17.7	12.7	9.8	15.2	24.6
16/09/2022	µg/m ³		10.2	6.3	13.6	10.7	21.0
17/09/2022	µg/m ³		18.0	9.3	18.7	21.4	25.6
18/09/2022	µg/m ³		19.1	8.3	17.7	14.4	38.3
19/09/2022	µg/m ³		24.0	7.9	18.6	22.4	35.9
20/09/2022	µg/m ³		32.8	16.4	21.8	28.6	38.6

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)
21/09/2022	µg/m ³		33.7	24.9	18.4	25.6	24.3
22/09/2022	µg/m ³		9.5	7.8	6.4	7.2	7.7
23/09/2022	µg/m ³		12.8	10.2	7.2	8.4	11.0
24/09/2022	µg/m ³		12.6	12.6	10.0	15.6	15.2
25/09/2022	µg/m ³		13.6	10.8	11.3	16.1	19.8
26/09/2022	µg/m ³		28.1	15.7	17.8	27.5	34.4
27/09/2022	µg/m ³		29.2	16.7	18.6	17.6	32.3
28/09/2022	µg/m ³		11.4	8.6	13.6	14.8	31.9
29/09/2022	µg/m ³		12.2	6.4	9.2	12.3	22.0
30/09/2022	µg/m ³		12.4	30.7	13.8	20.6	20.1
Monthly Meaningful Data							
September	µg/m ³	Minimum	7.5	6.0	6.4	7.2	7.7
	µg/m ³	Mean	19.0	13.4	13.0	17.0	26.6
	µg/m ³	Maximum	33.7	40.7	21.8	30.7	46.3
	µg/m ³	Median	17.8	12.5	12.6	15.7	25.1

4. Surface Water Monitoring Data

Date Sampled:

EPL ID 3: 19/9/22

EPL ID 4: 1/9/22, 2/9/22, 6/9/22, 12/9/22, 13/9/22, 14/9/22, 15/9/22, 28/9/22, 29/9/22, 30/9/22

EPL ID 8: 7/9/22, 8/9/22, 9/9/22, 20/9/22, 21/9/22, 22/9/22, 23/9/22, 24/9/22, 25/9/22, 26/9/22, 27/9/22, 28/9/22

Date Obtained:

EPL ID 3: 21/9/22

EPL ID 4: 2/9/22, 5/9/22, 7/9/22, 13/9/22, 15/9/22, 15/9/22, 16/9/22, 30/9/22, 30/9/22, 5/10/22

EPL ID 8: 9/9/22, 9/9/22, 10/9/22, 21/9/22, 23/9/22, 23/9/22, 26/9/22, 26/9/22, 26/9/22, 27/9/22, 28/9/22, 29/9/22

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	1	1
	Total Suspended Solids	Milligrams per Litre	120	1	1
EPL ID 4 (Dam 9W)	pH	pH	6.5-9.5	10	10
	Total Suspended Solids	Milligrams per Litre	120	10	10
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: 30/9/2022

Date Obtained: 1/10/2022

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
WS49BAY11A	1/09/2022 16:09	dB(L)	All blasts 100%	115	120	83.77	82.65	91.28	84.15
P208BYP03A	2/09/2022 11:37	dB(L)		115	120	92.4	92.69	101.87	89.35
WN47ULD02A	2/09/2022 13:15	dB(L)		115	120	90.63	87.03	83.34	88.55
P208BR104A	6/09/2022 13:17	dB(L)		115	120	94.02	101.35	97.12	97.86
P20904701A	6/09/2022 13:18	dB(L)		115	120	88.18	102.73	99.7	98.3
WS49BYP01A_WS44BAR04A	8/09/2022 12:54	dB(L)		115	120	85.03	101.86	93.39	98.11
P208BR602A	9/09/2022 16:16	dB(L)		115	120	83.19	78.45	103.63	98.36

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
P209WK606A	10/09/2022 13:13	dB(L)	All blasts 100%	115	120	84.76	93.08	103.18	105.36
WS4912001A	12/09/2022 13:08	dB(L)		115	120	102.07	111.06	110.86	107.13
P208B5P03A	13/09/2022 9:57	dB(L)		115	120	79.13	77.25	87.17	80.05
WN49ARC01A	14/09/2022 13:01	dB(L)		115	120	96.53	97.85	93.25	93.48
M1T112001A	15/09/2022 13:03	dB(L)		115	120	93.05	97.39	102.69	98.13
RW37WHA03A	16/09/2022 12:55	dB(L)		115	120	86.84	89.87	84.65	92.77
P208BR104B	19/09/2022 12:52	dB(L)		115	120	80.61	108.42	90.98	93.93
P209WK605A	19/09/2022 12:53	dB(L)		115	120	89.33	110.2	103.81	107.51
P20902001A	19/09/2022 12:53	dB(L)		115	120	89.33	108.79	103.81	107.51
RW35BFA01D	20/09/2022 11:26	dB(L)		115	120	99.64	96.68	89.16	89.58

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
RW37WHA04A	20/09/2022 11:33	dB(L)		115	120	97.42	94.88	87.38	90.77
WS49BAY12A	20/09/2022 13:22	dB(L)		115	120	89.54	90.57	93.35	78.34
P208B5P05A	23/09/2022 13:03	dB(L)		115	120	95.52	95.27	96	81.37
WN49ARC02_03A	26/09/2022 15:05	dB(L)		115	120	100.38	93.87	100.23	93.92
RW37WHA05A	28/09/2022 13:35	dB(L)		115	120	92.96	86.85	96.11	96.68
P208BR302A	30/09/2022 14:27	dB(L)		115	120	105.69	100.42	107.11	94.93
Monthly Meaningful Data									
September		dB(L)	Minimum	115	120	79.13	77.25	83.34	78.34
		dB(L)	Mean	115	120	91.31	95.62	96.52	94.18
		dB(L)	Maximum	115	120	105.69	111.06	110.86	107.51
		dB(L)	Median	115	120	90.63	95.27	96.11	93.93

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
WS49BAY11A	1/09/2022 16:09	mm/s	All Blasts 100%	5	10	0.11	0.05	0.06	0.24
P208BYP03A	2/09/2022 11:37	mm/s		5	10	0.13	0.06	0.18	0.45
WN47ULD02A	2/09/2022 13:15	mm/s		5	10	0.2	0.15	0.09	0.24
P208BR104A	6/09/2022 13:17	mm/s		5	10	0.2	0.08	0.5	0.96
P20904701A	6/09/2022 13:18	mm/s		5	10	0.11	0.04	0.22	0.68
WS49BYP01A_WS44BAR04A	8/09/2022 12:54	mm/s		5	10	0.15	0.11	0.06	1.29
P208BR602A	9/09/2022 16:16	mm/s		5	10	0.24	0.1	0.66	1.13
P209WK606A	10/09/2022 13:13	mm/s		5	10	0.16	0.05	0.19	0.45
WS4912001A	12/09/2022 13:08	mm/s		5	10	0.13	0.09	0.04	0.34
P208B5P03A	13/09/2022 9:57	mm/s		5	10	0.13	0.03	0.14	0.4
WN49ARC01A	14/09/2022 13:01	mm/s		5	10	0.14	0.09	0.05	0.14
M1T112001A	15/09/2022 13:03	mm/s		5	10	0.14	0.1	0.03	0.75
RW37WHA03A	16/09/2022 12:55	mm/s		5	10	0.13	0.04	0.04	0.26

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
P208BR104B	19/09/2022 12:52	mm/s		5	10	0.65	0.04	0.35	0.74
P209WK605A	19/09/2022 12:53	mm/s		5	10	0.65	0.05	0.35	0.74
P20902001A	19/09/2022 12:53	mm/s		5	10	0.34	0.05	0.35	0.74
RW35BFA01D	20/09/2022 11:26	mm/s		5	10	0.16	0.05	0.06	0.25
RW37WHA04A	20/09/2022 11:33	mm/s		5	10	0.23	0.06	0.07	0.38
WS49BAY12A	20/09/2022 13:22	mm/s		5	10	0.11	0.05	0.03	0.11
P208B5P05A	23/09/2022 13:03	mm/s		5	10	0.12	0.03	0.07	0.18
WN49ARC02_03A	26/09/2022 15:05	mm/s		5	10	0.12	0.07	0.05	0.27
RW37WHA05A	28/09/2022 13:35	mm/s		5	10	0.26	0.07	0.08	0.58
P208BR302A	30/09/2022 14:27	mm/s		5	10	0.25	0.12	0.72	1.66

Monthly Meaningful Data

September	mm/s	Minimum	5	10	0.11	0.03	0.02	0.11
	mm/s	Mean	5	10	0.21	0.07	0.19	0.56
	mm/s	Maximum	5	10	0.65	0.15	0.72	1.66
	mm/s	Median	5	10	0.15	0.06	0.08	0.45

6. Sewage Treatment Plant Monitoring Data

Date Sampled: 5 September 2022

Date Obtained: 12 October 2022

Table 4 Sewage Treatment Plant Monitoring

Monitoring Site	Date & Time	Pollutant	Unit of Measure	Monitoring Result
EPA ID 23	5/09/2022 09:10:00	Faecal Coliforms	Colony forming units/100ml	670000
		pH	pH	6.54
EPA ID 25	5/09/2022 09:20:00	Faecal Coliforms	Colony forming units/100ml	~270
		pH	pH	7.33
EPA ID 26	5/09/2022 10:25:00	Faecal Coliforms	Colony forming units/100ml	610000
		pH	pH	7.55
EPA ID 29	5/09/2022 12:00:00	Faecal Coliforms	Colony forming units/100ml	<9
		pH	pH	8.82

7. Noise Monitoring Data

Date Sampled: 19/09/2022

Date Obtained: 13/10/2022

Table 5 Night $L_{Aeq,15minute}$ 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	19/09/2022 21:17	3.2	E	41	No	28	NA
EPA ID 37	19/09/2022 22:13	2.6	F	40	No	32	NA
EPA ID 38	19/09/2022 21:45	0.8	F	39	Yes	IA	Nil
EPA ID 39	19/09/2022 23:11	1.2	E	37	Yes	IA	Nil
EPA ID 40	19/09/2022 23:16	1.2	E	39	Yes	IA	Nil
EPA ID 41	19/09/2022 22:56	0.9	F	39	Yes	IA	Nil
EPA ID 42	19/09/2022 21:28	1.9	F	40	Yes	IA	Nil
EPA ID 43	19/09/2022 21:06	3.9	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 $L_{Aeq,15minute}$ 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	19/09/2022 21:17	3.2	E	46	No	34	NA
EPA ID 37	19/09/2022 22:13	2.6	F	46	No	37	NA
EPA ID 38	19/09/2022 21:45	0.8	F	46	Yes	IA	Nil
EPA ID 39	19/09/2022 23:11	1.2	E	46	Yes	IA	Nil
EPA ID 40	19/09/2022 23:16	1.2	E	46	Yes	IA	Nil
EPA ID 41	19/09/2022 22:56	0.9	F	46	Yes	IA	Nil
EPA ID 42	19/09/2022 21:28	1.9	F	46	Yes	IA	Nil
EPA ID 43	19/09/2022 21:06	3.9	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 $L_{A1, 1 \text{ minute}}$ 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.