

HUNTER VALLEY OPERATIONS



Environment Protection Licence 640 Monitoring Data –June 2021 Published 27th July 2021

Document Number: HVOOC-1797567310-3810

Status: Approved

Version: 1.0

Effective: 27/07/2021

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	14
7	Noise Monitoring Data	15

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:	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

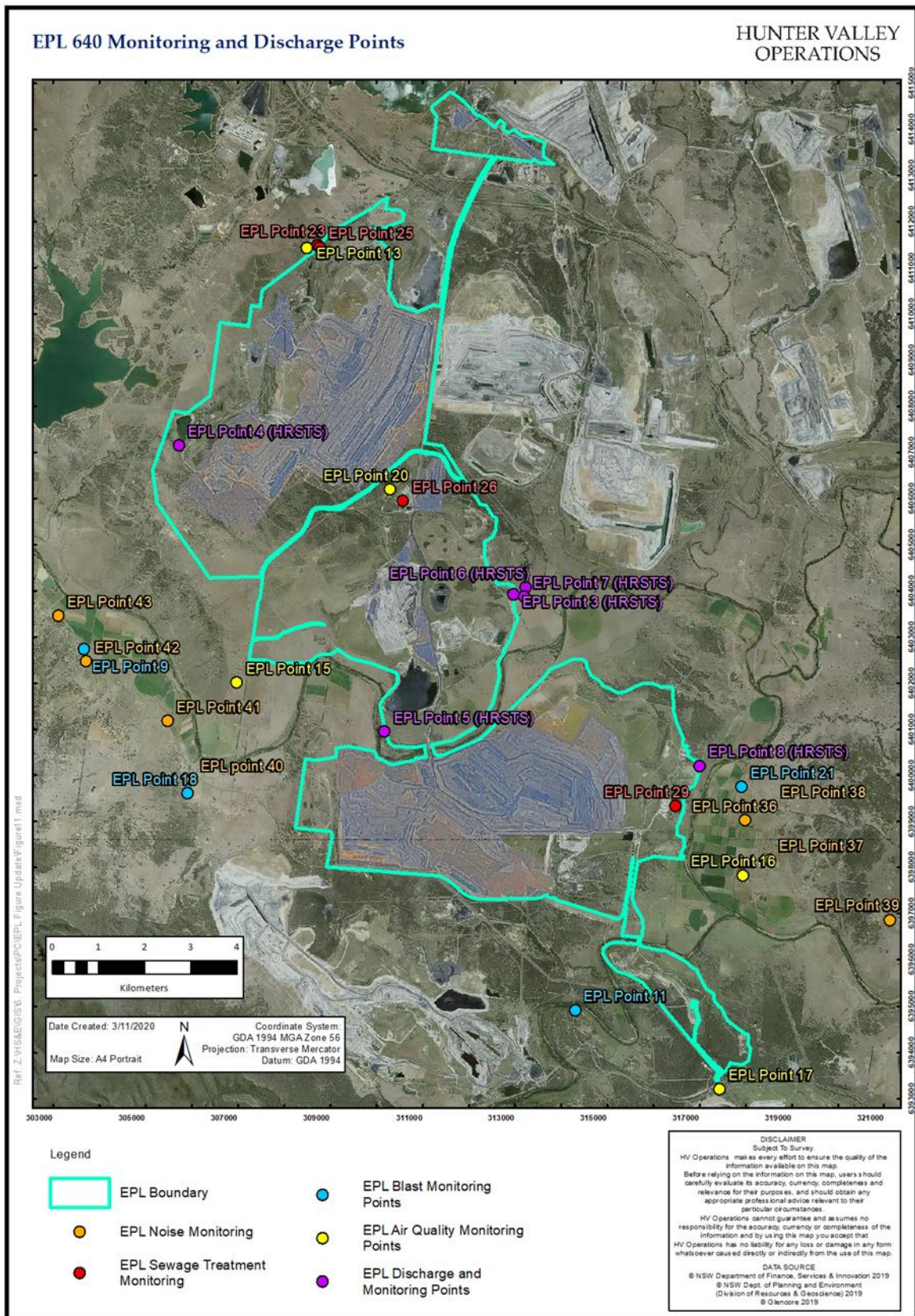


Figure 1 - EPL 640 Monitoring, Sampling and Discharge Point Locations Air Quality Monitoring Data

3 Air Quality

Date Last Sampled: 30/06/2021

Date Obtained: 01/07/2021

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)
1/06/2021	µg/m ³	Continuous	27.0	10.0	23.9	19.8	40.9
2/06/2021	µg/m ³		27.9	14.0	28.8	31.9	52.8
3/06/2021	µg/m ³		18.9	12.0	26.9	25.9	62.1
4/06/2021	µg/m ³		6.9	6.1	13.6	9.9	8.2
5/06/2021	µg/m ³		9.9	6.6	13.9	16.0	12.0
6/06/2021	µg/m ³		12.7	6.8	13.2	13.1	19.8
7/06/2021	µg/m ³		19.0	8.8	19.0	17.3	32.2
8/06/2021	µg/m ³		16.0	9.3	17.8	19.0	34.4
9/06/2021	µg/m ³		5.2	3.7	6.4	4.5	5.4
10/06/2021	µg/m ³		4.1	3.5	5.2	6.6	6.7
11/06/2021	µg/m ³		6.1	5.1	8.1	5.9	9.5
12/06/2021	µg/m ³		10.2	4.7	8.3	6.2	8.1
13/06/2021	µg/m ³		10.3	4.2	14.4	7.3	21.0
14/06/2021	µg/m ³		7.8	5.7	14.0	12.9	20.7
15/06/2021	µg/m ³		14.3	5.8	15.7	13.5	24.0
16/06/2021	µg/m ³		23.8	8.8	15.3	13.5	29.3
17/06/2021	µg/m ³		10.0	5.8	14.0	9.4	13.6
18/06/2021	µg/m ³		8.9	4.4	11.0	7.8	14.3
19/06/2021	µg/m ³		8.1	5.2	12.7	10.1	6.8
20/06/2021	µg/m ³		10.0	7.4	15.0	14.9	11.3
21/06/2021	µg/m ³		22.9	10.4	14.3	16.0	35.1
22/06/2021	µg/m ³		*	14.2	12.8	16.8	47.5

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 20 (HVS Proposed)
23/06/2021	µg/m ³		15.1	10.4	14.2	16.7	8.9
24/06/2021	µg/m ³		18.1	9.0	19.3	15.1	23.5
25/06/2021	µg/m ³		8.9	4.5	14.8	6.0	11.2
26/06/2021	µg/m ³		11.5	5.3	18.8	7.8	19.7
27/06/2021	µg/m ³		13.9	5.4	13.8	13.0	25.0
28/06/2021	µg/m ³		20.5	14.6	17.6	23.7	64.1
29/06/2021	µg/m ³		20.2	11.7	10.6	9.9	19.7
30/06/2021	µg/m ³		19.2	*	10.7	10.6	23.3
Monthly Meaningful Data							
June	µg/m ³	Minimum	4.1	3.5	5.2	4.5	5.4
	µg/m ³	Mean	14.0	7.7	14.8	13.4	23.7
	µg/m ³	Maximum	27.9	14.6	28.8	31.9	64.1
	µg/m ³	Median	12.7	6.6	14.1	13.0	20.3

*Data unavailable due to annual zero test as part of routine calibrations. All data miscaptures are to be recorded in the Annual Return.

4 Surface Water Monitoring Data

Date Sampled: 12 – 17 and 26 and 27 June

Date Obtained: 12 – 17 June and 27 June

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	2	2
	Total Suspended Solids	Milligrams per Litre	120	2	2
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: 29/06/2021

Date Obtained: 01/07/2021

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)
RW33BFA01A	1/06/2021 13:25	dB(L)	All Blasts 100%	115	120	86.89	91.82	95.15	100.76
P208MA302B	7/06/2021 14:24	dB(L)		115	120	90.86	93.60	90.19	91.19
WN45ULD01A	10/06/2021 10:06	dB(L)		115	120	98.15	109.27	95.13	92.16
P123BAC10A	12/06/2021 9:17	dB(L)		115	120	92.68	111.40	102.71	101.60
P208WK905A	15/06/2021 10:19	dB(L)		115	120	86.14	98.39	96.29	93.40
P20800606A	15/06/2021 10:19	dB(L)		115	120	84.04	99.75	95.91	93.85
RW32WHP03A	15/06/2021 13:16	dB(L)		115	120	88.32	98.80	94.37	93.74

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)
P209WK302A_P209BF401B	16/06/2021 15:47	dB(L)		115	120	90.93	90.41	100.66	101.46
WN45LAA07A_WN45LAP05A	18/06/2021 16:05	dB(L)		115	120	95.32	105.63	109.15	92.28
P208FCL04A	19/06/2021 14:57	dB(L)		115	120	92.65	99.59	101.01	90.65
P20800606B	19/06/2021 14:57	dB(L)		115	120	83.46	99.59	93.53	90.65
RW32WHG03A	21/06/2021 13:04	dB(L)		115	120	100.90	105.29	94.10	96.73
P123BR612A	23/06/2021 13:13	dB(L)		115	120	100.60	95.90	112.53	107.04
WS45ULP01A	25/06/2021 13:38	dB(L)		115	120	89.63	106.62	110.35	101.16
WN45LAA01A	25/06/2021 13:38	dB(L)		115	120	107.61	92.17	99.06	84.55
WN45LAA07B_WN45ULD03A	28/06/2021 13:05	dB(L)		115	120	81.97	87.01	80.53	94.21
P124WK302A	29/06/2021 12:11	dB(L)		115	120	95.45	103.51	94.58	95.90

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)
Monthly Meaningful Data									
June		dB(L)	Minimum	115	120	81.97	87.01	80.53	84.55
		dB(L)	Mean	115	120	92.09	99.34	97.96	95.37
		dB(L)	Maximum	115	120	107.61	111.40	112.53	107.04
		dB(L)	Median	115	120	90.93	99.59	95.91	93.85

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
RW33BFA01A	1/06/2021 13:25	mm/s	All Blasts 100%	5	10	0.14	0.06	0.06	0.16
P208MA302B	7/06/2021 14:24	mm/s		5	10	0.10	0.04	0.05	0.13
WN45ULD01A	10/06/2021 10:06	mm/s		5	10	0.18	0.12	0.11	0.26
P123BAC10A	12/06/2021 9:17	mm/s		5	10	0.12	0.03	0.11	0.20
P208WK905A	15/06/2021 10:19	mm/s		5	10	0.16	0.04	0.19	1.14
P20800606A	15/06/2021 10:19	mm/s		5	10	0.13	0.04	0.19	0.41
RW32WHP03A	15/06/2021 13:16	mm/s		5	10	0.38	0.12	0.10	0.52
P209WK302A_P209BF401B	16/06/2021 15:47	mm/s		5	10	0.12	0.05	0.11	0.37
WN45LAA07A_WN45LAP05A	18/06/2021 16:05	mm/s		5	10	0.14	0.10	0.06	0.89
P208FCL04A	19/06/2021 14:57	mm/s		5	10	0.12	0.03	0.15	0.30

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
P20800606B	19/06/2021 14:57	mm/s		5	10	0.12	0.04	0.15	0.30
RW32WHG03A	21/06/2021 13:04	mm/s		5	10	0.29	0.08	0.11	0.26
P123BR612A	23/06/2021 13:13	mm/s		5	10	0.20	0.06	0.22	0.56
WS45ULP01A	25/06/2021 13:38	mm/s		5	10	0.26	0.24	0.10	0.13
WN45LAA01A	25/06/2021 13:38	mm/s		5	10	0.17	0.13	0.07	0.24
WN45LAA07B_WN45ULD03A	28/06/2021 13:05	mm/s		5	10	0.15	0.11	0.10	0.93
P124WK302A	29/06/2021 12:11	mm/s		5	10	0.10	0.04	0.04	0.19
P209WK302A_P209BF401B	16/06/2021 15:47	mm/s		5	10	0.12	0.06	0.06	0.16
Monthly Meaningful Data									
June		mm/s	Minimum	5	10	0.10	0.03	0.04	0.13
		mm/s	Mean	5	10	0.17	0.08	0.11	0.41

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
		mm/s	Maximum	5	10	0.38	0.24	0.22	1.14
		mm/s	Median	5	10	0.14	0.06	0.11	0.30

6 Sewage Treatment Plant Monitoring Data

Date Sampled: 1/06/2021

Date Obtained: 12/07/2021

Table 5 Sewage Treatment Plant Monitoring

Monitoring Site	Date & Time	Pollutant	Unit of Measure	Monitoring Result
EPA ID 23	1/06/2021 10:15:00 AM	Faecal Coliforms	Colony forming units/100ml	310000
		pH	pH	7.17
EPA ID 25	01/06/2021 10:20:00	Faecal Coliforms	Colony forming units/100ml	910
		pH	pH	7.19
EPA ID 26	01/06/2021 11:30:00	Faecal Coliforms	Colony forming units/100ml	360000
		pH	pH	7.14
EPA ID 29	01/06/2021 12:15:00	Faecal Coliforms	Colony forming units/100ml	3800
		pH	pH	7.55

7 Noise Monitoring Data

Date Sampled: 15/06/2021

Date Obtained: 7/07/2021

Table 1 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	15/06/2021 21:00:00	1.7	D	41	Yes	31	Nil
EPA ID 37	15/06/2021 21:51:00	0.2	F	40	Yes	<30	Nil
EPA ID 38	15/06/2021 21:26:00	0.4	F	39	Yes	<30	Nil
EPA ID 39	15/06/2021 22:42:00	1.8	D	37	Yes	NM	Nil
EPA ID 40	15/06/2021 23:31:00	0.8	F	39	Yes	IA	Nil
EPA ID 41	15/06/2021 21:11:00	0.9	F	39	Yes	IA	Nil
EPA ID 42	15/06/2021 21:36:00	0.4	F	40	Yes	IA	Nil
EPA ID 43	15/06/2021 22:00:00	1.2	D	40	Yes	IA	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.

Table 2 Night LA1,1minute 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	15/06/2021 21:00:00	1.7	D	46	Yes	35	Nil
EPA ID 37	15/06/2021 21:51:00	0.2	F	46	Yes	<30	Nil
EPA ID 38	15/06/2021 21:26:00	0.4	F	46	Yes	<30	Nil
EPA ID 39	15/06/2021 22:42:00	1.8	D	46	Yes	NM	Nil
EPA ID 40	15/06/2021 23:31:00	0.8	F	46	Yes	IA	Nil
EPA ID 41	15/06/2021 21:11:00	0.9	F	46	Yes	IA	Nil
EPA ID 42	15/06/2021 21:36:00	0.4	F	46	Yes	IA	Nil
EPA ID 43	15/06/2021 22:00:00	1.2	D	46	Yes	IA	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.