

HUNTER VALLEY OPERATIONS



Environment Protection Licence 640 Monitoring Data –September 2021

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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:	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

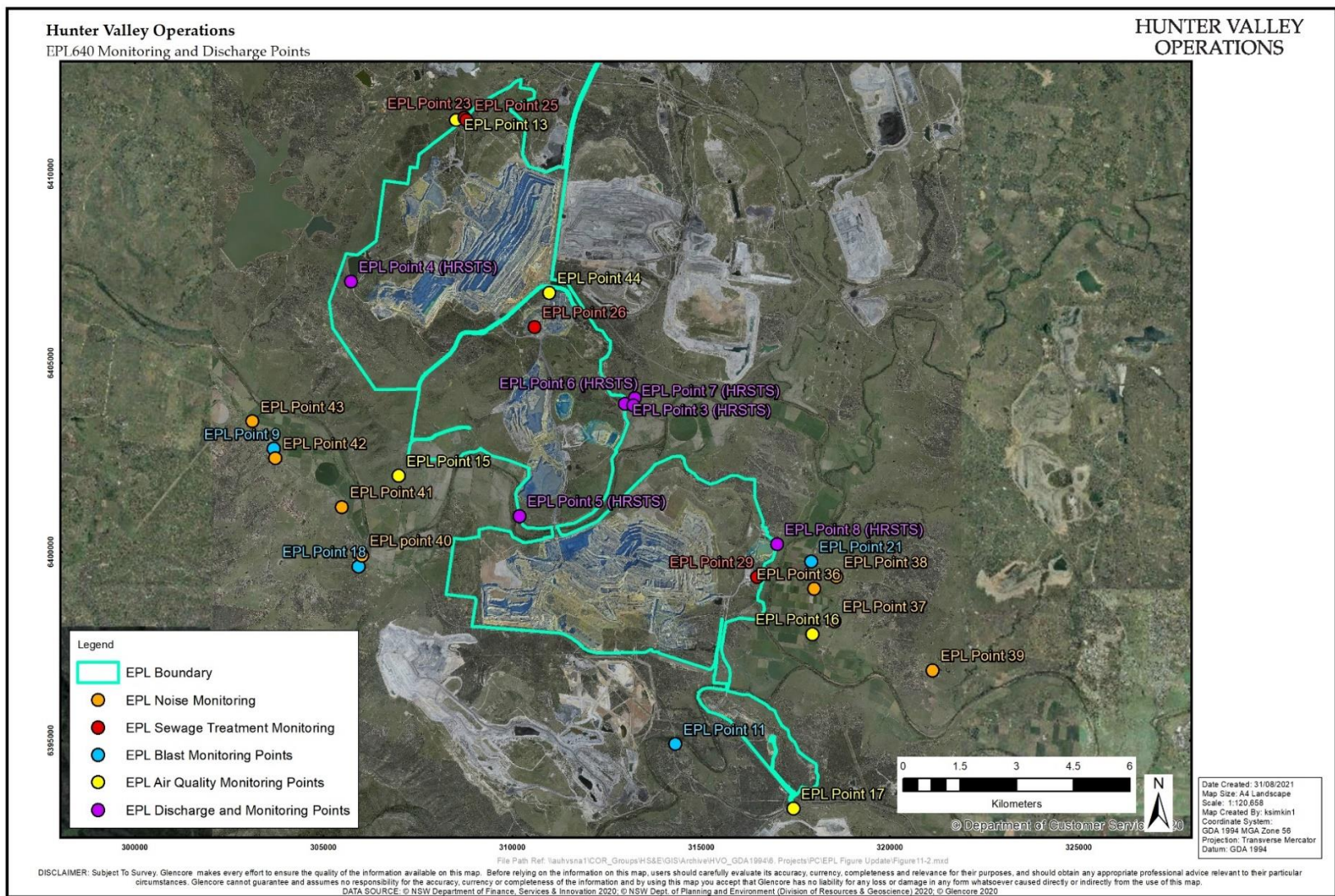


Figure 1 - EPL 640 Monitoring, Sampling and Discharge Point Locations Air Quality Monitoring Data

3 Air Quality

Date Last Sampled: 30/09/2021

Date Obtained: 01/10/2021

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 44 (North CHPP)
1/09/2021	µg/m ³	Continuous	41.9	23.5	33.1	37.2	31.1
2/09/2021	µg/m ³		35.6	33.8	29.6	41.6	20.6
3/09/2021	µg/m ³		17.2	20.4	20.1	30.0	19.6
4/09/2021	µg/m ³		17.4	15.0	37.5	33.4	4.9
5/09/2021	µg/m ³		7.8	4.5	12.9	7.8	4.9
6/09/2021	µg/m ³		19.5	12.6	16.9	17.7	10.8
7/09/2021	µg/m ³		19.1	9.2	34.8	26.8	15.8
8/09/2021	µg/m ³		20.9	14.7	30.7	50.1	26.6
9/09/2021	µg/m ³		24.5	8.2	42.2	24.6	12.3
10/09/2021	µg/m ³		26.2	14.1	28.8	25.9	16.5
11/09/2021	µg/m ³		21.7	14.9	29.7	29.1	28.9
12/09/2021	µg/m ³		30.1	19.2	66.3	56.6	25.5
13/09/2021	µg/m ³		28.9	22.2	27.0	37.4	20.6
14/09/2021	µg/m ³		7.0	5.2	13.3	16.8	8.5
15/09/2021	µg/m ³		13.3	9.0	14.6	21.2	9.1
16/09/2021	µg/m ³		29.1	10.9	15.6	25.5	11.4
17/09/2021	µg/m ³		17.5	17.9	23.0	26.0	28.0
18/09/2021	µg/m ³		26.6	19.8	34.0	39.1	32.4
19/09/2021	µg/m ³		12.7	6.9	26.6	11.8	12.0
20/09/2021	µg/m ³		21.0	8.8	38.7	37.5	14.4
21/09/2021	µg/m ³		24.4	13.0	27.5	41.6	12.8
22/09/2021	µg/m ³		18.6	13.5	32.7	31.5	15.7

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)
23/09/2021	µg/m ³		26.2	10.2	33.7	24.2	13.05
24/09/2021	µg/m ³		29.7	9.2	51.9	24.9	15.73
25/09/2021	µg/m ³		36.3	22.8	52.4	26.0	29.67
26/09/2021	µg/m ³		28.3	11.1	13.9	12.1	*
27/09/2021	µg/m ³		39.6	18.2	12.8	11.7	11.25
28/09/2021	µg/m ³		46.2	29.2	22.4	28.4	32.49
29/09/2021	µg/m ³		44.5	27.8	21.4	29.0	23.53
30/09/2021	µg/m ³		16.4	12.5	15.8	14.5	23.53
Monthly Meaningful Data							
September	µg/m ³	Minimum	7.0	4.5	12.8	7.8	0.0
	µg/m ³	Mean	24.9	15.3	28.7	28.0	12.7
	µg/m ³	Maximum	46.2	33.8	66.3	56.6	32.4
	µg/m ³	Median	24.5	13.8	28.1	26.4	12.1

4 Surface Water Monitoring Data

Date Sampled: No HRSTS discharge events recorded for September

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: 30/09/2021

Date Obtained: 01/10/2021

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)
WN45ULD04A	1/09/2021 13:07	dB(L)	All blasts 100%	115	120	72.52	85.26	80.37	86.33
P207B6P01C	4/09/2021 13:21	dB(L)		115	120	84.09	107.74	95.04	98.04
WN47LED03A	4/09/2021 16:02	dB(L)		115	120	72.45	88.72	98.38	95.90
RW35GMC01A_RW3712001A	8/09/2021 11:07	dB(L)		115	120	91.06	80.54	82.58	89.14
P123BR303A	8/09/2021 13:09	dB(L)		115	120	91.03	89.14	94.83	90.62
WN45LLD01A	13/09/2021 13:11	dB(L)		115	120	99.28	97.29	94.82	101.62
WN45ULP02A_WN44ULP01A	13/09/2021 13:12	dB(L)		115	120	83.22	93.42	93.64	95.62

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)
P124PF101A	14/09/2021 13:17	dB(L)	All blasts 100%	115	120	105.47	88.51	99.76	95.30
P208PF403A	14/09/2021 13:18	dB(L)		115	120	97.42	86.38	98.74	101.12
WN45LLD01B	17/09/2021 13:23	dB(L)		115	120	84.42	86.52	90.29	82.63
P208WK907A	22/09/2021 14:45	dB(L)		115	120	88.08	83.67	97.62	99.63
P124FCL01A	25/09/2021 13:06	dB(L)		115	120	107.27	106.78	97.08	96.41
P207BR604A	27/09/2021 13:33	dB(L)		115	120	95.45	96.46	94.38	96.45
P210BF404A	29/09/2021 14:59	dB(L)		115	120	101.56	92.15	91.66	111.02
P210BF402A_P210BF403A	29/09/2021 15:00	dB(L)		115	120	101.37	94.07	90.02	103.14
WN45ULD05A	29/09/2021 15:55	dB(L)		115	120	100.27	101.46	92.78	96.37
P12506404A	30/09/2021 13:08	dB(L)		115	120	110.64	99.31	103.25	93.76

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									
September		dB(L)	Minimum	115	120	72.45	80.07	80.37	82.63
		dB(L)	Mean	115	120	92.17	95.43	97.28	97.18
		dB(L)	Maximum	115	120	110.64	113.33	112.53	111.02
		dB(L)	Median	115	120	92.05	94.62	97.23	96.32

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
WN45ULD04A	1/09/2021 13:07	mm/s	All Blasts 100%	5	10	0.09	0.21	0.07	0.27
P207B6P01C	4/09/2021 13:21	mm/s		5	10	0.10	0.08	0.30	0.30
WN47LED03A	4/09/2021 16:02	mm/s		5	10	0.09	0.08	0.05	0.10
RW35GMC01A_RW3712001A	8/09/2021 11:07	mm/s		5	10	0.16	0.06	0.05	0.18
P123BR303A	8/09/2021 13:09	mm/s		5	10	0.15	0.07	0.23	0.50
WN45LLD01A	13/09/2021 13:11	mm/s		5	10	0.17	0.17	0.11	0.69
WN45ULP02A_WN44ULP01A	13/09/2021 13:12	mm/s		5	10	0.28	0.23	0.19	0.20
P124PF101A	14/09/2021 13:17	mm/s		5	10	0.11	0.04	0.05	1.04
P208PF403A	14/09/2021 13:18	mm/s		5	10	0.10	0.03	0.05	0.23
WN45LLD01B	17/09/2021 13:23	mm/s		5	10	0.11	0.07	0.06	0.14
P208WK907A	22/09/2021 14:45	mm/s		5	10	0.20	0.10	0.43	1.32

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
P124FCL01A	25/09/2021 13:06	mm/s	All Blasts 100%	5	10	0.10	0.05	0.05	0.11
P207BR604A	27/09/2021 13:33	mm/s		5	10	0.22	0.20	1.32	1.44
P210BF404A	29/09/2021 14:59	mm/s		5	10	0.13	0.04	0.22	0.60
P210BF402A_P210BF403A	29/09/2021 15:00	mm/s		5	10	0.12	0.04	0.10	0.81
WN45ULD05A	29/09/2021 15:55	mm/s		5	10	0.16	0.13	0.08	0.21
P12506404A	30/09/2021 13:08	mm/s		5	10	0.11	0.04	0.04	0.14
Monthly Meaningful Data									
September		mm/s	Minimum	5	10	0.09	0.03	0.04	0.07
		mm/s	Mean	5	10	0.16	0.09	0.20	0.53
		mm/s	Maximum	5	10	0.39	0.29	1.48	1.84
		mm/s	Median	5	10	0.14	0.07	0.11	0.38

6 Sewage Treatment Plant Monitoring Data

Date Sampled: 1/09/2021

Date Obtained: 11/10/2021

Table 5 Sewage Treatment Plant Monitoring

Monitoring Site	Date & Time	Pollutant	Unit of Measure	Monitoring Result
EPA ID 23	1/09/2021 11:30:00 AM	Faecal Coliforms	Colony forming units/100ml	310000
		pH	pH	7.07
EPA ID 25	1/09/2021 11:45:00 AM	Faecal Coliforms	Colony forming units/100ml	<91
		pH	pH	7.95
EPA ID 26	1/09/2021 10:15:00 AM	Faecal Coliforms	Colony forming units/100ml	190000
		pH	pH	7.35
EPA ID 29	1/09/2021 9:15:00 AM	Faecal Coliforms	Colony forming units/100ml	~27
		pH	pH	7.58

7 Noise Monitoring Data

Date Sampled: 6/09/2021

Date Obtained: 13/10/2021

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	6/09/2021 21:00	1.5	E	41	Yes	IA	Nil
EPA ID 37	6/09/2021 21:45	0.8	D	40	Yes	IA	Nil
EPA ID 38	6/09/2021 21:23	0.6	E	39	Yes	IA	Nil
EPA ID 39	6/09/2021 22:40	1.7	E	37	Yes	IA	Nil
EPA ID 40	6/09/2021 23:14	2.6	E	39	Yes	IA	Nil
EPA ID 41	6/09/2021 21:00	1.5	E	39	Yes	NM	Nil
EPA ID 42	6/09/2021 21:46	0.8	D	40	Yes	IA	Nil
EPA ID 43	6/09/2021 21:23	0.6	E	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 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.

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	6/09/2021 21:00	1.5	E	46	Yes	IA	Nil
EPA ID 37	6/09/2021 21:45	0.8	D	46	Yes	IA	Nil
EPA ID 38	6/09/2021 21:23	0.6	E	46	Yes	IA	Nil
EPA ID 39	6/09/2021 22:40	1.7	E	46	Yes	IA	Nil
EPA ID 40	6/09/2021 23:14	2.6	E	46	Yes	IA	Nil
EPA ID 41	6/09/2021 21:00	1.5	E	46	Yes	NM	Nil
EPA ID 42	6/09/2021 21:46	0.8	D	46	Yes	IA	Nil
EPA ID 43	6/09/2021 21:23	0.6	E	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 L_{Aeq,15minute} 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.