

HUNTER VALLEY OPERATIONS

Environment Protection Licence 640 Monitoring Data - December 2019

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Name of Operation	Hunter Valley Operations
<i>Environment Protection Licence</i>	<i>640</i>
<i>Licensee</i>	<i>HV Operations Pty Ltd</i>
<i>Premises</i>	<i>Hunter Valley Operations Lemington Road, Singleton NSW 2330 Australia</i>
<i>EPL Link</i>	https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=168611&SYSUID=1&LICID=640

1 INTRODUCTION

This report has been compiled to provide a summary of environmental monitoring results for Hunter Valley Operations in accordance with Environment Protection Licence 640. This report includes all monitoring data collected in accordance with the aforementioned Licence for the period 1 December – 31 December 2019.

Monitoring in this report includes:

- Air quality monitoring;
- Surface water monitoring including mine water discharge; and
- Blast monitoring.

Monitoring locations are shown in Figure 1.

2 AIR QUALITY

In accordance with the requirements of Condition M2.2 (EPL 640), Hunter Valley Operations maintains a network of five PM₁₀ monitors. The following monitoring locations (EPA Monitoring Points 13, 14, 15, 16 and 17) are listed on the licence for the purpose of monitoring:

- EPA Identification Number 13 – Howick
- EPA Identification Number 14 – HC1
- EPA Identification Number 15 – Wandewoi
- EPA Identification Number 16 – Knodlers
- EPA Identification Number 17 – Golden Highway

Results of Particulates (PM₁₀) monitoring (EPA Monitoring Points 13, 14, 15, 16 and 17) are shown in Table 1. Results reported represent the 24hr average PM₁₀, derived from 10 minute average PM₁₀ values for the period midnight to midnight, for each calendar date during the reporting period. The last sampling date was 31 December 2019; the data was obtained on the 7 January 2020.

Table 1: Particulate Matter <10µm M Monitoring

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/12/2019	µg/m ³	Continuous	65.1	281.0	60.2	122.0	73.8
2/12/2019	µg/m ³		80.9	367.2	84.5*	196.2*	82.2
3/12/2019	µg/m ³		48.1	183.9	36.6	89.1	46.0
4/12/2019	µg/m ³		29.5	71.3	23.0*	91.5	42.5
5/12/2019	µg/m ³		48.5	42.9	39.7	119.3	54.6
6/12/2019	µg/m ³		78.5	76.3	68.5	186.8	133.2
7/12/2019	µg/m ³		151.3*	91.8	204.2*	144.4	210.9*
8/12/2019	µg/m ³		77.4*	25.7	57.2	72.1	57.7
9/12/2019	µg/m ³		111.2*	41.3	89.2	80.7	63.3*
10/12/2019	µg/m ³		134.5	57.1	136.3*	141.0	145.5
11/12/2019	µg/m ³		157.3*	66.7*	154.1*	153.7	138.5
12/12/2019	µg/m ³		97.7*	24.6	79.3	62.0	55.9
13/12/2019	µg/m ³		37.4*	8.0	33.0	26.9	18.3
14/12/2019	µg/m ³		84.1	30.4	74.9	78.3	82.0
15/12/2019	µg/m ³		64.7	35.3	54.8	74.5	72.6
16/12/2019	µg/m ³		104.7	24.3	83.0*	96.2*	74.4
17/12/2019	µg/m ³		52.6	6.8	41.7	35.3	37.0
18/12/2019	µg/m ³		74.9	15.9	66.6	48.6	50.5
19/12/2019	µg/m ³		169.6	55.4	112.5*	113.6	124.5
20/12/2019	µg/m ³		94.4*	25.6	59.9	59.4*	45.1*
21/12/2019	µg/m ³		116.2	52.4	106.3*	136.2	162.7

22/12/2019	µg/m ³		101.3	8.0	53.2	51.7	44.5
23/12/2019	µg/m ³		53.8	17.1*	37.0	48.5	47.9*
24/12/2019	µg/m ³		54.1	13.2	32.8	48.1	27.3
25/12/2019	µg/m ³		20.4	2.6	18.8	32.9	20.9
26/12/2019	µg/m ³		36.5	3.9	31.5	42.7	27.8
27/12/2019	µg/m ³		71.1	15.2	51.0	34.6	25.8
28/12/2019	µg/m ³		68.3	15.5	50.1	49.6	46.3
29/12/2019	µg/m ³		101.9	18.8	68.0*	54.5	54.4
30/12/2019	µg/m ³		126.3	27.4	76.8	66.7	87.6
31/12/2019	µg/m ³		95.2	46.8	88.3	125.7	97.7
Monthly Meaningful Data							
December	µg/m³	Minimum	20.4	2.6	18.8	26.9	18.3
December	µg/m³	Mean	78.4*	57.5*	54.6*	83.3*	69.8*
December	µg/m³	Maximum	169.6	367.2	89.2	186.8	162.7
December	µg/m³	Median	73.0*	27.4*	54.0*	73.3*	55.9*

* Data calculated with missing 10 minute values due to equipment or communication issue

3 SURFACE WATER

3.1 Mine Water Discharge Monitoring

HVO participates in the Hunter River Salinity Trading Scheme (HRSTS), and maintains six monitoring locations associated with this scheme (EPA Monitoring Points 3, 4, 5, 6, 7 and 8, Condition M2.3) as follows:

- EPA Identification Number 3 – Discharge Pipe from Dam 11N
- EPA Identification Number 4 – Discharge end of outlet pipe on Parnell's Dam
- EPA Identification Number 5 – At the discharge end of the alluvial lands discharge pipeline
- EPA Identification Number 6 – In Farrell's Creek within 100m, and upstream of the confluence of flow from POINT 3
- EPA Identification Number 7 – In Farrell's Creek within 100m, and downstream of the confluence of flow from POINT 3
- EPA Identification Number 8 – Outlet of discharge pipe from Lake James storage dam

The location of these sampling points can be viewed in Figure 1.

Hunter Valley Operations did not receive any discharge opportunities in the reporting period and no water was discharged. As such, no samples were collected at Monitoring Points 3, 4, 5, 6, 7 and 8 during the reporting period (shown in Table 2 below).

Table 2: Mine Water Discharge Monitoring

Discharge Point	Date	Pollutant	unit of measure	Licence Limits	No. of samples required by licence	No. of samples you collected and analysed
Dam 11N Discharge /EPL Point 3	N/A	Electrical Conductivity	microsiemens per centimetre	-	0	0
		pH	pH	6.5 - 9.5	0	0
		Total Suspended Solids	milligrams per litre	120	0	0
Parnell's Dam Discharge / EPL Point 4	N/A	Electrical Conductivity	microsiemens per centimetre	-	0	0
		pH	pH	6.5 - 9.5	0	0
		Total Suspended Solids	milligrams per litre	120	0	0
Alluvial Lands Discharge / EPL Point 5	N/A	Electrical Conductivity	microsiemens per centimetre	400	0	0
		pH	pH	-	0	0
		Total Suspended Solids	milligrams per litre	-	0	0
Farrell's Creek Upstream / EPL Point 6	N/A	Electrical Conductivity	microsiemens per centimetre	-	0	0
		pH	pH	-	0	0
		Total Suspended Solids	milligrams per litre	-	0	0
Farrell's Creek Downstream / EPL Point 7	N/A	Electrical Conductivity	microsiemens per centimetre	-	0	0
		pH	pH	-	0	0
		Total Suspended Solids	milligrams per litre	-	0	0
Lake James Discharge / EPL Point 8	N/A	Electrical Conductivity	microsiemens per centimetre	-	0	0
		pH	pH	6.5 - 9.5	0	0
		Total Suspended Solids	milligrams per litre	120	0	0

4 BLAST MONITORING

In accordance with the requirements of Condition M8.1, Hunter Valley Operations maintains a network of blast monitors to measure airblast overpressure and ground vibration for all blasts carried out at HVO. The following monitoring locations (EPA Monitoring Points 9, 11, 12 and 18) are listed on the Licence for the purpose of assessing compliance with the airblast overpressure and ground vibration criteria as follows:

- EPA Identification Number 9 – Jerrys Plains
- EPA Identification Number 18 – Moses Crossing
- EPA Identification Number 11 – Warkworth
- EPA Identification Number 12 – Maison Dieu

The location of these monitors can be found in Figure 1. The last date sampled was the 31 December 2020. The data was obtained on the 7 January 2020.

Blast monitoring results are detailed in Table 3 (Airblast Overpressure) and Table 4 (Ground Vibration).

Table 3: Blast Monitoring (Airblast Overpressure)

Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing	Jerrys Plains	Maison Dieu	Warkworth
WS45UPG04A	3/12/2019 9:06	dB(L)	All Blasts 100%	115	120	92.4	107.1	105.6	97.5
WN42ULD02A_ WN43ULP03A	5/12/2019 10:18	dB(L)		115	120	95.9	102.5	111.3	94.1
WS45LPG02A	7/12/2019 16:12	dB(L)		115	120	88.9	88.9	89.7	89.1
P123R0102A	10/12/2019 13:15	dB(L)		115	120	95.6	106.0	106.2	101.3
P207WK901D	11/12/2019 14:02	dB(L)		115	120	101.3	102.7	98.9	99.5
P208WK601A	11/12/2019 14:02	dB(L)		115	120	101.1	99.6	99.5	98.9
WS41BAR01A	12/12/2019 13:04	dB(L)		115	120	101.8	106.6	92.6	94.5
WS45LPG03A	13/12/2019 13:30	dB(L)		115	120	109.8	99.1	109.2	96.2
WN42ULD02B	14/12/2019 13:22	dB(L)		115	120	90.9	103.8	104.3	98.7
WN45UPC01A	17/12/2019 10:03	dB(L)		115	120	105.2	113.4	106.8	101.6
P123R0104A	18/12/2019 13:08	dB(L)		115	120	100.2	100.7	97.2	95.7
RW34PRE03A_ RW34WHA02A	20/12/2019 9:55	dB(L)		115	120	102.3	103.5	97.1	99.0
WN45HOZ01A	21/12/2019 13:00	dB(L)		115	120	98.7	103.3	115.7*	98.2
WS41BAR02A	24/12/2019 9:20	dB(L)		115	120	93.2	93.4	92.6	89.6
P208WK602B	30/12/2019 14:13	dB(L)		115	120	90.0	102.4	106.4	103.3

P122R0103A_P 122R0301A	31/12/2019 13:59	dB(L)		115	120	96.4	111.0	111.5	110.2
Monthly Meaningful Data									
Minimum	December	dB(L)		115	120	88.9	88.9	89.7	89.1
Mean	December	dB(L)		115	120	97.7	102.8	102.8	98.0
Maximum	December	dB(L)		115	120	109.8	113.4	115.7*	110.2
Median	December	dB(L)		115	120	97.5	103.0	105.0	98.4
* Result is under investigation.									

Table 4: Blast Monitoring (Ground Vibration)

Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing	Jerrys Plains	Maison Dieu	Warkworth
WS45UPG04A	3/12/2019 9:06	mm/s	All Blasts 100%	5	10	0.08	0.02	0.08	0.02
WN42ULD02A_W N43ULP03A	5/12/2019 10:18	mm/s		5	10	0.32	0.35	0.19	0.16
WS45LPG02A	7/12/2019 16:12	mm/s		5	10	0.13	0.05	0.08	0.09
P123R0102A	10/12/2019 13:15	mm/s		5	10	0.20	0.10	0.17	0.23
P207WK901D	11/12/2019 14:02	mm/s		5	10	0.11	0.03	0.32	0.38
P208WK601A	11/12/2019 14:02	mm/s		5	10	0.11	0.06	0.32	0.38
WS41BAR01A	12/12/2019 13:04	mm/s		5	10	0.12	0.08	0.10	0.31
WS45LPG03A	13/12/2019 13:30	mm/s		5	10	0.12	0.05	0.09	0.04
WN42ULD02B	14/12/2019 13:22	mm/s		5	10	0.19	0.20	0.10	0.08
WN45UPC01A	17/12/2019 10:03	mm/s		5	10	0.09	0.03	0.07	0.04
P123R0104A	18/12/2019 13:08	mm/s		5	10	0.15	0.05	0.14	0.19
RW34PRE03A_R W34WHA02A	20/12/2019 9:55	mm/s		5	10	0.22	0.05	0.09	0.19
WN45HOZ01A	21/12/2019 13:00	mm/s		5	10	0.14	0.11	0.12	0.09
WS41BAR02A	24/12/2019 9:20	mm/s		5	10	0.18	0.10	0.11	0.06
P208WK602B	30/12/2019 14:13	mm/s		5	10	0.13	0.07	0.58	0.64

P122R0103A_P1 22R0301A	31/12/2019 13:59	mm/s		5	10	0.15	0.10	0.19	0.27
Monthly Meaningful Data									
Minimum	December	mm/s		5	10	0.08	0.02	0.07	0.02
Mean	December	mm/s		5	10	0.15	0.09	0.17	0.20
Maximum	December	mm/s		5	10	0.32	0.35	0.58	0.64
Median	December	mm/s		5	10	0.14	0.07	0.12	0.18

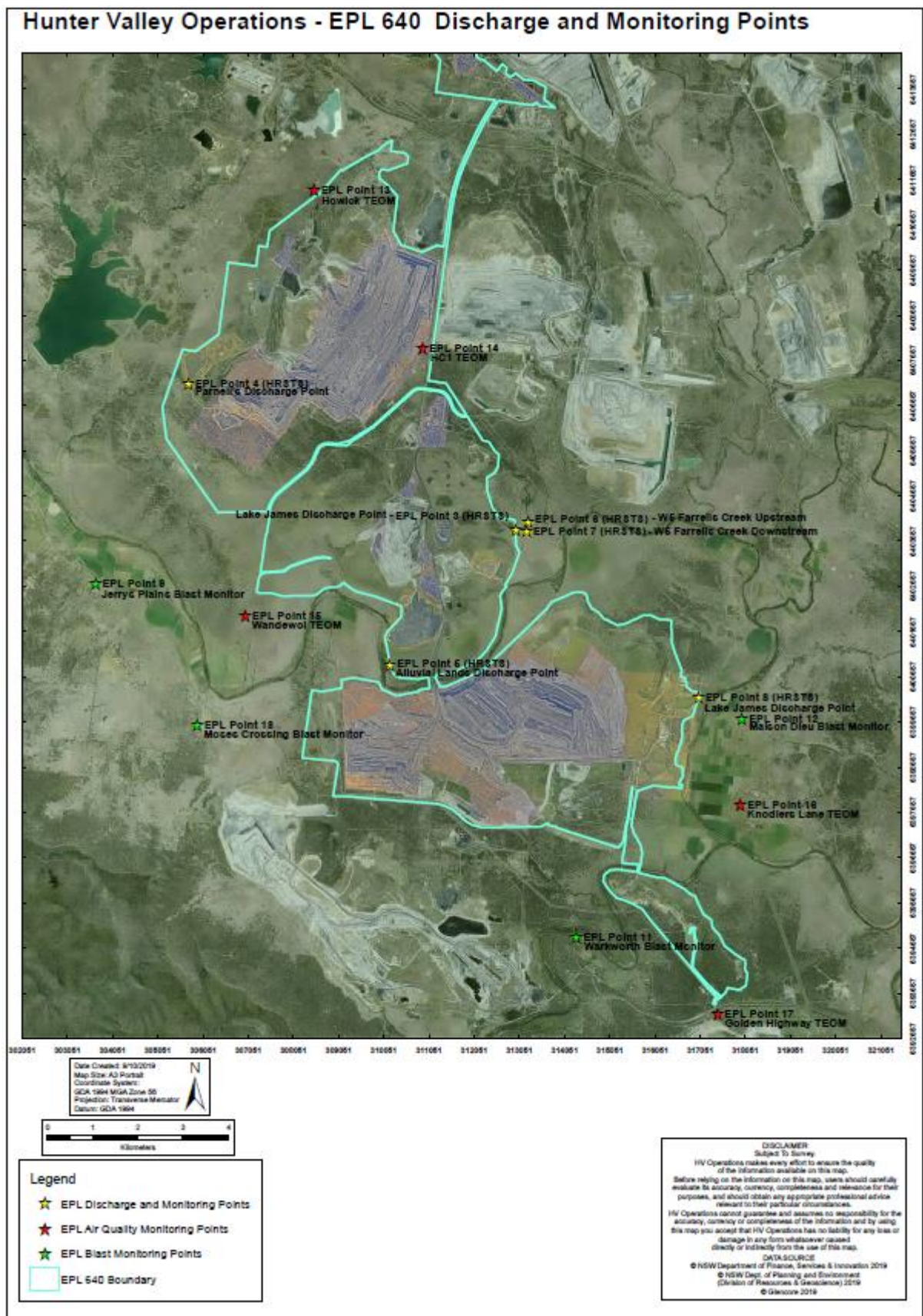


Figure 1 : Hunter Valley Operations Environmental Monitoring Locations