

# HUNTER VALLEY OPERATIONS

## Environment Protection Licence 640 Monitoring Data - June 2020

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<b>Name of Operation</b>	<b>Hunter Valley Operations</b>
<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>	<a href="https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=168611&amp;SYSUID=1&amp;LICID=640">https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=168611&amp;SYSUID=1&amp;LICID=640</a>

## 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 June – 30 June 2020.

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 PM<sub>10</sub> 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 (PM<sub>10</sub>) monitoring (EPA Monitoring Points 13, 14, 15, 16 and 17) are shown in Table 1. Results reported represent the 24hr average PM<sub>10</sub>, derived from 10 minute average PM<sub>10</sub> values for the period midnight to midnight, for each calendar date during the reporting period. The last sampling date was 31 June 2020; the data was obtained on the 1 July 2020.

From 30 May 2020, the existing HC1 monitoring location was disconnected from its permanent power supply due to mine progression which placed the monitor and substation within blasting exclusion zones. In consultation with the EPA, HVO has temporarily relocated this monitoring location as shown on Figure 1. Monitoring at this location is also using an alternate method (PM<sub>10</sub> ESampler) as an interim measure, with a similar monitor installation at the upwind Howick monitoring location for comparative purposes.

**Table 1: Particulate Matter <10µm M Monitoring**

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/06/2020	µg/m <sup>3</sup>	Continuous	22.2	23*	15.0	25.4	46.6
2/06/2020	µg/m <sup>3</sup>		15.5	13.3*	8.3	10.1	13.0
3/06/2020	µg/m <sup>3</sup>		15.8	41.6*	15.0	11.6	10.4
4/06/2020	µg/m <sup>3</sup>		#	13.6*	25.5	15.7	39.3
5/06/2020	µg/m <sup>3</sup>		12.9	23.0*	8.5	17.3	20.2
6/06/2020	µg/m <sup>3</sup>		41.0	62.1*	31.9	22.1	39.3
7/06/2020	µg/m <sup>3</sup>		46.6	33.2*	26.8	24.4	47.6
8/06/2020	µg/m <sup>3</sup>		30.1	52.8*	18.2	22.2	45.6
9/06/2020	µg/m <sup>3</sup>		13.0	10.6*	10.3	11.0	22.5
10/06/2020	µg/m <sup>3</sup>		8.5	11.6*	5.9	7.0	12.5
11/06/2020	µg/m <sup>3</sup>		14.1	17.8*	10.0	11.1	16.8
12/06/2020	µg/m <sup>3</sup>		28.6	20.9*	13.6	21.1	45.0
13/06/2020	µg/m <sup>3</sup>		35.7	41.3*	28.6	11.7	21.6
14/06/2020	µg/m <sup>3</sup>		9.6	18.8*	10.6	12.4	13.4
15/06/2020	µg/m <sup>3</sup>		13.0	20.4*	7.1	15.6	13.5
16/06/2020	µg/m <sup>3</sup>		10.9	13.9*	6.9	13.5	13.6
17/06/2020	µg/m <sup>3</sup>		17.4	20.7*	9.6	13.6	20.0
18/06/2020	µg/m <sup>3</sup>		22.0	21.2*	11.9	12.7	18.0
19/06/2020	µg/m <sup>3</sup>		24.1	42.7*	16.2	9.1	27.9
20/06/2020	µg/m <sup>3</sup>		15.4	39.7*	6.9	11.1	22.1
21/06/2020	µg/m <sup>3</sup>		10.3	20.9*	8.3	15.5	21.7

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
22/06/2020	µg/m <sup>3</sup>		8.3	5.3*	5.1	9.5	6.0
23/06/2020	µg/m <sup>3</sup>		7.6	5.3*	4.0	7.6	6.1
24/06/2020	µg/m <sup>3</sup>		9.0	4.9*	4.1	8.5	6.8
25/06/2020	µg/m <sup>3</sup>		10.6	5.7*	3.7	12.0	10.1
26/06/2020	µg/m <sup>3</sup>		20.6	18.1*	20.2	14.4	22.7
27/06/2020	µg/m <sup>3</sup>		36.4	35*	26.1	22.6	36.0
28/06/2020	µg/m <sup>3</sup>		32.6	19.5*	24.3	10.9	24.0
29/06/2020	µg/m <sup>3</sup>		32.5	36.7*	22.0	12.5	29.3
30/06/2020	µg/m <sup>3</sup>		23.5	34.9*	18.3	14.7	35.2
Monthly Meaningful Data							
June	µg/m <sup>3</sup>	Minimum	7.6	4.9	3.7	7.0	6.0
	µg/m <sup>3</sup>	Mean	20.3	24.3	14.1	14.2	23.6
	µg/m <sup>3</sup>	Maximum	46.6	62.1	31.9	25.4	47.6
	µg/m <sup>3</sup>	Median	15.8	20.8	11.2	12.6	21.6

# 24 hour data unavailable due to equipment or communications issue causing one or more missing 10 minute values

\* Data from 30 May 2020 at HC1 was recorded using an ESampler at the "HVS" monitoring location shown on Figure 1.

### 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 30 June 2020. The data was obtained on the 1 July 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
RW30AFA01C	1/06/2020 9:53	dB(L)	All Blasts 100%	115	120	91.3	102.8	115.3	100.2
P12406204A	3/06/2020 13:04	dB(L)		115	120	94.8	92.5	98.0	105.0
P207PF401A	5/06/2020 12:58	dB(L)		115	120	87.1	96.2	97.0	92.5
WS45UAA02B	6/06/2020 13:34	dB(L)		115	120	81.4	80.5	78.2	88.0
WS45UAA04A	6/06/2020 13:34	dB(L)		115	120	93.1	94.4	85.6	89.0
P205R0301B_P2 05BR501A	9/06/2020 13:41	dB(L)		115	120	99.8	98.2	104.4	98.2
P123BR501A	13/06/2020 14:32	dB(L)		115	120	97.0	89.3	98.9	103.2
RW30BFA01A	15/06/2020 15:58	dB(L)		115	120	86.9	98.9	93.5	99.5
P206VA101A_P2 06P0401D	16/06/2020 12:58	dB(L)		115	120	97.3	92.9	111.6	97.5
WS45UAB01A	20/06/2020 13:03	dB(L)		115	120	92.4	84.3	94.1	89.1
WN43BAR01A	23/06/2020 13:18	dB(L)		115	120	89.4	109.0	115.2	96.5
RW30BFA01B	25/06/2020 13:01	dB(L)		115	120	94.7	92.5	115.2	100.1
P207PF402A_P2 07VA101A	26/06/2020 13:09	dB(L)		115	120	91.4	89.5	93.5	93.9
WS42LLD01A_W S4BAP01A	30/06/2020 13:08	dB(L)		115	120	96.9	98.0	99.6	106.8



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
Monthly Meaningful Data									
	June	dB(L)	Minimum	115	120	81.4	80.5	78.2	88.0
		dB(L)	Mean	115	120	92.4	94.2	100.0	97.1
		dB(L)	Maximum	115	120	99.8	109.0	115.3	106.8
		dB(L)	Median	115	120	92.8	93.7	98.4	97.9

**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
RW30AFA01C	1/06/2020 9:53	mm/s	All Blasts 100%	5	10	0.30	0.10	0.27	0.29
P12406204A	3/06/2020 13:04	mm/s		5	10	0.16	0.08	0.30	0.59
P207PF401A	5/06/2020 12:58	mm/s		5	10	0.11	0.05	0.24	0.22
WS45UAA02B	6/06/2020 13:34	mm/s		5	10	0.14	0.06	0.28	0.13
WS45UAA04A	6/06/2020 13:34	mm/s		5	10	0.27	0.37	0.28	0.16
P205R0301B_P2 05BR501A	9/06/2020 13:41	mm/s		5	10	0.14	0.05	0.60	0.98
P123BR501A	13/06/2020 14:32	mm/s		5	10	0.22	0.10	0.39	0.34
RW30BFA01A	15/06/2020 15:58	mm/s		5	10	0.29	0.07	0.25	0.19
P206VA101A_P2 06P0401D	16/06/2020 12:58	mm/s		5	10	0.13	0.05	0.27	0.16
WS45UAB01A	20/06/2020 13:03	mm/s		5	10	0.12	0.05	0.21	0.11
WN43BAR01A	23/06/2020 13:18	mm/s		5	10	0.16	0.13	0.25	0.15
RW30BFA01B	25/06/2020 13:01	mm/s		5	10	0.18	0.06	0.23	0.26
P207PF402A_P2 07VA101A	26/06/2020 13:09	mm/s		5	10	0.11	0.05	0.27	0.18
WS42LLD01A_W S4BAP01A	30/06/2020 13:08	mm/s		5	10	0.62	0.45	0.28	0.64

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
Monthly Meaningful Data									
	June	mm/s	Minimum	5	10	0.11	0.05	0.21	0.11
		mm/s	Mean	5	10	0.21	0.12	0.29	0.31
		mm/s	Maximum	5	10	0.62	0.45	0.60	0.98
		mm/s	Median	5	10	0.16	0.07	0.27	0.21

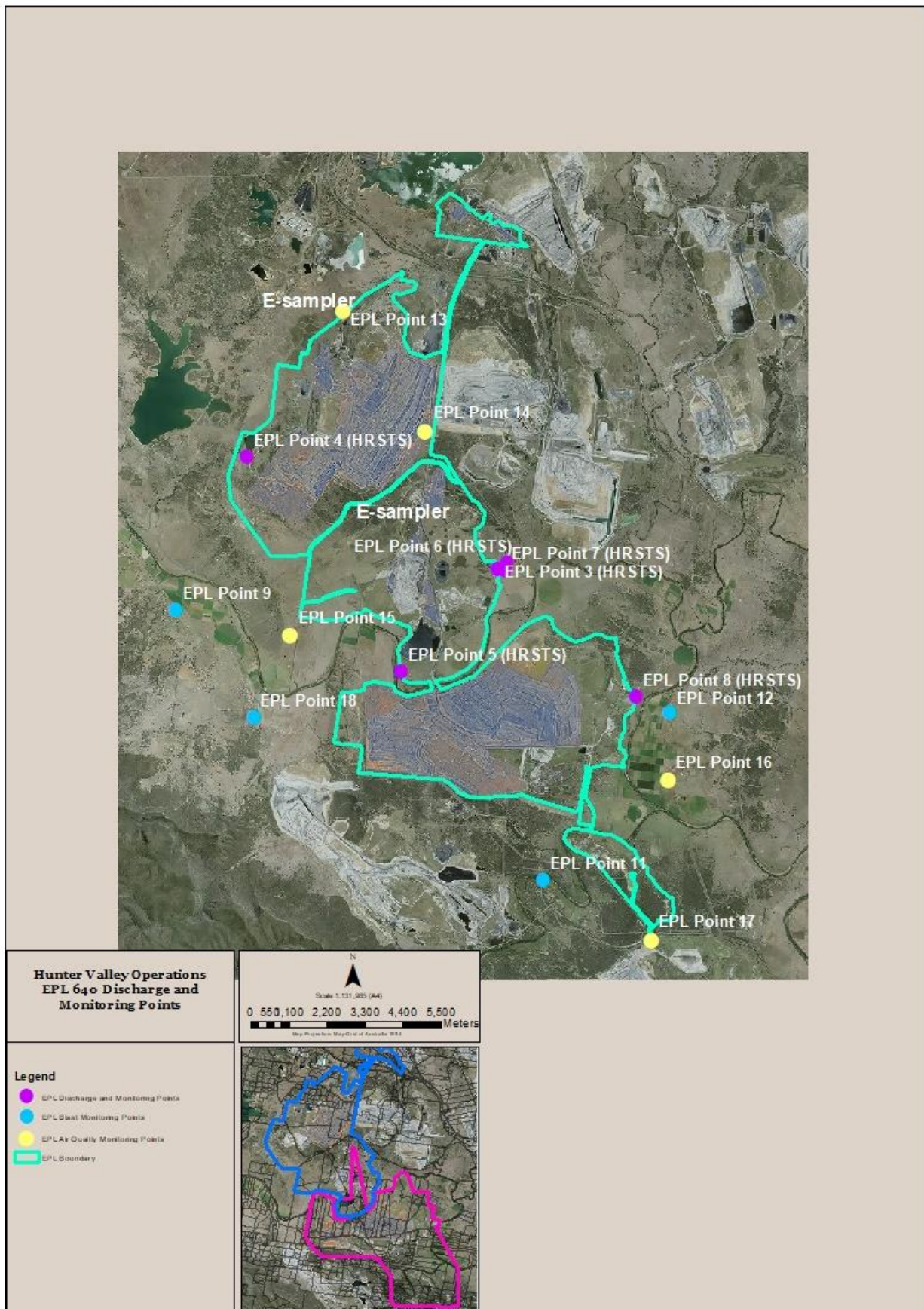


Figure 1 : Hunter Valley Operations Environmental Monitoring Locations