

# HUNTER VALLEY OPERATIONS

## Environment Protection Licence 640 Monitoring Data - September 2019

**Published 9 October 2019**

<b>Name of Operation</b>	<b>Hunter Valley Operations</b>
<i>Environment Protection Licence</i>	640
<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 September– 30 September 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 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 30 September 2019; the data was obtained on the 1 October 2019.

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

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/09/2019	µg/m <sup>3</sup>	Continuous	18.3	34.8	15.3	12.3	20.0
2/09/2019	µg/m <sup>3</sup>		24.9	44.9	16.8	13.2	24.6
3/09/2019	µg/m <sup>3</sup>		25.2	45.7	16.7	22.1	20.4
4/09/2019	µg/m <sup>3</sup>		28.8	104.0	20.1	21.0*	86.3
5/09/2019	µg/m <sup>3</sup>		48.6	78.8	25.4	31.2	45.7
6/09/2019	µg/m <sup>3</sup>		88.5	472.9	71.1*	113.6*	78.7
7/09/2019	µg/m <sup>3</sup>		24.7	93.2	#	31.2	20.4
8/09/2019	µg/m <sup>3</sup>		13.0	38.9	#	21.8	9.5
9/09/2019	µg/m <sup>3</sup>		10.0	44.9	#	19.0	31.3
10/09/2019	µg/m <sup>3</sup>		24.7	33.7	#	18.1	33.4
11/09/2019	µg/m <sup>3</sup>		38.3	64.3	23.4*	21.6	33.6
12/09/2019	µg/m <sup>3</sup>		38.3	185.1	14.6	57.7	23.0
13/09/2019	µg/m <sup>3</sup>		48.6	115.5	37.1*	41.1	44.1
14/09/2019	µg/m <sup>3</sup>		41.3	64.0	30.6	27.9	25.9
15/09/2019	µg/m <sup>3</sup>		34.7	72.3	23.8	31.8	50.6
16/09/2019	µg/m <sup>3</sup>		51.3*	162.5	33.0	58.1	53.5
17/09/2019	µg/m <sup>3</sup>		14.2	19.9	8.0	1.7	15.9
18/09/2019	µg/m <sup>3</sup>		7.2	14.3	7.5	6.6	10.0
19/09/2019	µg/m <sup>3</sup>		18.9	19.3	16.2	9.4	15.2
20/09/2019	µg/m <sup>3</sup>		21.2	21.8	14.3	10.8	9.9
21/09/2019	µg/m <sup>3</sup>		29.4	58.0	31.3	25.7	33.2*
22/09/2019	µg/m <sup>3</sup>		34.2	90.2	30.4	38.3	38.3

23/09/2019	µg/m <sup>3</sup>		14.3	40.2	8.6	21.1	16.2
24/09/2019	µg/m <sup>3</sup>		22.0	85.9	26.1	23.1	32.5
25/09/2019	µg/m <sup>3</sup>		37.7	57.3	26.4	22.2	31.0
26/09/2019	µg/m <sup>3</sup>		40.0	#	29.2	22.9	28.9
27/09/2019	µg/m <sup>3</sup>		23.0	104.3	10.9	59.5	27.9
28/09/2019	µg/m <sup>3</sup>		45.2	111.0	30.7	46.0	32.8
29/09/2019	µg/m <sup>3</sup>		34.6	67.6	38.8	36.2	49.3
30/09/2019	µg/m <sup>3</sup>		32.1	29.5	32.7	25.6	30.0
<b>Monthly Meaningful Data</b>							
<b>September</b>	<b>µg/m<sup>3</sup></b>	<b>Minimum</b>	7.2	14.3	7.5	1.7	9.5
<b>September</b>	<b>µg/m<sup>3</sup></b>	<b>Mean</b>	30.4*	81.9*	22.1*	27.0*	32.4*
<b>September</b>	<b>µg/m<sup>3</sup></b>	<b>Maximum</b>	88.5	472.9	38.8	59.5	86.3
<b>September</b>	<b>µg/m<sup>3</sup></b>	<b>Median</b>	28.8*	64.0*	23.8*	23.0*	30.0*

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

\* 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 30 September 2019. The data was obtained on the 2 October 2019.

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
WN41BAR02A	3/09/2019 15:02	dB(L)	All Blasts 100%	115	120	90.1	80.3	80.7	94.3
P207M0101C	5/09/2019 13:21	dB(L)		115	120	89.7	86.9	99.8	104.2
WS47LEP02A	6/09/2019 11:07	dB(L)		115	120	100.9	98.3	103.0	100.6
WS47LEP02B	9/09/2019 13:20	dB(L)		115	120	77.9	79.4	104.0	85.4
WN47BAY01A	9/09/2019 13:21	dB(L)		115	120	91.4	80.9	109.6	85.3
RW28BFA01A	10/09/2019 13:03	dB(L)		115	120	102.4	109.3	109.9	102.6
RW32GMC01A	10/09/2019 13:04	dB(L)		115	120	111.1	107.2	110.4	92.1
WN45MPG03A_ WN45LED04A	12/09/2019 13:42	dB(L)		115	120	92.9	113.0	110.0	108.7
P204R0801A_ P121BAC01A	13/09/2019 12:02	dB(L)		115	120	98.3	98.8	96.2	95.3
P206FCL06A	14/09/2019 15:03	dB(L)		115	120	100.7	105.0	96.5	97.4
WS43UAB01A	17/09/2019 9:30	dB(L)		115	120	87.5	88.1	109.2	87.5
WS43LAR01A	17/09/2019 9:31	dB(L)		115	120	96.7	88.9	109.2	89.0
P121BAC02A	17/09/2019 12:15	dB(L)		115	120	93.9	94.4	102.0	97.0
P121R0802A	20/09/2019 9:18	dB(L)		115	120	95.0	97.4	96.8	98.6
P203BYP01A	21/09/2019 13:34	dB(L)		115	120	98.0	104.3	105.4	106.9



P206FCL07A	21/09/2019 13:34	dB(L)		115	120	100.0	99.3	105.4	106.9
P20805001A_ P208WK301A	24/09/2019 13:13	dB(L)		115	120	91.2	89.1	103.7	102.7
P121BAC03A	26/09/2019 8:07	dB(L)		115	120	93.3	96.9	90.1	94.4
P203N9001A	28/09/2019 15:27	dB(L)		115	120	92.4	108.6	104.5	95.1
P208WK302A	28/09/2019 15:27	dB(L)		115	120	99.5	116.2*	106.8	95.3
WS47LEB02A	30/09/2019 14:07	dB(L)		115	120	102.5	105.1	110.0	103.0
<b>Monthly Meaningful Data</b>									
<b>Minimum</b>	<b>September</b>	<b>dB(L)</b>		115	120	77.9	79.4	80.7	85.3
<b>Mean</b>	<b>September</b>	<b>dB(L)</b>		115	120	95.5	97.5	103.0	97.3
<b>Maximum</b>	<b>September</b>	<b>dB(L)</b>		115	120	111.1	116.2*	110.4	108.7
<b>Median</b>	<b>September</b>	<b>dB(L)</b>		115	120	95.0	98.3	104.5	97.0
* 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
WN41BAR02A	3/09/2019 15:02	mm/s	All Blasts 100%	5	10	0.12	0.08	0.08	0.06
P207M0101C	5/09/2019 13:21	mm/s		5	10	0.12	0.06	0.35	0.39
WS47LEP02A	6/09/2019 11:07	mm/s		5	10	0.16	0.11	0.11	0.09
WS47LEP02B	9/09/2019 13:20	mm/s		5	10	0.12	0.07	0.11	0.19
WN47BAY01A	9/09/2019 13:21	mm/s		5	10	0.10	0.05	0.08	0.10
RW28BFA01A	10/09/2019 13:03	mm/s		5	10	0.30	0.07	0.10	0.17
RW32GMC01A	10/09/2019 13:04	mm/s		5	10	0.09	0.03	0.06	0.06
WN45MPG03A_ WN45LED04A	12/09/2019 13:42	mm/s		5	10	0.09	0.04	0.08	0.07
P204R0801A_ P121BAC01A	13/09/2019 12:02	mm/s		5	10	0.15	0.05	0.65	0.48
P206FCL06A	14/09/2019 15:03	mm/s		5	10	0.08	0.03	0.10	0.31
WS43UAB01A	17/09/2019 9:30	mm/s		5	10	0.11	0.04	0.07	0.04
WS43LAR01A	17/09/2019 9:31	mm/s		5	10	0.10	0.04	0.07	0.09
P121BAC02A	17/09/2019 12:15	mm/s		5	10	0.15	0.09	0.15	0.14
P121R0802A	20/09/2019 9:18	mm/s		5	10	0.24	0.11	0.23	0.24
P203BYP01A	21/09/2019 13:34	mm/s		5	10	0.11	0.05	0.53	0.35
P206FCL07A	21/09/2019 13:34	mm/s		5	10	0.09	0.02	0.08	0.05

P20805001A_ P208WK301A	24/09/2019 13:13	mm/s		5	10	0.10	0.05	0.19	0.27
P121BAC03A	26/09/2019 8:07	mm/s		5	10	0.11	0.04	0.09	0.12
P203N9001A	28/09/2019 15:27	mm/s		5	10	0.16	0.07	1.08	0.85
P208WK302A	28/09/2019 15:27	mm/s		5	10	0.08	0.03	0.08	0.11
WS47LEB02A	30/09/2019 14:07	mm/s		5	10	0.16	0.08	0.12	0.28
<b>Monthly Meaningful Data</b>									
<b>Minimum</b>	<b>September</b>	<b>mm/s</b>		5	10	0.08	0.02	0.06	0.04
<b>Mean</b>	<b>September</b>	<b>mm/s</b>		5	10	0.13	0.06	0.21	0.21
<b>Maximum</b>	<b>September</b>	<b>mm/s</b>		5	10	0.30	0.11	1.08	0.85
<b>Median</b>	<b>September</b>	<b>mm/s</b>		5	10	0.11	0.05	0.10	0.14

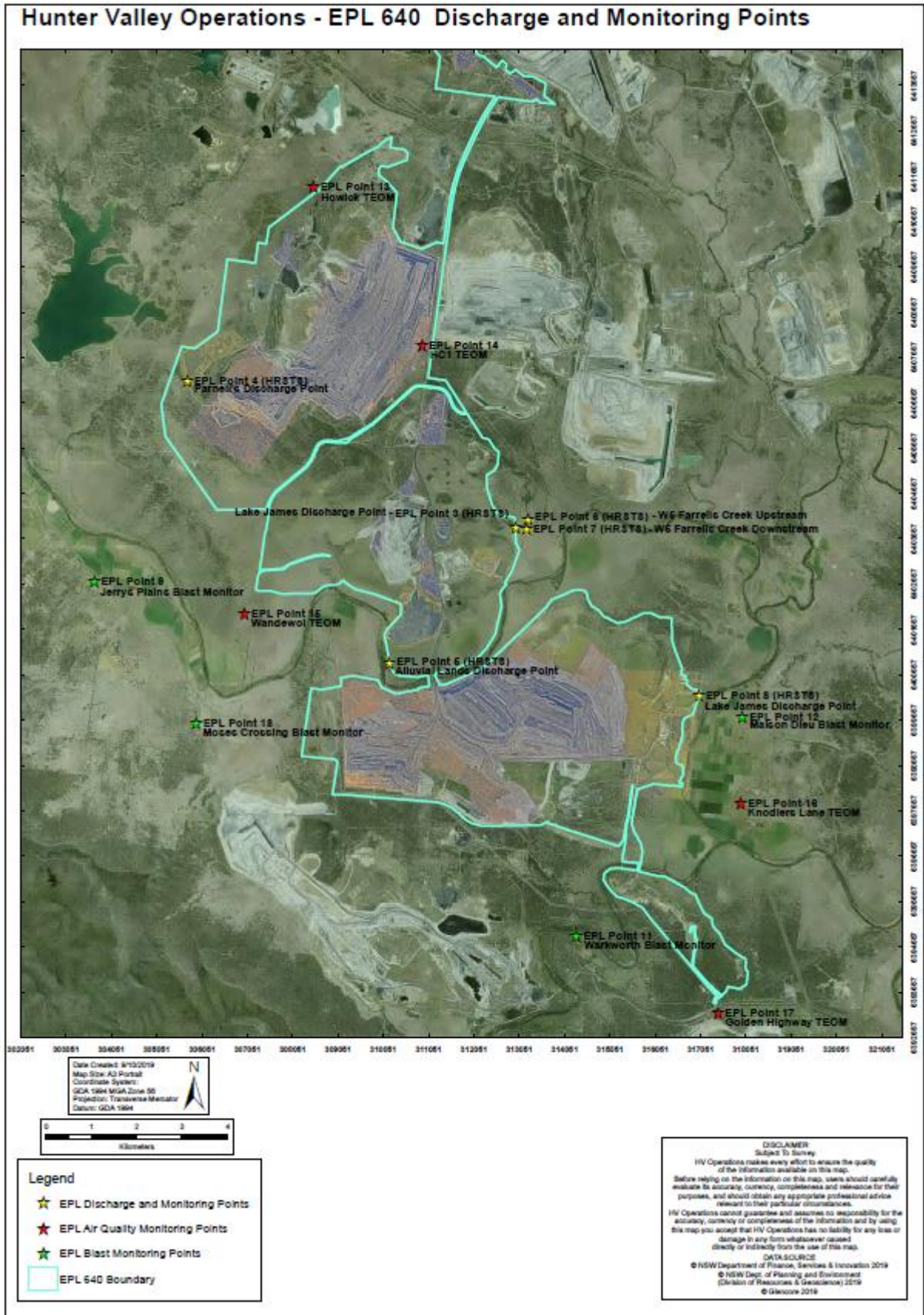


Figure 1 : Hunter Valley Operations Environmental Monitoring Locations