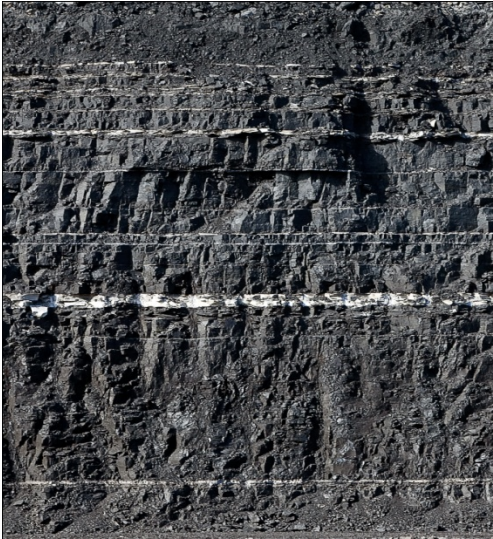


# HUNTER VALLEY OPERATIONS

## Hunter Valley Operations EPL Monitoring Data

Published 17 December 2018

FOR THE MONTH ENDING 30 November 2018



<b>Name of Operation</b>	<b>Hunter Valley Operations</b>
Environment Protection Licence	640
Licensee	HV Operations Pty Ltd
Premises	Hunter Valley Operations Lemington Road, Singleton NSW 2330 Australia
EPL Link	<a href="https://apps.epa.nsw.gov.au/prpoeoap/ViewPOEOLicence.aspx?DOCID=149755&amp;SYSUID=1&amp;LICID=640">https://apps.epa.nsw.gov.au/prpoeoap/ViewPOEOLicence.aspx?DOCID=149755&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 November – 30 November 2018.

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 November 2018; the data was obtained on the 3 December 2018.

**TABLE 1: PARTICULATE MATTER <10µM MONITORING**

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/11/2018	µg/m <sup>3</sup>	Continuous	39.6	52.2	38.4	26.1	43.5
2/11/2018	µg/m <sup>3</sup>		36.3	180.1	41.3	50.3	48.0
3/11/2018	µg/m <sup>3</sup>		31.4	121.6	24.5	34.2	28.1
4/11/2018	µg/m <sup>3</sup>		42.3	39.8	39.3	18.9	29.1
5/11/2018	µg/m <sup>3</sup>		38.5	77.8	25.1	20.5	31.5
6/11/2018	µg/m <sup>3</sup>		57.4	249.2	44.3	67.3	78.7
7/11/2018	µg/m <sup>3</sup>		26.0	107.1	19.1	44.8	43.5
8/11/2018	µg/m <sup>3</sup>		12.8	14.0	12.9	8.7	6.4
9/11/2018	µg/m <sup>3</sup>		30.8	41.3	24.2	#	27.6
10/11/2018	µg/m <sup>3</sup>		37.6	45.9	27.5	21.5	45.7
11/11/2018	µg/m <sup>3</sup>		29.4	26.2	24.5	11.8	14.1
12/11/2018	µg/m <sup>3</sup>		38.3	21.6	17.9	10.8	13.2
13/11/2018	µg/m <sup>3</sup>		36.4	19.3	30.2	9.2	15.6
14/11/2018	µg/m <sup>3</sup>		31.7	53.4	24.2	25.2	18.6
15/11/2018	µg/m <sup>3</sup>		39.9	66.2	22.5	27.9	20.7
16/11/2018	µg/m <sup>3</sup>		16.9	19.3	9.8	11.9	#
17/11/2018	µg/m <sup>3</sup>		31.1	22.7	22.0	13.7	#
18/11/2018	µg/m <sup>3</sup>		27.4	14.2	17.9	9.5	#
19/11/2018	µg/m <sup>3</sup>		29.4	21.0	21.4	13.9	9.5
20/11/2018	µg/m <sup>3</sup>		35.3	57.5	31.3	20.0	40.0
21/11/2018	µg/m <sup>3</sup>		40.4	104.0	47.5	44.6	58.5

22/11/2018	µg/m <sup>3</sup>		170.6	348.4	137.5	149.6	127.3
23/11/2018	µg/m <sup>3</sup>		106.9	341.7	89.7	112.2	84.5
24/11/2018	µg/m <sup>3</sup>		17.5	124.6	13.5	39.8	10.9
25/11/2018	µg/m <sup>3</sup>		28.4	119.2	18.0	36.7	16.1
26/11/2018	µg/m <sup>3</sup>		28.5	38.5	31.7	22.4	36.0
27/11/2018	µg/m <sup>3</sup>		41.7	45.1	44.4	23.2	26.0
28/11/2018	µg/m <sup>3</sup>		7.7	17.0	9.0	9.7	7.1
29/11/2018	µg/m <sup>3</sup>		8.6	11.7	7.5	7.2	9.5
30/11/2018	µg/m <sup>3</sup>		22.9	35.9	16.0	11.2	17.5
Monthly Meaningful Data							
<b>November</b>	<b>µg/m<sup>3</sup></b>	<b>Minimum*</b>	7.7	11.7	7.5	7.2	6.4
<b>November</b>	<b>µg/m<sup>3</sup></b>	<b>Mean*</b>	38.1	81.2	31.1	35.1	33.6
<b>November</b>	<b>µg/m<sup>3</sup></b>	<b>Maximum*</b>	170.6	348.4	137.5	149.6	127.3
<b>November</b>	<b>µg/m<sup>3</sup></b>	<b>Median*</b>	31.5	45.5	24.3	21.5	27.6

# 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, 10, 11 and 12) 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 27<sup>th</sup> November 2018. The data was obtained on the 5<sup>th</sup> December 2018.

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
WS44LPG02A	3/11/2018 7:47	dB(L)	All Blasts 100%	115	120	96.6	94.6	109.9	90.9
P123M0802A	5/11/2018 11:20	dB(L)		115	120	97.2	87.1	94.7	98.3
P204P0604A	5/11/2018 16:00	dB(L)		115	120	86.7	100.9	95.2	102.2
P123M0605D	7/11/2018 15:21	dB(L)		115	120	94.0	106.9	107.5	100.6
P201BY101A	8/11/2018 16:17	dB(L)		115	120	97.9	102.1	96.9	91.8
P119BYP01A	9/11/2018 16:08	dB(L)		115	120	85.9	85.0	101.7	87.0
WS40UL201A_ WS40BAP01A	10/11/2018 15:46	dB(L)		115	120	96.0	97.9	109.5	86.5
RW26BFA01B	12/11/2018 13:18	dB(L)		115	120	104.6	105.1	114.1	90.6
WS44LPG02A_ WN43UAP04A	15/11/2018 9:43	115		115	120	89.0	94.0	89.2	90.9
WS44LPG03A	16/11/2018 13:05	dB(L)		115	120	92.6	107.8	94.0	84.4
WS40BAP01F	17/11/2018 13:26	dB(L)		115	120	103.0	107.5	107.8	86.3
P119R0801A	19/11/2018 12:17	dB(L)		115	120	98.7	100.6	97.7	98.5
WS44LPG04A	21/11/2018 11:40	dB(L)		115	120	96.1	106.7	102.2	100.8
WN43UAA12A	24/11/2018 8:08	dB(L)		115	120	100.6	107.7	112.9	95.0
P119BYP01B	26/11/2018 16:37	dB(L)		115	120	103.5	87.1	106.9	98.1
P120R6P01A	26/11/2018 16:38	dB(L)		115	120	102.2	90.4	101.2	93.9



WN45UPG07A	27/11/2018 13:01	dB(L)		115	120	90.7	86.3	88.7	98.2
WS40UL202A_ WS40UL101A	27/11/2018 13:02	dB(L)		115	120	89.4	86.3	88.7	97.1
WS45LEP01A	27/11/2018 13:05	dB(L)		115	120	88.0	83.0	96.1	87.5
Monthly Meaningful Data									
<b>Minimum</b>	<b>November</b>	<b>dB(L)</b>		115	120	85.9	83.0	88.7	84.4
<b>Mean</b>	<b>November</b>	<b>dB(L)</b>		115	120	95.4	96.7	100.8	93.6
<b>Maximum</b>	<b>November</b>	<b>dB(L)</b>		115	120	104.6	107.8	114.1	102.2
<b>Median</b>	<b>November</b>	<b>dB(L)</b>		115	120	96.1	97.9	101.2	93.9

**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
WS44LPG02A	3/11/2018 7:47	mm/s	All Blasts 100%	5	10	0.07	0.05	0.04	0.03
P123M0802A	5/11/2018 11:20	mm/s		5	10	0.16	0.08	0.18	0.62
P204P0604A	5/11/2018 16:00	mm/s		5	10	0.03	0.03	0.14	0.15
P123M0605D	7/11/2018 15:21	mm/s		5	10	0.17	0.06	0.11	0.47
P201BY101A	8/11/2018 16:17	mm/s		5	10	0.02	0.03	0.26	0.12
P119BYP01A	9/11/2018 16:08	mm/s		5	10	0.10	0.06	0.27	0.28
WS40UL201A_ WS40BAP01A	10/11/2018 15:46	mm/s		5	10	0.27	0.14	0.15	0.20
RW26BFA01B	12/11/2018 13:18	mm/s		5	10	0.11	0.05	0.05	0.13
WS44LPG02A_ WN43UAP04A	15/11/2018 9:43	mm/s		5	10	0.08	0.08	0.05	0.30
WS44LPG03A	16/11/2018 13:05	mm/s		5	10	0.05	0.03	0.02	0.05
WS40BAP01F	17/11/2018 13:26	mm/s		5	10	0.26	0.24	0.08	0.09
P119R0801A	19/11/2018 12:17	mm/s		5	10	0.25	0.15	0.37	0.59
WS44LPG04A	21/11/2018 11:40	mm/s		5	10	0.02	0.02	0.02	0.10
WN43UAA12A	24/11/2018 8:08	mm/s		5	10	0.21	0.30	0.12	0.12
P119BYP01B	26/11/2018 16:37	mm/s		5	10	0.08	0.05	0.17	0.32
P120R6P01A	26/11/2018 16:38	mm/s		5	10	0.08	0.05	0.06	0.19

WN45UPG07A	27/11/2018 13:01	mm/s		5	10	0.04	0.04	0.04	0.14
WS40UL202A_ WS40UL101A	27/11/2018 13:02	mm/s		5	10	0.04	0.04	0.03	0.23
WS45LEP01A	27/11/2018 13:05	mm/s		5	10	0.20	0.24	0.06	0.08
Monthly Meaningful Data									
<b>Minimum</b>	<b>November</b>	<b>mm/s</b>		5	10	0.02	0.02	0.02	0.03
<b>Mean</b>	<b>November</b>	<b>mm/s</b>		5	10	0.12	0.09	0.12	0.22
<b>Maximum</b>	<b>November</b>	<b>mm/s</b>		5	10	0.27	0.30	0.37	0.62
<b>Median</b>	<b>November</b>	<b>mm/s</b>		5	10	0.08	0.05	0.08	0.15



Figure 1 : Hunter Valley Operations Environmental Monitoring Locations