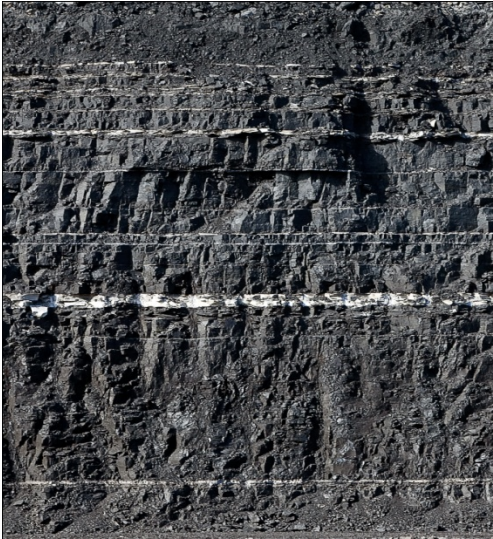


HUNTER VALLEY OPERATIONS

Hunter Valley Operations EPL Monitoring Data

Published 17 June 2019

FOR THE MONTH ENDING 30 May 2019



Name of Operation	Hunter Valley Operations
Environment Protection Licence	640
Licensee	HV Operations Pty Ltd
Premises	Hunter Valley Operations Lemington Road, Singleton NSW 2330 Australia
EPL Link	https://apps.epa.nsw.gov.au/prpoeoap/ViewPOEOLicence.aspx?DOCID=161788&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 May – 31 May 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 May 2019; the data was obtained on the 3 June 2019.

TABLE 1: PARTICULATE MATTER <10µM MONITORING

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/05/2019	µg/m ³	Continuous	44.7	59.7	30.0	24.2	48.6
2/05/2019	µg/m ³		56.8	72.3	37.0	26.7	44.5
3/05/2019	µg/m ³		25.2	112.4	19.6	21.4	28.4
4/05/2019	µg/m ³		3.4	9.0	6.5	6.0	10.4
5/05/2019	µg/m ³		12.4	46.7	7.7	9.4	17.9
6/05/2019	µg/m ³		13.5	53.6	8.0	12.2	15.1
7/05/2019	µg/m ³		14.0	90.7	8.9	17.5	12.1
8/05/2019	µg/m ³		23.9	113.4	15.6	25.4	19.1
9/05/2019	µg/m ³		29.9	81.7	17.1	#	22.6
10/05/2019	µg/m ³		28.6	84.6	16.2	#	23.9
11/05/2019	µg/m ³		12.7	65.8	8.5	13.8	8.8
12/05/2019	µg/m ³		24.9	49.0	7.2	11.4	14.3
13/05/2019	µg/m ³		52.3	106.6	47.2	19.9	30.9
14/05/2019	µg/m ³		34.9	68.8	14.9	23.4	25.8
15/05/2019	µg/m ³		33.4	71.3	21.9	21.9	27.6
16/05/2019	µg/m ³		33.0	55.9	18.5	12.1	20.9
17/05/2019	µg/m ³		34.8	68.7	28.0	23.5	36.3
18/05/2019	µg/m ³		37.5	87.3	23.3	18.2	31.5
19/05/2019	µg/m ³		35.5	51.2	24.0	18.4	20.4
20/05/2019	µg/m ³		26.8	93.1	14.8	19.7	33.0
21/05/2019	µg/m ³		25.9	82.7	16.1	25.4	28.9

22/05/2019	µg/m ³		31.1	71.4	17.0	25.7	20.4
23/05/2019	µg/m ³		39.7	121.9	35.5	28.5	48.6
24/05/2019	µg/m ³		37.0	118.0	15.5	25.9	29.3
25/05/2019	µg/m ³		24.3	106.8	13.8	23.9	25.1
26/05/2019	µg/m ³		24.0	131.7	12.1	36.8	22.9
27/05/2019	µg/m ³		39.3	301.2	15.6	62.0	24.4
28/05/2019	µg/m ³		21.9	133.7	10.7	14.1	14.4
29/05/2019	µg/m ³		23.9	203.9	11.4	32.5	15.4
30/05/2019	µg/m ³		10.2	44.5	5.5	18.3	9.0
31/05/2019	µg/m ³		24.8	#	8.9	14.4	17.9
Monthly Meaningful Data							
May	µg/m³	Minimum*	3.4	9.0	5.5	6.0	8.8
May	µg/m³	Mean*	28.4	91.9*	17.3	21.8*	24.1
May	µg/m³	Maximum*	56.8	301.2	47.2	62.0	48.6
May	µg/m³	Median*	26.8	82.2*	15.6	21.4*	22.9

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 30th May 2019. The data was obtained on the 3rd June 2019.

During the reporting period one blast exceeded the 120dB(L) threshold for airblast overpressure at the Maison Dieu Blast monitor on the 28th May 2019, the results of this blast are considered to be preliminary and are currently under investigation, the preliminary results have been reported to the EPA. During the reporting period, no blasts exceeded the 5mm/s threshold for ground vibration.

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
WS40BAR01A	1/05/2019 13:36	dB(L)	All Blasts 100%	115	120	91.5	87.7	96.6	90.6
P123P0603A	2/05/2019 14:07	dB(L)		115	120	85.6	84.1	88.5	92.0
RW29WHG01A_ RW29WHP03A	3/05/2019 13:29	dB(L)		115	120	99.6	104.4	109.0	108.3
WN43LAR01A	6/05/2019 13:18	dB(L)		115	120	92.1	102.4	84.7	87.3
P120R0801A_ P120R8P02A	8/05/2019 7:37	dB(L)		115	120	98.6	94.6	108.7	110.4
RW32WHAC01A	9/05/2019 13:11	dB(L)		115	120	91.6	99.9	96.6	105.4
P120R8P03A	13/05/2019 13:18	dB(L)		115	120	81.2	83.2	102.4	88.1
P204R0303A	13/05/2019 13:18	dB(L)		115	120	91.8	92.6	102.4	102.2
WS40BAR02A	16/05/2019 13:08	dB(L)		115	120	91.4	100.6	82.7	93.4
WN45LED02A	16/05/2019 13:12	dB(L)		115	120	88.1	96.5	93.6	87.5
P120R0802A	17/05/2019 15:16	dB(L)		115	120	103.4	101.2	106.1	102.0
P204R0304A	20/05/2019 13:27	dB(L)		115	120	92.1	103.1	103.7	104.6
P120R8P04A	21/05/2019 15:15	dB(L)		115	120	80.7	90.8	93.9	96.2
RW29WHGL02A	23/05/2019 13:14	dB(L)		115	120	116.7	97.3	105.0	110.1

P123P0604A	24/05/2019 12:39	dB(L)		115	120	93.9	97.4	105.4	91.9
P120R0803A	28/05/2019 9:25	dB(L)		115	120	91.0	109.5	125.7*	117.3
WN43LAR02A	30/05/2019 13:24	dB(L)		115	120	103.4	108.8	112.3	105.3
Monthly Meaningful Data									
Minimum	May	dB(L)		115	120	80.7	83.2	82.7	87.3
Mean	May	dB(L)		115	120	93.7	97.3	101.0	99.6
Maximum	May	dB(L)		115	120	116.7	109.5	125.7*	117.3
Median	May	dB(L)		115	120	91.8	97.4	102.4	102.0
* Results of this blast are considered to be preliminary and are currently under investigation, the preliminary results have been reported to the EPA.									

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
WS40BAR01A	1/05/2019 13:36	mm/s	All Blasts 100%	5	10	0.16	0.09	0.07	0.06
P123P0603A	2/05/2019 14:07	mm/s		5	10	0.11	0.03	0.09	0.21
RW29WHG01A_ RW29WHP03A	3/05/2019 13:29	mm/s		5	10	0.40	0.12	0.12	0.28
WN43LAR01A	6/05/2019 13:18	mm/s		5	10	0.16	0.14	0.08	0.09
P120R0801A_ P120R8P02A	8/05/2019 7:37	mm/s		5	10	0.31	0.15	0.38	0.52
RW32WHAC01A	9/05/2019 13:11	mm/s		5	10	0.28	0.07	0.08	0.28
P120R8P03A	13/05/2019 13:18	mm/s		5	10	0.21	0.11	0.80	0.77
P204R0303A	13/05/2019 13:18	mm/s		5	10	0.20	0.11	0.80	0.77
WS40BAR02A	16/05/2019 13:08	mm/s		5	10	0.19	0.12	0.09	0.11
WN45LED02A	16/05/2019 13:12	mm/s		5	10	0.10	0.04	0.05	0.04
P120R0802A	17/05/2019 15:16	mm/s		5	10	0.25	0.15	0.26	0.49
P204R0304A	20/05/2019 13:27	mm/s		5	10	0.14	0.07	0.72	0.47
P120R8P04A	21/05/2019 15:15	mm/s		5	10	0.19	0.10	0.38	0.62
RW29WHGL02A	23/05/2019 13:14	mm/s		5	10	0.37	0.12	0.14	0.33
P123P0604A	24/05/2019 12:39	mm/s		5	10	0.10	0.04	0.08	0.11
P120R0803A	28/05/2019 9:25	mm/s		5	10	0.31	0.18	0.38	1.36
WN43LAR02A	30/05/2019 13:24	mm/s		5	10	0.12	0.09	0.05	0.72

Monthly Meaningful Data

Monthly Meaningful Data									
Minimum	May	mm/s		5	10	0.10	0.03	0.05	0.04
Mean	May	mm/s		5	10	0.21	0.10	0.27	0.43
Maximum	May	mm/s		5	10	0.40	0.18	0.80	1.36
Median	May	mm/s		5	10	0.19	0.11	0.12	0.33



Figure 1 : Hunter Valley Operations Environmental Monitoring Locations