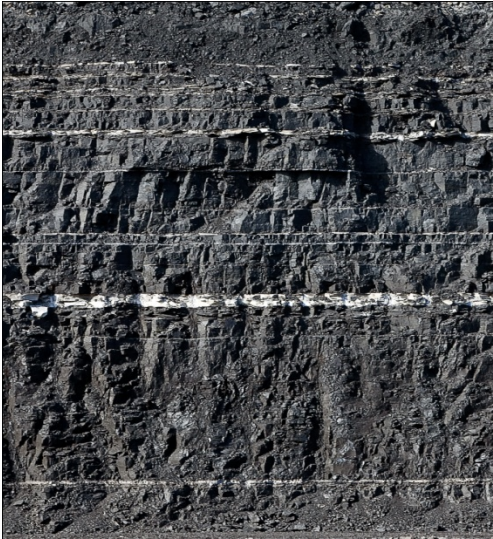


HUNTER VALLEY OPERATIONS

Hunter Valley Operations EPL Monitoring Data

Published 16 October 2018

FOR THE MONTH ENDING 30 September 2018



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	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=121534&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 September – 30 September 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 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 30 September 2018; the data was obtained on the 2 October 2018.

TABLE 1: PARTICULATE MATTER <10µM MONITORING

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/09/2018	µg/m ³	Continuous	18.6	44.8	12.3	29.1	16.4
2/09/2018	µg/m ³		19.4	29.3	11.8	17.1	16.9
3/09/2018	µg/m ³		29.6	20.6	11.5	13.3	37.3
4/09/2018	µg/m ³		10.2	7.4	7.5	3.9	11.3
5/09/2018	µg/m ³		7.8	12.2	10.9	6.3	11.4
6/09/2018	µg/m ³		7.6	27.4	20.0	9.3	16.6
7/09/2018	µg/m ³		12.3	19.8	8.3	8.5	13.6
8/09/2018	µg/m ³		17.4	16.9	8.0	9.8	22.5
9/09/2018	µg/m ³		11.5	30.3	3.8	17.5	13.4
10/09/2018	µg/m ³		20.5	44.8	18.0	17.8	18.8
11/09/2018	µg/m ³		31.7	43.7	30.4	15.3	28.5
12/09/2018	µg/m ³		31.7	133.4	22.1	23.4	35.2
13/09/2018	µg/m ³		65.2	75.0	47.9	37.1	54.5
14/09/2018	µg/m ³		46.3	108.6	39.9	37.1	46.9
15/09/2018	µg/m ³		54.0	283.9	24.5	65.9	49.6
16/09/2018	µg/m ³		37.9	53.4	22.1	20.9	35.7
17/09/2018	µg/m ³		62.0	95.6	34.2	19.9	34.7
18/09/2018	µg/m ³		40.4	112.9	21.5	33.1	39.7
19/09/2018	µg/m ³		46.0	179.6	24.5	56.2	71.6
20/09/2018	µg/m ³		41.0	55.9	28.4	13.6	41.3
21/09/2018	µg/m ³		36.9	75.2	24.1	17.3	28.2

22/09/2018	µg/m ³		31.0	118.2	17.7	38.9	44.7
23/09/2018	µg/m ³		51.1	93.5	27.2	31.7	36.1
24/09/2018	µg/m ³		25.0	16.8	14.7	14.3	25.1
25/09/2018	µg/m ³		25.8	11.1	12.1	8.0	12.8
26/09/2018	µg/m ³		23.5	31.3	13.9	10.7	16.5
27/09/2018	µg/m ³		31.2	22.5	19.3	9.6	15.7
28/09/2018	µg/m ³		26.6	90.3	14.3	26.4	23.1
29/09/2018	µg/m ³		32.1	61.6	16.2	24.0	22.4
30/09/2018	µg/m ³		37.9	31.3	20.2	22.0	46.9
Monthly Meaningful Data							
September	µg/m³	Minimum*	7.6	7.4	3.8	3.9	11.3
September	µg/m³	Mean*	31.1	64.9	19.6	21.9	29.6
September	µg/m³	Maximum*	65.2	283.9	47.9	65.9	71.6
September	µg/m³	Median*	31.1	44.8	18.6	17.6	26.7

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 29th September 2018. The data was obtained on the 9th October 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
WW27BAR03A	3/09/2018 10:09	dB(L)	All Blasts 100%	115	120	108.9	88.6	101.6	99.0
P119R0601A	3/09/2018 13:12	dB(L)		115	120	107.1	99.2	106.1	94.0
RW27WHG03C	4/09/2018 13:08	dB(L)		115	120	109.3	107.0	99.6	100.4
P204P0602A	6/09/2018 13:12	dB(L)		115	120	90.1	86.8	97.9	95.1
CE10BAY03A	7/09/2018 10:10	dB(L)		115	120	94.0	89.9	99.9	98.1
P204P0602A_ Misfire	7/09/2018 11:45	dB(L)		115	120	85.7	86.3	99.3	81.7
P201BAC01A	11/09/2018 12:40	dB(L)		115	120	94.7	101.6	102.9	104.2
WS44MPG03B	12/09/2018 13:07	dB(L)		115	120	101.7	114.9	105.9	96.4
WN43UAP03A	13/09/2018 13:04	dB(L)		115	120	101.1	94.9	104.7	101.2
WN45LEC07A	13/09/2018 13:04	dB(L)		115	120	101.5	96.4	107.5	101.2
P119R0601B	14/09/2018 13:10	dB(L)		115	120	96.2	100.0	104.5	100.0
WS47BAY01A	20/09/2018 14:29	dB(L)		115	120	96.7	111.8	104.5	82.4
P204P0302A	22/09/2018 12:04	dB(L)		115	120	97.4	105.1	95.0	96.9
P207WK602A_ P207WKP01A	24/09/2018 13:36	dB(L)		115	120	100.7	107.9	104.0	99.4
CE10BAC10A	25/09/2018 11:13	dB(L)		115	120	100.3	108.0	105.5	101.2
WN45LEB03A_	25/09/2018 13:04	dB(L)		115	120	94.1	95.4	89.2	84.1

WN43UAP03B									
WS43LPG11A	27/09/2018 10:38	dB(L)		115	120	98.4	97.7	95.8	95.8
CE11BAY01A	27/09/2018 17:00	dB(L)		115	120	94.1	86.9	87.9	90.1
P119R0602A	29/09/2018 16:12	dB(L)		115	120	96.2	103.8	100.1	98.8
P123M0605B	29/09/2018 16:13	dB(L)		115	120	92.4	99.1	98.7	103.1
Monthly Meaningful Data									
Minimum	September	dB(L)		115	120	85.7	86.3	87.9	81.7
Mean	September	dB(L)		115	120	98.0	99.1	100.5	96.2
Maximum	September	dB(L)		115	120	109.3	114.9	107.5	104.2
Median	September	dB(L)		115	120	97.0	99.2	100.8	98.4

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
WW27BAR03A	3/09/2018 10:09	mm/s	All Blasts 100%	5	10	0.02	0.02	0.02	0.14
P119R0601A	3/09/2018 13:12	mm/s		5	10	0.26	0.18	0.33	0.47
RW27WHG03C	4/09/2018 13:08	mm/s		5	10	0.43	0.11	0.10	0.27
P204P0602A	6/09/2018 13:12	mm/s		5	10	0.04	0.03	0.22	0.21
CE10BAY03A	7/09/2018 10:10	mm/s		5	10	0.04	0.05	0.04	0.14
P204P0602A_Misfire	7/09/2018 11:45	mm/s		5	10	0.02	0.01	0.02	0.05
P201BAC01A	11/09/2018 12:40	mm/s		5	10	0.07	0.04	0.49	0.15
WS44MPG03B	12/09/2018 13:07	mm/s		5	10	0.08	0.07	0.07	0.13
WN43UAP03A	13/09/2018 13:04	mm/s		5	10	0.19	0.12	0.09	0.11
WN45LEC07A	13/09/2018 13:04	mm/s		5	10	0.19	0.12	0.09	0.09
P119R0601B	14/09/2018 13:10	mm/s		5	10	0.19	0.15	0.21	0.53
WS47BAY01A	20/09/2018 14:29	mm/s		5	10	0.17	0.09	0.06	0.08
P204P0302A	22/09/2018 12:04	mm/s		5	10	0.04	0.03	0.04	0.45
P207WK602A_P207WKP01A	24/09/2018 13:36	mm/s		5	10	0.18	0.09	0.46	0.75
CE10BAC10A	25/09/2018 11:13	mm/s		5	10	0.04	0.05	0.04	0.23

WN45LEB03A_ WN43UAP03B	25/09/2018 13:04	mm/s		5	10	0.11	0.19	0.08	0.11
WS43LPG11A	27/09/2018 10:38	mm/s		5	10	0.09	0.05	0.04	0.09
CE11BAY01A	27/09/2018 17:00	mm/s		5	10	0.08	0.03	0.03	0.08
P119R0602A	29/09/2018 16:12	mm/s		5	10	0.13	0.08	0.31	0.33
P123M0605B	29/09/2018 16:13	mm/s		5	10	0.30	0.12	0.33	0.58
Monthly Meaningful Data									
Minimum	September	mm/s		5	10	0.02	0.01	0.02	0.05
Mean	September	mm/s		5	10	0.13	0.08	0.15	0.25
Maximum	September	mm/s		5	10	0.43	0.19	0.49	0.75
Median	September	mm/s		5	10	0.10	0.08	0.09	0.15



Figure 1 : Hunter Valley Operations Environmental Monitoring Locations