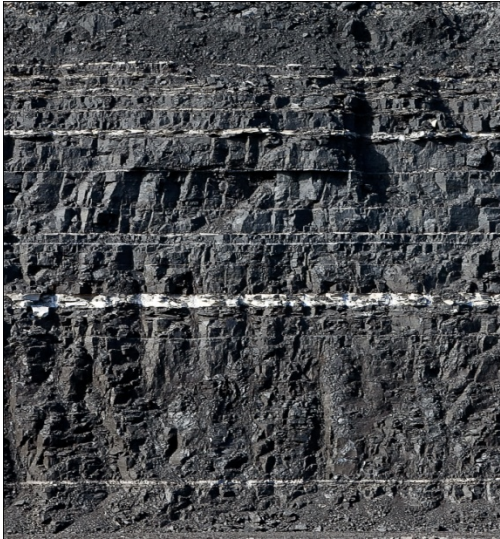


**HUNTER VALLEY
OPERATIONS**



**Hunter Valley Operations
EPL Monitoring Data**

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FOR THE MONTH ENDING 30 April 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=149755&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 April – 30 April 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 30 April 2019; the data was obtained on the 1 May 2019.

TABLE 1: PARTICULATE MATTER <10µM MONITORING

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/04/2019	µg/m ³	Continuous	28.1	56.4	15.2	10.7	20.7
2/04/2019	µg/m ³		13.0	10.6	9.2	7.1	12.6
3/04/2019	µg/m ³		21.2	18.9	15.6	7.0	11.5
4/04/2019	µg/m ³		29.1	#	15.6	11.7	25.5
5/04/2019	µg/m ³		23.3	#	12.1	10.7	18.4
6/04/2019	µg/m ³		19.7	49.9	16.2	16.2	18.8
7/04/2019	µg/m ³		32.8	127.2	17.9	31.7	30.1
8/04/2019	µg/m ³		42.2	120.0	24.8	52.4	45.5
9/04/2019	µg/m ³		36.9	184.5	27.0	43.1	54.5
10/04/2019	µg/m ³		35.4	26.3	24.9	16.6	25.4
11/04/2019	µg/m ³		31.4	17.9	22.9	11.5	19.4
12/04/2019	µg/m ³		24.7	18.6	17.7	10.5	17.5
13/04/2019	µg/m ³		33.1	58.0	22.8	19.2	19.2
14/04/2019	µg/m ³		41.7	69.3	28.2	17.3	26.2
15/04/2019	µg/m ³		30.3	37.9	23.3	14.9	23.8*
16/04/2019	µg/m ³		27.3	35.0	17.0	13.1	21.6
17/04/2019	µg/m ³		31.9	24.2	18.1	8.7	12.4
18/04/2019	µg/m ³		25.9	50.7	20.7	12.5	16.6
19/04/2019	µg/m ³		27.9	19.8	20.6	12.2	17.8*
20/04/2019	µg/m ³		21.6	14.9	20.7	9.4	12.0
21/04/2019	µg/m ³		25.6	21.1	16.9	8.9	11.5

22/04/2019	µg/m ³		32.6	38.2	20.7	13.5	16.3
23/04/2019	µg/m ³		31.7	21.6	20.0	9.7*	12.2
24/04/2019	µg/m ³		25.7	21.6	17.1	8.8	11.7
25/04/2019	µg/m ³		43.1	87.3	38.8	26.6	37.1
26/04/2019	µg/m ³		35.8	172.1	26.4	33.2	31.4
27/04/2019	µg/m ³		54.3	116.1	41.2	27.7	46.5
28/04/2019	µg/m ³		46.5	136.6	20.2	26.4	25.8*
29/04/2019	µg/m ³		54.6	82.5	39.2*	31.5	38.4
30/04/2019	µg/m ³		45.9	74.2	37.1	21.4	26.9
Monthly Meaningful Data							
April	µg/m³	Minimum*	13.0	10.6	9.2	7.0	11.5
April	µg/m³	Mean*	32.4	61.1	22.3*	18.1*	23.6*
April	µg/m³	Maximum*	54.6	184.5	41.2	52.4	54.5
April	µg/m³	Median*	31.6	44.0	20.7*	13.3*	20.0*

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, 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 April 2019. The data was obtained on the 3rd May 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
P207HOP01A	1/04/2019 12:31	dB(L)	All Blasts 100%	115	120	87.7	103.4	91.3	94.9
WS43LPG13A	2/04/2019 13:05	dB(L)		115	120	92.4	102.5	90.3	94.3
WS43UAA12A	2/04/2019 13:07	dB(L)		115	120	90.4	94.3	98.6	92.9
RW29WHP02A	4/04/2019 13:10	dB(L)		115	120	95.1	95.9	99.4	100.8
P207HOZ01A	9/04/2019 9:28	dB(L)		115	120	94.6	89.3	102.0	102.3
WN41ULD03A	10/04/2019 13:18	dB(L)		115	120	98.5	106.4	100.2	100.5
WS45LPP01B	10/04/2019 13:19	dB(L)		115	120	98.5	103.5	107.8	100.5
WN41ULD05A	12/04/2019 13:09	dB(L)		115	120	96.9	102.8	102.1	113.1
WS45LPP03A	12/04/2019 13:12	dB(L)		115	120	91.8	90.9	85.2	93.7
P204R0301A	13/04/2019 12:06	dB(L)		115	120	91.1	88.5	96.6	99.0
P207HOZ03A	15/04/2019 13:05	dB(L)		115	120	91.2	89.7	98.6	97.4
P204R0301B	18/04/2019 13:13	dB(L)		115	120	87.7	85.0	99.4	94.2
P123P0602A	18/04/2019 13:14	dB(L)		115	120	88.4	86.3	94.2	96.7
P121R0603A	23/04/2019 9:05	dB(L)		115	120	84.6	87.7	85.8	89.5
WS45LED04A	23/04/2019 13:59	dB(L)		115	120	95.1	100.9	102.1	95.1
P204R0302A	27/04/2019 13:44	dB(L)		115	120	101.5	90.5	104.3	98.9
P121R8P01A	27/04/2019 15:36	dB(L)		115	120	81.5	97.1	91.7	83.8

P123P0602B	27/04/2019 15:37	dB(L)		115	120	91.1	102.2	97.8	100.2
P207HOZ02A	29/04/2019 13:24	dB(L)		115	120	91.8	107.7	97.6	93.7
Monthly Meaningful Data									
Minimum	April	dB(L)		115	120	81.5	85.0	85.2	83.8
Mean	April	dB(L)		115	120	92.1	96.0	97.1	96.9
Maximum	April	dB(L)		115	120	101.5	107.7	107.8	113.1
Median	April	dB(L)		115	120	91.8	95.9	98.6	96.7

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
P207HOP01A	1/04/2019 12:31	mm/s	All Blasts 100%	5	10	0.09	0.04	0.14	0.19
WS43LPG13A	2/04/2019 13:05	mm/s		5	10	0.08	0.02	0.04	0.45
WS43UAA12A	2/04/2019 13:07	mm/s		5	10	0.31	0.17	0.12	0.10
RW29WHP02A	4/04/2019 13:10	mm/s		5	10	0.31	0.07	0.09	0.81
P207HOZ01A	9/04/2019 9:28	mm/s		5	10	0.21	0.10	0.44	1.06
WN41ULD03A	10/04/2019 13:18	mm/s		5	10	0.18	0.23	0.12	0.11
WS45LPP01B	10/04/2019 13:19	mm/s		5	10	0.18	0.23	0.12	0.11
WN41ULD05A	12/04/2019 13:09	mm/s		5	10	0.17	0.17	0.22	1.00
WS45LPP03A	12/04/2019 13:12	mm/s		5	10	0.41	0.30	0.12	0.09
P204R0301A	13/04/2019 12:06	mm/s		5	10	0.13	0.04	0.47	0.50
P207HOZ03A	15/04/2019 13:05	mm/s		5	10	0.24	0.13	0.59	1.21
P204R0301B	18/04/2019 13:13	mm/s		5	10	0.16	0.05	0.81	0.57
P123P0602A	18/04/2019 13:14	mm/s		5	10	0.15	0.06	0.10	0.57
P121R0603A	23/04/2019 9:05	mm/s		5	10	0.10	0.02	0.05	0.05
WS45LED04A	23/04/2019 13:59	mm/s		5	10	0.20	0.10	0.07	0.42
P204R0302A	27/04/2019 13:44	mm/s		5	10	0.13	0.05	0.66	0.57
P121R8P01A	27/04/2019 15:36	mm/s		5	10	0.13	0.04	0.15	0.22

P123P0602B	27/04/2019 15:37	mm/s		5	10	0.12	0.04	0.10	0.12
P207HOZ02A	29/04/2019 13:24	mm/s		5	10	0.19	0.06	0.52	0.77
Monthly Meaningful Data									
Minimum	April	mm/s		5	10	0.08	0.02	0.04	0.05
Mean	April	mm/s		5	10	0.18	0.10	0.26	0.47
Maximum	April	mm/s		5	10	0.41	0.30	0.81	1.21
Median	April	mm/s		5	10	0.17	0.06	0.12	0.45



Figure 1 : Hunter Valley Operations Environmental Monitoring Locations

5 CORRECTION LOG

EPL number: 640

Instrument: ID 14 – HC1 TEOM

Pollutant: Particulate Matter

Correction made: Corrected 24 hour average value for 4-5 April 2019 and subsequent monthly meaningful data.

Sample data and time	Monitoring Location	Parameter	Original Data	Corrected Data	Date Corrected	Date originally published
4 April 2019	HC1 TEOM	24 Hour Average ($\mu\text{g}/\text{m}^3$)	14.5	-	22 May 2020	15 May 2019
5 April 2019	HC1 TEOM	24 Hour Average ($\mu\text{g}/\text{m}^3$)	26.7	-	22 May 2020	15 May 2019
April 2019	HC1 TEOM	Monthly Mean ($\mu\text{g}/\text{m}^3$)	58.4	61.1	22 May 2020	15 May 2019
April 2019	HC1 TEOM	Monthly Median ($\mu\text{g}/\text{m}^3$)	38.1	44.0	22 May 2020	15 May 2019

Reason for Correction: Incorrectly reported 24 hour Average value on 4-5 April 2019. Insufficient data was collected on these days to calculate a 24 hour average due to annual maintenance and calibration.