

HUNTER VALLEY OPERATIONS

Environment Protection Licence 640 Monitoring Data - April 2020

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Name of Operation	Hunter Valley Operations
<i>Environment Protection Licence</i>	<i>640</i>
<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>	https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=168611&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– 3 April 2020.

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 2020; the data was obtained on the 1 May 2020.

Table 1: Particulate Matter <10µm M Monitoring

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/04/2020	µg/m ³	Continuous	21.5	25.3	34.1	11.5	18.5
2/04/2020	µg/m ³		15.7	21.8	14.6	13.5	15.0
3/04/2020	µg/m ³		10.1	12.5	11.3	12.2	13.7
4/04/2020	µg/m ³		16.3	12.5	12.8	24.1*	18.0
5/04/2020	µg/m ³		20.7	35.4	13.6	25.0	20.4
6/02/2020	µg/m ³		26.3	31.4	17.2	15.6*	20.4
7/04/2020	µg/m ³		22.5	15.0	14.2	47.0*	24.7
8/04/2020	µg/m ³		26.3	17.7	12.2	46.4	23.8
9/04/2020	µg/m ³		23.9	17.7	15.2	63.3	18.9
10/04/2020	µg/m ³		10.6	16.3	7.0	9.7	13.4
11/04/2020	µg/m ³		19.1	52.0	17.4	57.5	15.8
12/04/2020	µg/m ³		23.9	46.1	20.2	20.9	26.4
13/04/2020	µg/m ³		31.3	67.0	24.0	27.4	37.0
14/04/2020	µg/m ³		33.8	64.1*	37.7	23.1	39.0
15/04/2020	µg/m ³		37.6	76.8	15.0	28.3	35.3
16/04/2020	µg/m ³		22.8	71.4	19.6	53.5	29.1
17/04/2020	µg/m ³		27.7	65.2	11.2	41.1	19.0*
18/04/2020	µg/m ³		34.8	58.6	19.2	29.4	17.5
19/04/2020	µg/m ³		45.8	71.3	33.0	28.8	38.0
20/04/2020	µg/m ³		26.1	79.1	13.6	29.8	19.5
21/04/2020	µg/m ³		21.0	94.7	11.8	41.0	22.0

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
22/04/2020	µg/m ³		27.8	58.6	15.4	23.1	25.2
23/04/2020	µg/m ³		41.0	132.1*	16.9	37.9	29.3
24/04/2020	µg/m ³		35.3	121.6	25.9	50.1	40.9
25/04/2020	µg/m ³		47.2	113.3	18.3	39.8	47.7
26/04/2020	µg/m ³		43.3	#	20.4	49.4*	61.5
27/04/2020	µg/m ³		42.7	#	16.2	17.0*	35.2
28/04/2020	µg/m ³		28.0	#	20.3	9.8	16.9
29/04/2020	µg/m ³		18.5	58.6*	19.1	23.3*	27.4
30/04/2020	µg/m ³		14.2	62.7	20.1	15.0	30.4
Monthly Meaningful Data							
March	µg/m ³	Minimum	10.1	12.5	7.0	9.7	13.4
	µg/m ³	Mean	27.2	55.5	18.3	30.5	26.7
	µg/m ³	Maximum	47.2	132.1	37.7	63.3	61.5
	µg/m ³	Median	26.2	58.6	17.1	27.9	24.3

* Data calculated with missing 10 minute values due to equipment or communication issue

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

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 29 April 2020. The data was obtained on the 11 May 2020.

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
P122R0303A	2/04/2020 16:05	dB(L)	All Blasts 100%	115	120	91.6	88.8	104.3	103.1
WN42LLD03A	6/04/2020 13:15	dB(L)		115	120	96.0	99.6	95.5	95.1
P20803001A	8/04/2020 13:21	dB(L)		115	120	90.6	102.5	98.4	96.3
WS45LPG04A	9/04/2020 11:25	dB(L)		115	120	89.6	100.3	93.1	96.0
P206P0401B P207M0801A	9/04/2020 14:25	dB(L)		115	120	85.5	88.9	89.2	93.0
WS45UAA01A	14/04/2020 13:21	dB(L)		115	120	97.3	103.5	96.2	100.3
RW31WHG01B	15/04/2020 12:57	dB(L)		115	120	94.0	96.6	100.1	109.9
WS49BAY02A	16/04/2020 13:19	dB(L)		115	120	95.3	112.6	107.8	94.6
P123R0105A	17/04/2020 15:25	dB(L)		115	120	97.8	107.2	106.2	98.1
P12406203A	17/04/2020 15:26	dB(L)		115	120	97.8	99.6	101.6	102.6
WN45MPG04A	18/04/2020 16:06	dB(L)		115	120	82.8	80.2	81.2	84.6
WS42ULD02A	23/04/2020 13:15	dB(L)		115	120	103.1	105.8	108.2	93.9
P123R0301A	24/04/2020 15:53	dB(L)		115	120	93.4	99.5	100.2	100.0
P20803002A	28/04/2020 13:24	dB(L)		115	120	93.8	90.0	103.0	95.9
WS42ULD03A	29/04/2020 14:07	dB(L)		115	120	100.4	102.4	102.7	91.9

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
WS45UAA02A WS45LAP03A	29/04/2020 14:12	dB(L)		115	120	89.1	105.0	104.2	90.3
Monthly Meaningful Data									
	April	dB(L)	Minimum	115	120	84.6	84.6	84.6	84.6
		dB(L)	Mean	115	120	96.6	96.6	96.6	96.6
		dB(L)	Maximum	115	120	109.9	109.9	109.9	109.9
		dB(L)	Median	115	120	96.0	96.0	96.0	96.0

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
P122R0303A	2/04/2020 16:05	mm/s	All Blasts 100%	5	10	0.15	0.03	0.15	0.21
WN42LLD03A	6/04/2020 13:15	mm/s		5	10	0.2	0.21	0.13	0.46
P20803001A	8/04/2020 13:21	mm/s		5	10	0.16	0.05	0.58	0.98
WS45LPG04A	9/04/2020 11:25	mm/s		5	10	0.11	0.02	0.07	0.52
P206P0401B P207M0801A	9/04/2020 14:25	mm/s		5	10	0.12	0.03	0.52	0.26
WS45UAA01A	14/04/2020 13:21	mm/s		5	10	0.25	0.17	0.12	0.12
RW31WHG01B	15/04/2020 12:57	mm/s		5	10	0.21	0.07	0.1	0.25
WS49BAY02A	16/04/2020 13:19	mm/s		5	10	0.12	0.05	0.08	0.09
P123R0105A	17/04/2020 15:25	mm/s		5	10	0.11	0.02	0.15	0.37
P12406203A	17/04/2020 15:26	mm/s		5	10	0.14	0.04	0.15	0.26
WN45MPG04A	18/04/2020 16:06	mm/s		5	10	0.09	0.03	0.07	0.07
WS42ULD02A	23/04/2020 13:15	mm/s		5	10	0.19	0.16	0.13	0.08
P123R0301A	24/04/2020 15:53	mm/s		5	10	0.23	0.08	0.19	0.58
P20803002A	28/04/2020 13:24	mm/s		5	10	0.1	0.02	0.31	0.37
WS42ULD03A	29/04/2020 14:07	mm/s		5	10	0.27	0.12	0.12	0.07
WS45UAA02A	29/04/2020 14:12	mm/s		5	10	0.22	0.16	0.23	0.1

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
WS45LAP03A									
	April	mm/s	Minimum	5	10	0.09	0.02	0.07	0.07
		mm/s	Mean	5	10	0.17	0.08	0.19	0.30
		mm/s	Maximum	5	10	0.27	0.21	0.58	0.98
		mm/s	Median	5	10	0.16	0.05	0.14	0.26

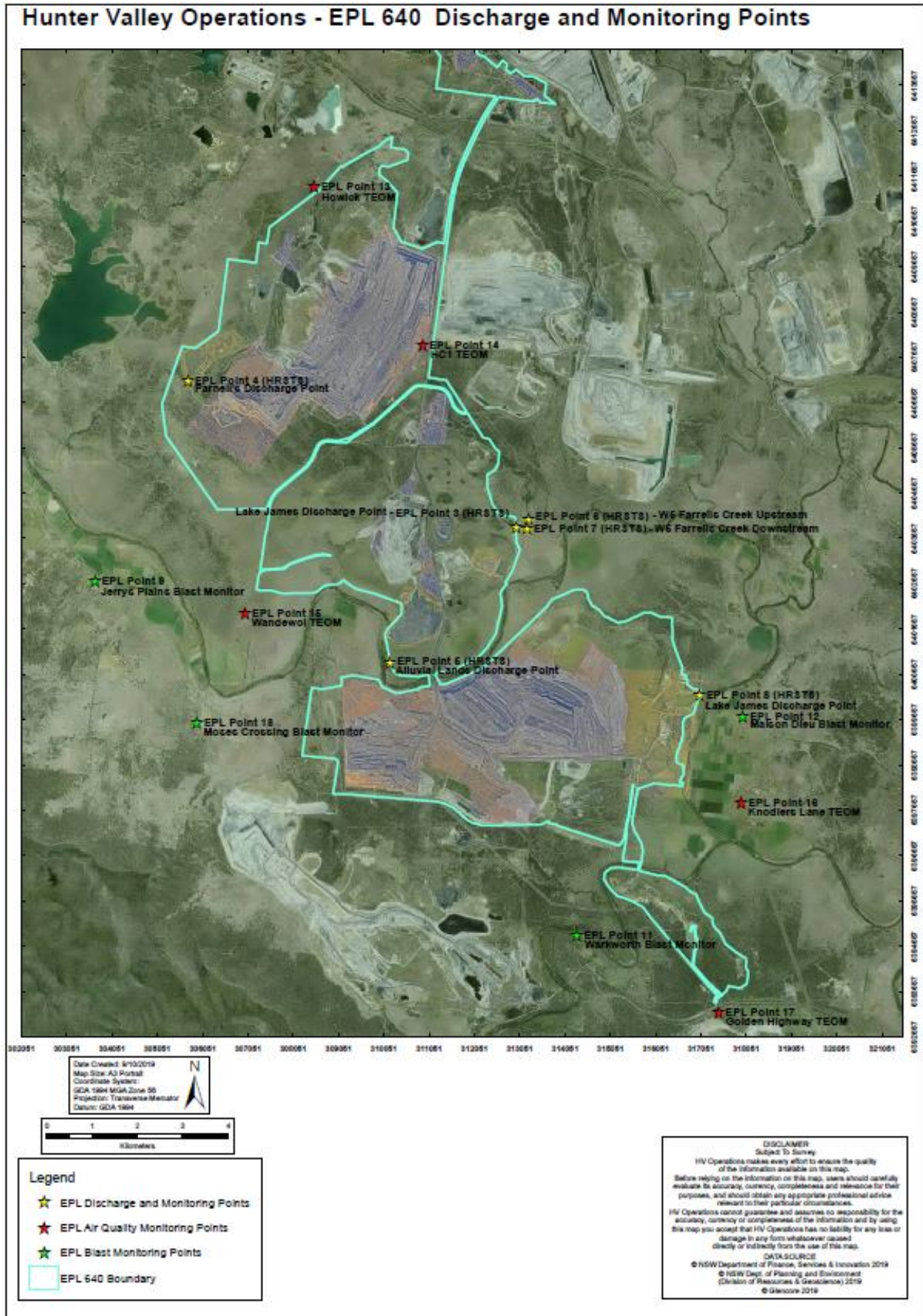


Figure 1 : Hunter Valley Operations Environmental Monitoring Locations