HUNTER VALLEY OPERATIONS

Environment Protection Licence 640 Monitoring Data - May 2020

Published 12 June 2020

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/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 May – 31 May 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 PM_{10} 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_{10}) monitoring (EPA Monitoring Points 13, 14, 15, 16 and 17) are shown in Table 1. Results reported represent the 24hr average PM_{10}, derived from 10 minute average PM_{10} values for the period midnight to midnight, for each calendar date during the reporting period. The last sampling date was 31 May 2020; the data was obtained on the 1 June 2020.

From 30 May 2020, the existing HC1 monitoring location was disconnected from its permanent power supply due to mine progression which placed the monitor and substation within blasting exclusion zones. In consultation with the EPA, HVO has temporarily relocated this monitoring location as shown on Figure 1. Monitoring at this location is also using an alternate method (PM_{10} ESampler) as an interim measure, with a similar monitor installation at the upwind Howick monitoring location for comparative purposes.

Table 1: Particulate Matter <10µm Monitoring

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/05/2020	µg/m³	Continuous	10.8	36.9	7.6	10.0	11.0
2/05/2020	µg/m³		13.3	62.7	11.1	17.1	13.9
3/05/2020	µg/m³		9.8	43.5	10.2	15.6	19.5
4/05/2020	µg/m³		22.7	37.2	14.1	18.9	38.3
5/05/2020	µg/m³		26.7	65.1	17.3	19.7	34.5
6/02/2020	µg/m³		12.7	58.8	7.6	17.3	32.2
7/05/2020	µg/m³		20.3	46.3	10.7	20.7	17.7
8/05/2020	µg/m³		21.7	73.6	15.8	28.6	23.0
9/05/2020	µg/m³		17.6	84.8	13.9	33.3	26.3
10/05/2020	µg/m³		13.6	37.6	5.2	13.9	25.8
11/05/2020	µg/m³		35.8	67.3	31.6	23.9	56.8
12/05/2020	µg/m³		40.5	106.2	30.3	30.4	45.8
13/05/2020	µg/m³		31.6	99.4	12.0	26.0	37.2
14/05/2020	µg/m³		35.6	150.7	15.9	21.4	55.4
15/05/2020	µg/m³		26.6	26.5	14.0	18.4	40.2
16/05/2020	µg/m³		26.2	25.5	19.8	11.0	38.2
17/05/2020	µg/m³		41.5	82.9	37.7	25.4	62.2
18/05/2020	µg/m³		30.6	31.5	20.3	16.5	26.3
19/05/2020	µg/m³		18.5	26.9	13.3	9.2	13.7
20/05/2020	µg/m³		27.6	81.2	13.8	25.6	37.6
21/05/2020	µg/m³		9.0	#	7.6	14.5	18.3

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
22/05/2020	µg/m³		9.9	#	5.0	7.8	9.8
23/05/2020	µg/m³		8.9	17.8	8.5	8.2	12.8
24/05/2020	µg/m³		10.2	41.2	6.4	9.4	42.0
25/05/2020	µg/m³		8.3	23.9	6.5	9.3	20.0
26/05/2020	µg/m³		15.7	15.7	10.7	12.7	27.4
27/05/2020	µg/m³		19.8	73.2	16.6	16.6	33.7
28/05/2020	µg/m³		24.0	45.1	19.7	13.7	47.0
29/05/2020	µg/m³		31.8	#	28.0	17.4	47.6
30/05/2020	µg/m³		22.5	31.5*	18.9	8.6	20.0
31/05/2020	µg/m³		15.6	28.1*	23.1	14.7	44.5
Monthly Meaningful Data							
May	**µg/m³**	**Minimum**	8.3	15.7	5.0	7.8	9.8
	µg/m³	**Mean**	21.3	54.3*	15.3	17.3	31.6
	µg/m³	**Maximum**	41.5	150.7	37.7	33.3	62.2
	µg/m³	**Median**	20.3	44.3*	13.9	16.6	32.2

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

* Data from 30 May 2020 at HC1 was recorded using an ESampler at the “HVS” monitoring location shown on Figure 1.

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 May 2020. The data was obtained on the 1 June 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
4/05/2020 13:03	P123R0303A	dB(L)	All Blasts 100%	115	120	87.0	90.4	92.9	102.7
4/05/2020 13:03	P204BAC02A	dB(L)		115	120	80.7	75.6	92.9	103.8
6/05/2020 15:07	WN45LPG04A	dB(L)		115	120	86.4	87.0	89.9	93.0
7/05/2020 15:03	P207M0802A	dB(L)		115	120	89.2	99.0	100.8	99.4
8/05/2020 14:15	P123R0304B	dB(L)		115	120	88.5	86.0	105.9	92.2
8/05/2020 14:17	P122R0602A	dB(L)		115	120	88.8	89.8	100.0	100.9
8/05/2020 14:18	P205R0301A	dB(L)		115	120	88.4	85.8	103.0	100.9
12/05/2020 13:02	WN45LPG05A	dB(L)		115	120	82.6	86.0	85.8	89.4
13/05/2020 13:00	P123R0304A	dB(L)		115	120	86.5	90.4	104.6	103.2
14/05/2020 12:57	P204BAC03A	dB(L)		115	120	100.6	100.7	109.3	98.3
15/05/2020 13:04	WN4510101A	dB(L)		115	120	98.2	110.3	106.2	94.2
18/05/2020 13:19	WN42BAR01A	dB(L)		115	120	93.7	95.1	107.1	91.2
21/05/2020 13:53	P122R0601A_ P123R0306A	dB(L)		115	120	89.0	91.5	101.2	102.0
22/05/2020 12:59	RW30AFA01B	dB(L)		115	120	91.1	87.6	103.2	95.3
23/05/2020 13:18	P206P0401C	dB(L)		115	120	77.9	96.8	106.7	90.4

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
25/05/2020 13:31	P20803002B			115	120	93.6	97.9	100.2	95.9
27/05/2020 12:56	WN45LPG07A			115	120	81.9	77.1	86.4	92.6
29/05/2020 14:36	WS45UAA03A			115	120	99.9	107.0	88.2	95.1
Monthly Meaningful Data									
	May	dB(L)	Minimum	115	120	77.9	75.6	85.8	89.4
		dB(L)	Mean	115	120	88.5	91.0	98.4	96.3
		dB(L)	Maximum	115	120	100.6	110.3	109.3	103.8
		dB(L)	Median	115	120	88.6	90.4	101.0	95.6

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
4/05/2020 13:03	P123R0303A	mm/s	All Blasts 100%	5	10	0.2	0.1	0.14	0.64
4/05/2020 13:03	P204BAC02A	mm/s		5	10	0.11	0.03	0.14	0.58
6/05/2020 15:07	WN45LPG04A	mm/s		5	10	0.12	0.08	0.08	0.74
7/05/2020 15:03	P207M0802A	mm/s		5	10	0.12	0.05	0.62	0.58
8/05/2020 14:15	P123R0304B	mm/s		5	10	0.11	0.03	0.08	0.23
8/05/2020 14:17	P122R0602A	mm/s		5	10	0.13	0.04	0.12	0.24
8/05/2020 14:18	P205R0301A	mm/s		5	10	0.12	0.03	0.23	0.34
12/05/2020 13:02	WN45LPG05A	mm/s		5	10	0.18	0.07	0.08	0.1
13/05/2020 13:00	P123R0304A	mm/s		5	10	0.15	0.04	0.12	0.16
14/05/2020 12:57	P204BAC03A	mm/s		5	10	0.11	0.03	0.28	1.01
15/05/2020 13:04	WN4510101A	mm/s		5	10	0.11	0.04	0.07	0.59
18/05/2020 13:19	WN42BAR01A	mm/s		5	10	0.19	0.09	0.1	0.44
21/05/2020 13:53	P122R0601A_ P123R0306A	mm/s		5	10	0.16	0.05	0.27	0.37
22/05/2020 12:59	RW30AFA01B	mm/s		5	10	0.18	0.06	0.23	0.14
23/05/2020 13:18	P206P0401C	mm/s		5	10	0.12	0.02	0.22	0.05
25/05/2020 13:31	P20803002B			5	10	0.15	0.04	0.65	0.64

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
27/05/2020 12:56	WN45LPG07A			5	10	0.11	0.04	0.2	0.86
29/05/2020 14:36	WS45UAA03A	mm/s		5	10	0.21	0.15	0.32	0.16
	May	**mm/s**	**Minimum**	5	10	0.11	0.02	0.07	0.05
		mm/s	**Mean**	5	10	0.14	0.05	0.21	0.41
		mm/s	**Maximum**	5	10	0.21	0.15	0.65	1.01
		mm/s	**Median**	5	10	0.12	0.04	0.17	0.40

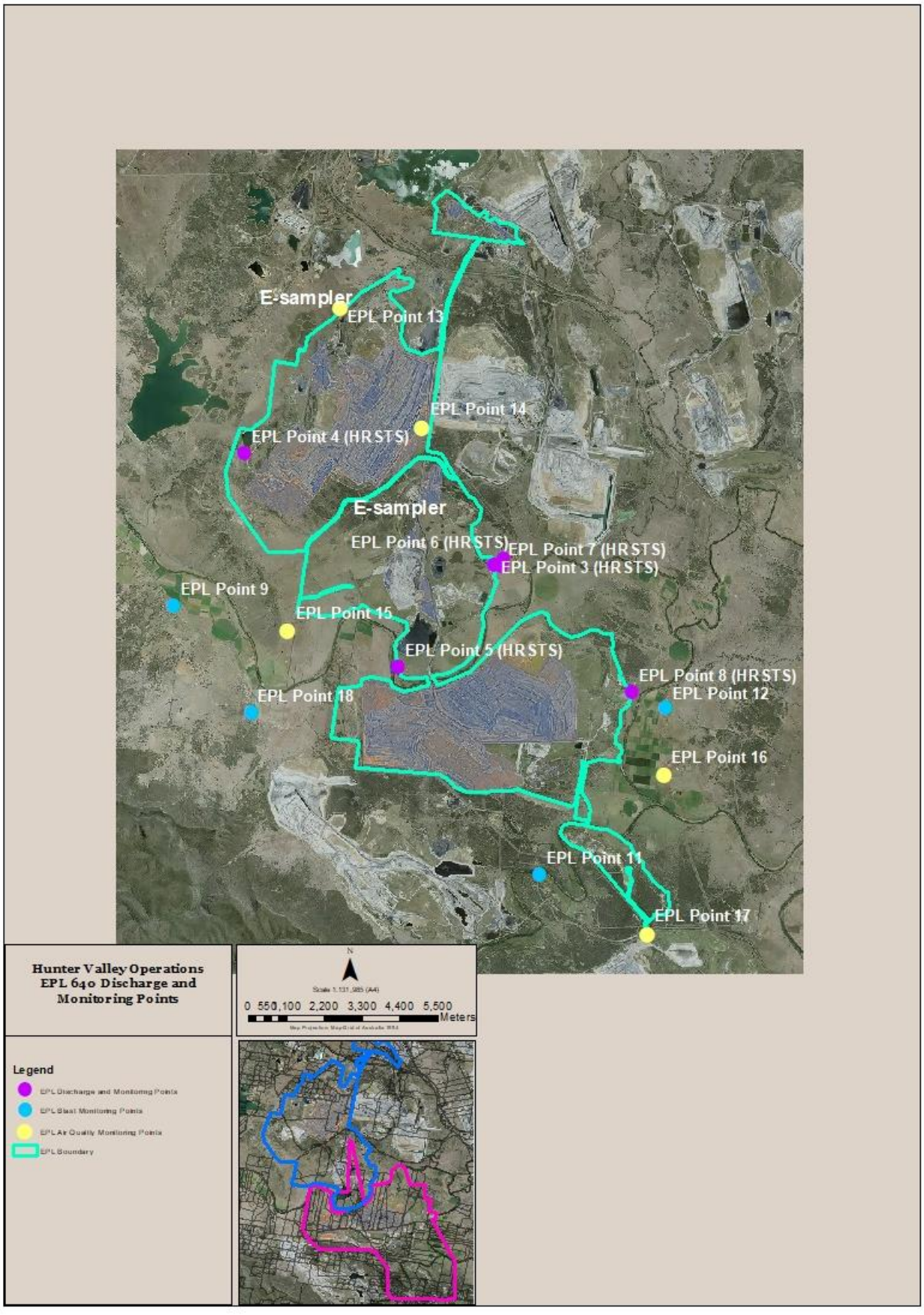

Figure 1 : Hunter Valley Operations Environmental Monitoring Locations