

HUNTER VALLEY OPERATIONS

Environment Protection Licence 640 Monitoring Data - JULY 2019

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Name of Operation	Hunter Valley Operations
<i>Environment Protection Licence</i>	640
<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=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 July – 31 July 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 July 2019; the data was obtained on the 1 August 2019.

Table 1: Particulate Matter <10µm Monitoring

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Howick	HC1	Wandewoi	Knodlers	Golden Highway
1/07/2019	µg/m ³	Continuous	37.9	77.5	21.9	#	24.8
2/07/2019	µg/m ³		33.4	80.8	14.4	27.3*	45.1
3/07/2019	µg/m ³		34.9	119.3	18.5	25.6	59.1
4/07/2019	µg/m ³		9.0	11.3	7.6	10.6	16.3
5/07/2019	µg/m ³		14.3	10.4	10.7	8.9	12.3
6/07/2019	µg/m ³		13.8	7.1	13.1	7.7	11.2
7/07/2019	µg/m ³		21.9	14.4	17.3	10.7	15.5
8/07/2019	µg/m ³		13.8	39.9	6.9	13.7	17.4
9/07/2019	µg/m ³		10.2	35.5	5.7	10.1	7.5
10/07/2019	µg/m ³		12.4	50.0	5.6	11.9	9.1
11/07/2019	µg/m ³		24.3	75.9	13.4	21.0	17.4
12/07/2019	µg/m ³		18.5	77.8	11.1	30.1	16.6
13/07/2019	µg/m ³		16.4	53.1	9.5	38.3	13.5
14/07/2019	µg/m ³		16.1	91.1	6.8	18.2	12.7
15/07/2019	µg/m ³		13.5	65.1	7.0	26.5	8.9
16/07/2019	µg/m ³		14.3	78.2	7.2	19.8	14.1
17/07/2019	µg/m ³		15.4	81.4	6.0	18.7	17.7
18/07/2019	µg/m ³		19.4	102.5	6.8	20.1	11.2
19/07/2019	µg/m ³		21.4	76.1	21.4	23.4	25.3
20/07/2019	µg/m ³		26.2	140.0	22.5	31.1	56.7
21/07/2019	µg/m ³		31.3	164.0	18.6	41.8	35.8
22/07/2019	µg/m ³		33.0	75.7	27.0	28.9	41.7

23/07/2019	µg/m ³		27.9	155.5	15.1	32.6	38.2
24/07/2019	µg/m ³		37.8	180.0	15.3	29.0	47.7
25/07/2019	µg/m ³		44.3	113.9	16.8	32.4	50.6
26/07/2019	µg/m ³		39.3	112.2	16.8	30.5	43.8
27/07/2019	µg/m ³		41.8	105.6	22.5	29.8	82.0
28/07/2019	µg/m ³		43.4	87.9	25.6	25.8	52.7
29/07/2019	µg/m ³		32.8	160.5	14.3	31.4	43.5
30/07/2019	µg/m ³		28.5	30.3	16.0	14.3	30.1
31/07/2019	µg/m ³		30.0	28.5	16.0	18.0	35.9
Monthly Meaningful Data							
July	µg/m³	Minimum	9.0	7.1	5.6	7.7	7.5
July	µg/m³	Mean	25.1	80.7	14.1	22.8*	29.5
July	µg/m³	Maximum	44.3	180.0	27.0	41.8	82.0
July	µg/m³	Median	24.3	77.8	14.4	23.4*	24.8

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 July 2019. The data was obtained on the 12th August 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
WN43LAR04A	1/07/2019 13:15	dB(L)	All Blasts 100%	115	120	84.9	86.3	88.9	93.7
P120BAC03A	1/07/2019 15:10	dB(L)		115	120	93.8	91.7	106.9	118.0
WN45UPG08A	3/07/2019 13:04	dB(L)		115	120	116.4	102.4	111.3	94.6
WN41LLD02A	6/07/2019 16:19	dB(L)		115	120	92.5	95.8	88.5	90.3
P204R0601A	9/07/2019 13:08	dB(L)		115	120	94.2	103.8	107.0	97.6
P205R6P01A	9/07/2019 13:09	dB(L)		115	120	91.1	108.4	102.7	99.5
WS45UPG01A	12/07/2019 9:28	dB(L)		115	120	92.7	87.5	97.3	100.4
WS45LED05A	12/07/2019 9:30	dB(L)		115	120	95.4	94.6	94.6	98.8
RW29BFP01A	13/07/2019 9:15	dB(L)		115	120	94.1	111.1	112.0	97.3
P207HOZ06A	15/07/2019 13:10	dB(L)		115	120	85.6	86.7	107.0	96.5
RW34PRE01A	16/07/2019 13:09	dB(L)		115	120	99.3	99.2	110.0	104.0
WN45LPG03A	18/07/2019 13:20	dB(L)		115	120	88.2	92.0	115.9	92.0
P206FCL02A	18/07/2019 15:24	dB(L)		115	120	97.8	108.6	106.7	98.8
P208WKP01A	19/07/2019 13:37	dB(L)		115	120	93.2	100.7	98.7	98.6
RW29AFA01A_R W29BFP01B	20/07/2019 14:07	dB(L)		115	120	88.5	98.0	89.6	96.7

WN43LAR06	22/07/2019 13:29	dB(L)		115	120	86.4	88.5	91.3	89.2
WS41ULP01	22/07/2019 13:29	dB(L)		115	120	86.4	86.9	93.8	89.2
P206M0108D	25/07/2019 16:32	dB(L)		115	120	87.7	84.5	88.4	91.8
P208WK201A	25/07/2019 16:33	dB(L)		115	120	91.9	93.6	103.6	104.6
RW28AFA02A	26/07/2019 14:31	dB(L)		115	120	89.6	100.9	104.6	99.6
P204R0602A	27/07/2019 14:30	dB(L)		115	120	86.8	90.6	94.6	94.6
P206FCL03A	27/07/2019 14:32	dB(L)		115	120	88.6	80.6	107.4	101.9
P208WK202A	29/07/2019 13:14	dB(L)		115	120	93.4	97.6	100.1	110.6
P121R8P01A	29/07/2019 14:42	dB(L)		115	120	94.3	102.1	97.4	97.5
Monthly Meaningful Data									
Minimum	July	dB(L)		115	120	84.9	80.6	88.4	89.2
Mean	July	dB(L)		115	120	92.2	95.5	100.8	98.2
Maximum	July	dB(L)		115	120	116.4	111.1	115.9	118.0
Median	July	dB(L)		115	120	92.2	95.2	101.4	97.5

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
WN43LAR04A	1/07/2019 13:15	mm/s	All Blasts 100%	5	10	0.12	0.10	0.07	0.12
P120BAC03A	1/07/2019 15:10	mm/s		5	10	0.13	0.08	0.13	0.37
WN45UPG08A	3/07/2019 13:04	mm/s		5	10	0.09	0.04	0.03	0.16
WN41LLD02A	6/07/2019 16:19	mm/s		5	10	0.13	0.12	0.19	0.09
P204R0601A	9/07/2019 13:08	mm/s		5	10	0.09	0.03	0.21	0.18
P205R6P01A	9/07/2019 13:09	mm/s		5	10	0.35	0.32	0.23	0.62
WS45UPG01A	12/07/2019 9:28	mm/s		5	10	0.08	0.02	0.05	0.05
WS45LED05A	12/07/2019 9:30	mm/s		5	10	0.17	0.07	0.07	0.17
RW29BFP01A	13/07/2019 9:15	mm/s		5	10	0.30	0.06	0.11	0.29
P207HOZ06A	15/07/2019 13:10	mm/s		5	10	0.10	0.04	0.33	0.42
RW34PRE01A	16/07/2019 13:09	mm/s		5	10	0.17	0.05	0.08	0.17
WN45LPG03A	18/07/2019 13:20	mm/s		5	10	0.12	0.07	0.09	0.08
P206FCL02A	18/07/2019 15:24	mm/s		5	10	0.08	0.02	0.06	0.46
P208WKP01A	19/07/2019 13:37	mm/s		5	10	0.14	0.05	0.17	0.16
RW29AFA01A_R W29BFP01B	20/07/2019 14:07	mm/s		5	10	0.32	0.10	0.14	0.34
WN43LAR06	22/07/2019 13:29	mm/s		5	10	0.19	0.11	0.14	0.09

WS41ULP01	22/07/2019 13:29	mm/s		5	10	0.19	0.11	0.14	0.07
P206M0108D	25/07/2019 16:32	mm/s		5	10	0.08	0.02	0.10	0.32
P208WK201A	25/07/2019 16:33	mm/s		5	10	0.10	0.05	0.18	0.51
RW28AFA02A	26/07/2019 14:31	mm/s		5	10	0.13	0.04	0.07	0.08
P204R0602A	27/07/2019 14:30	mm/s		5	10	0.09	0.03	0.19	0.37
P206FCL03A	27/07/2019 14:32	mm/s		5	10	0.08	0.03	0.08	0.10
P208WK202A	29/07/2019 13:14	mm/s		5	10	0.09	0.04	0.14	0.54
P121R8P01A	29/07/2019 14:42	mm/s		5	10	0.21	0.12	0.60	0.91
Monthly Meaningful Data									
Minimum	July	mm/s		5	10	0.08	0.02	0.03	0.05
Mean	July	mm/s		5	10	0.15	0.07	0.15	0.28
Maximum	July	mm/s		5	10	0.35	0.32	0.60	0.91
Median	July	mm/s		5	10	0.13	0.05	0.14	0.18

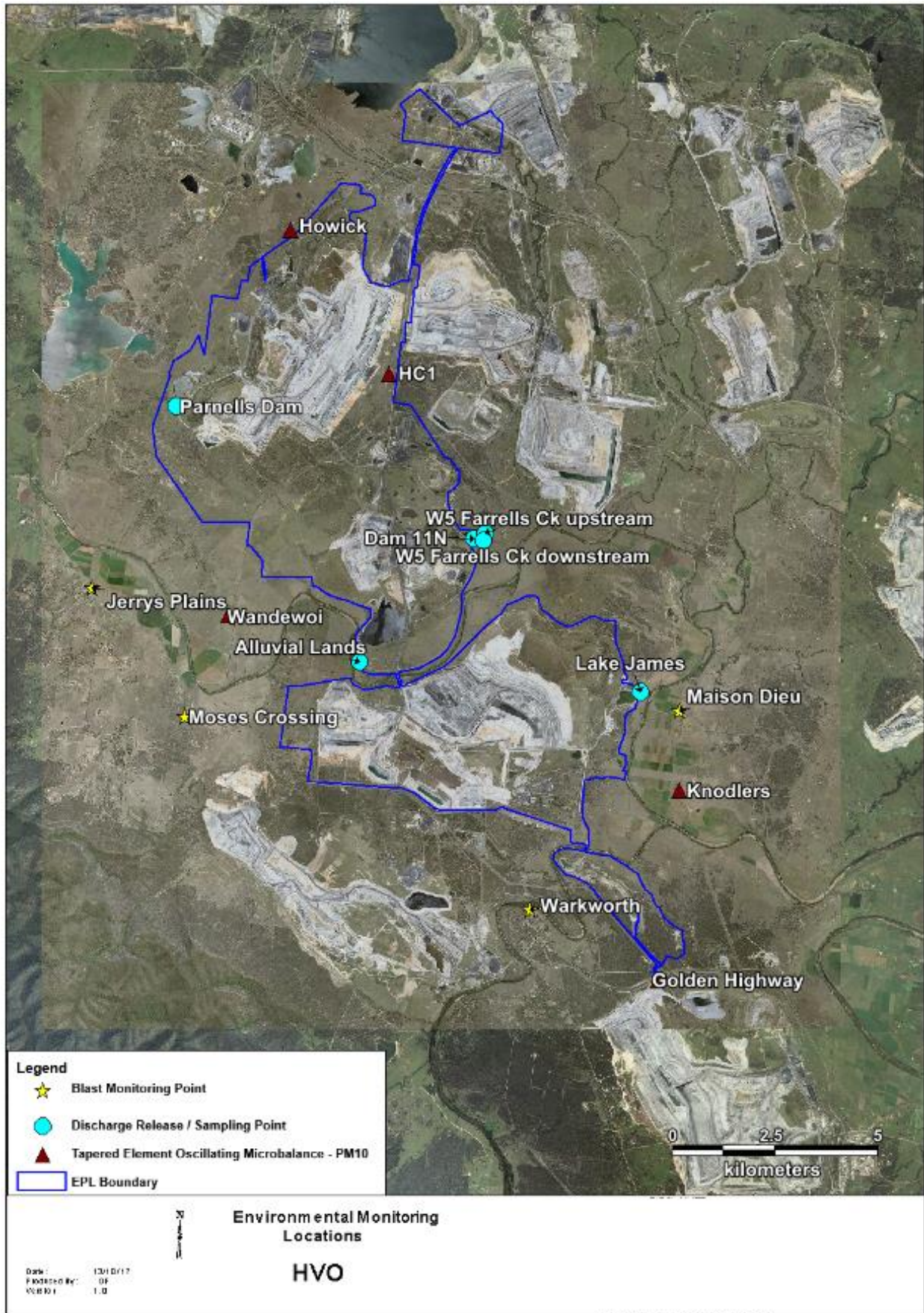


Figure 1 : Hunter Valley Operations Environmental Monitoring Locations