HUNTER VALLEY OPERATIONS

Quarterly Environmental Monitoring Report June 2020

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1.0 INTRODUCTION

This report has been compiled to provide a monthly summary of environmental monitoring results for Hunter Valley Operations (HVO). This report includes all monitoring data collected for the period 1st to 30th June 2020.

2.0 AIR QUALITY

2.1 Meteorological Monitoring

HVO maintains two meteorological stations; 'HVO Corporate' and 'Cheshunt' (Refer to Figure 4: Air Quality Monitoring Location Plan).

2.1.1 Rainfall

Rainfall for the period is summarised in Table 1. The 2020 trend and historical trends are shown in Figure 1.

Table 1: Rainfall data - June 2020

2020	Monthly Rainfall (mm)	Cumulative Rainfall (mm)
June	49.8	394.0

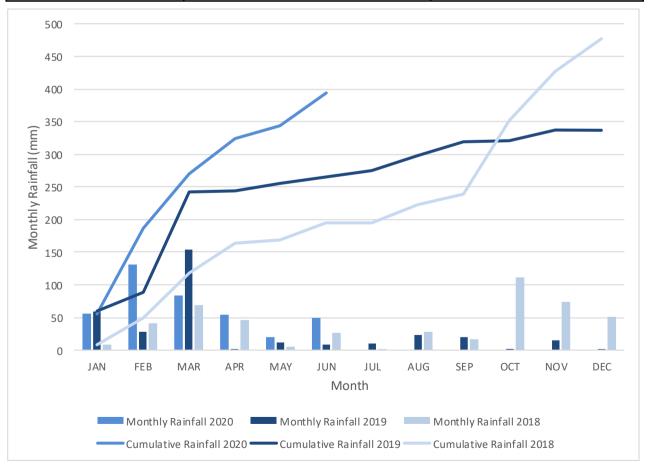


Figure 1: Rainfall Summary 2020

2.1.2 Wind Speed and Direction

Westerly and North-Westerly winds were dominant during June as shown in Figure 2 (HVO Corporate) and Figure 3 (HVO Cheshunt).

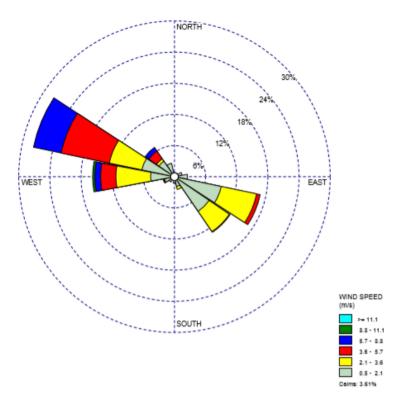


Figure 2: HVO Corporate Wind Rose - June 2020

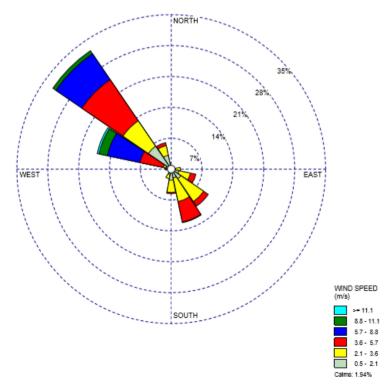


Figure 3: HVO Cheshunt Wind Rose - June 2020

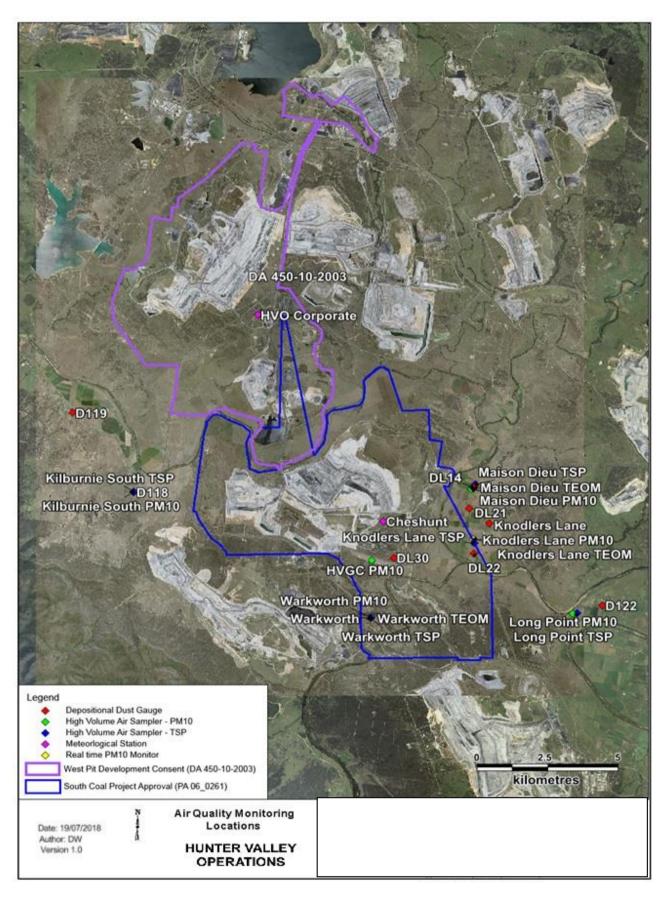


Figure 4: Air Quality Monitoring Location Plan

2.2 Depositional Dust

To monitor regional air quality, HVO operates and maintains a network of nine depositional dust gauges, situated on private and mine owned land surrounding HVO.

Figure 5 displays insoluble solids results from depositional dust gauges during the reporting period compared against the annual impact assessment criteria.

During the reporting period the Warkworth, D118 and DL30 monitors recorded a monthly result above the long term impact assessment criteria of 4.0 g/m² per month.

An assessment of HVO's contribution against the long term impact assessment criteria will be provided in the 2020 Annual Review.

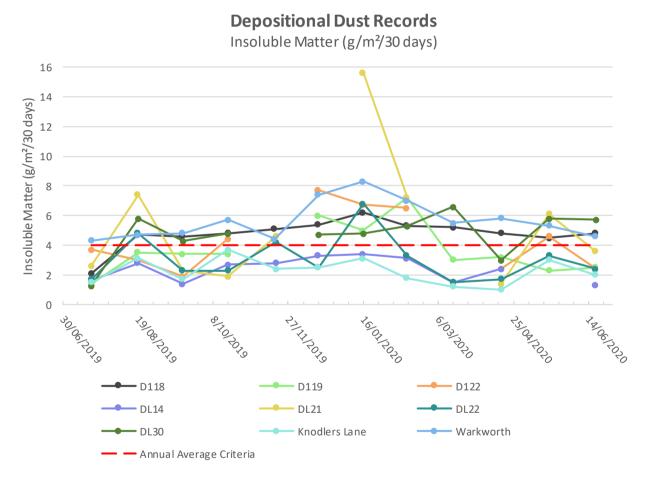


Figure 5: Depositional Dust Results - June 2020

2.3 Suspended Particulates

Suspended particulates are measured by a network of High Volume Air Samplers (HVAS) measuring Total Suspended Particulates (TSP) and Particulate Matter <10 μ m (PM₁₀). The Kilburnie South and Maison Dieu HVAS also monitor Particulate Matter <2.5 μ m (PM_{2.5}). The location of these monitors can be found in Figure 4. Each HVAS runs for 24 hours on a six-day cycle.

2.3.1 HVAS PM₁₀ Results

Performance against Short Term Impact Assessment Criteria

Figure 6 shows individual PM₁₀ results at each monitoring station against the short term impact assessment criteria of 50 μ g/m³. During the reporting period, no monitors recorded an exceedance above the short term impact assessment criteria of 50 μ g/m³.

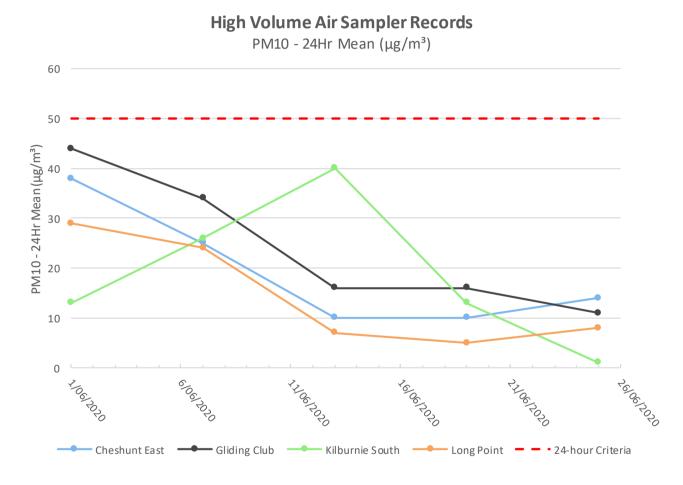


Figure 6: Individual PM 10 Results - June 2020

Performance against Long Term Impact Assessment Criteria

Figure 7 shows the year to date annual average PM₁₀ results. During the reporting period all monitors recorded an annual average above the PM₁₀ Annual Rolling Mean of 30µg/m³.

This is likely to be due to the bushfires experienced earlier in 2020, and is expected to decrease over the remainder of the reporting period. However, an assessment of HVO's contribution against the long term impact assessment criteria will be provided in the 2020 Annual Review.

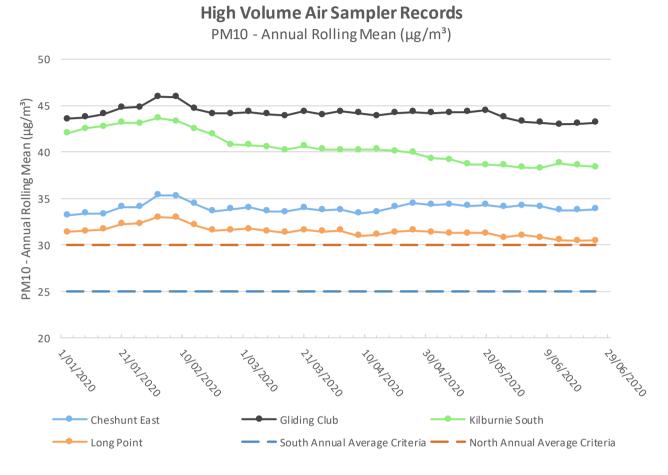


Figure 7: Year to Date Average PM₁₀ – as at end of June 2020

2.3.2 HVAS PM_{2.5} Results

HVO monitors PM2.5 at two HVAS locations, Kilburnie South and Maison Dieu.

Performance against Short Term Impact Assessment Criteria

Figure 8 shows individual PM_{2.5} results at each monitoring station against the HVO South short term impact assessment criteria of 25 μ g/m³.

During the reporting period, neither monitor recorded a measurement above the short term impact assessment criteria of 25 $\mu g/m^3$.

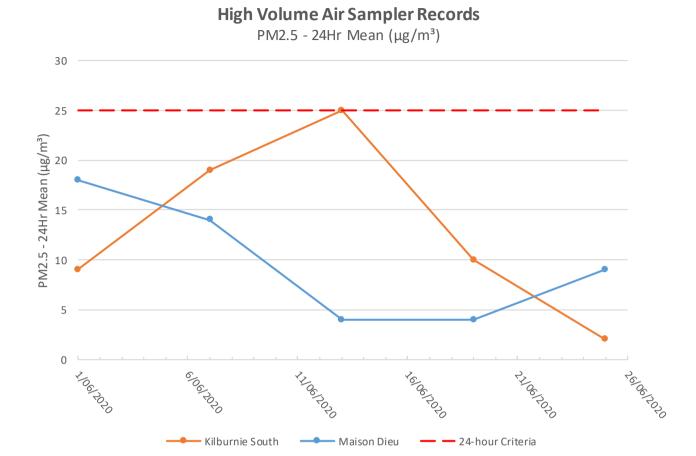


Figure 8: Individual PM_{2.5} Results - June 2020

Performance against Long Term Impact Assessment Criteria

Figure 9 shows the year to date annual average $PM_{2.5}$ results. During the reporting period, both the Maison Dieu and Kilburnie South monitors recorded an annual average above the $PM_{2.5}$ Annual Rolling Mean of $8\mu g/m^3$.

This is likely to be due to the bushfires experienced earlier in 2020, and is expected to decrease over the remainder of the reporting period. However, an assessment of HVO's contribution against the long term impact assessment criteria will be provided in the 2020 Annual Review.

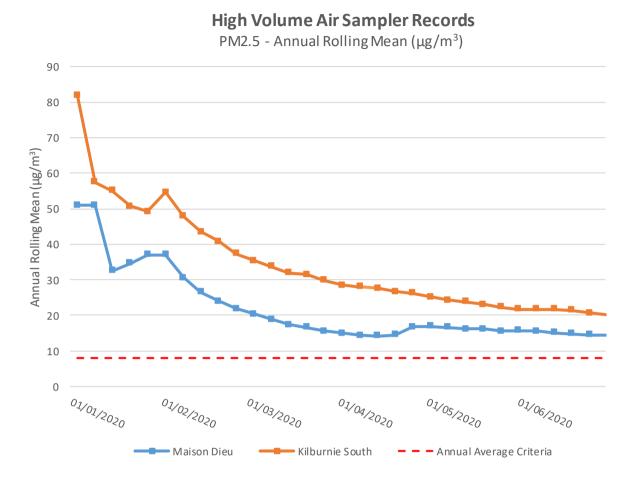


Figure 9: Year to Date Average PM_{2.5} – as at end of June 2020

2.3.3 TSP Results

Performance against Long Term Impact Assessment Criteria

Figure 10 shows the annual average TSP results compared against the long term impact assessment criteria of $90\mu g/m^3$.

During the reporting period, the Kilburnie South, Maison Dieu, Knodlers Lane and Warkworth monitors' annual average was above the long term impact assessment criteria of $90\mu g/m^3$.

This is likely to be due to the bushfires experienced earlier in 2020, and is expected to decrease over the remainder of the reporting period. However, an assessment of HVO's contribution against the long term impact assessment criteria will be provided in the 2020 Annual Review.

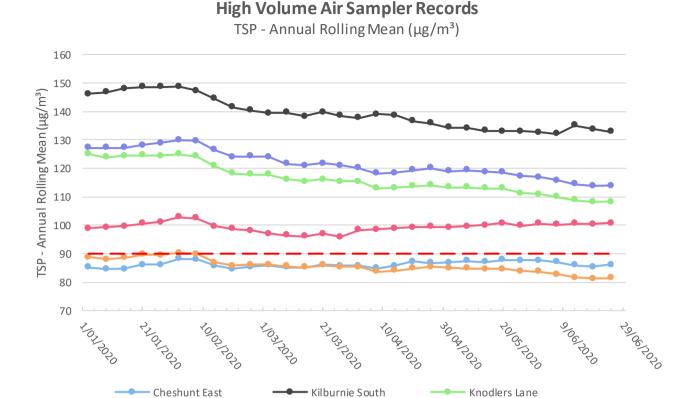


Figure 10: Year to Date Average Total Suspended Particulates – as at end of June 2020

Long Point

Annual Average Criteria

2.3.4 Real Time PM10 Results

Hunter Valley Operations maintains a network of real time PM₁₀ monitors. The real time air quality monitoring stations continuously log information and transmit data to a central database, generating alarms when particulate matter levels exceed internal trigger limits. Results from real time PM₁₀ monitoring are used as a reactive measure to guide mining operations to help achieve compliance with the relevant conditions of the project approval.

Maison Dieu

Warkworth

Figure 11 shows the daily 24-hour average PM₁₀ result from the real time monitoring sites, the year to date annual averages for each monitoring site are shown in Figure 12.

During the reporting period, no monitors exceeded the daily 24 hour average PM₁₀ result (50µg/m³) whilst the Warkworth monitor is currently recording an annual average above the HVO South long term impact criteria of 25µg/m³.

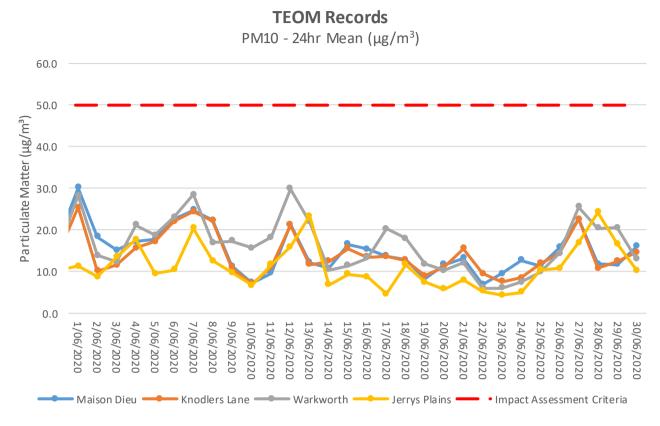


Figure 11: Real Time PM₁₀ 24hr average - June 2020

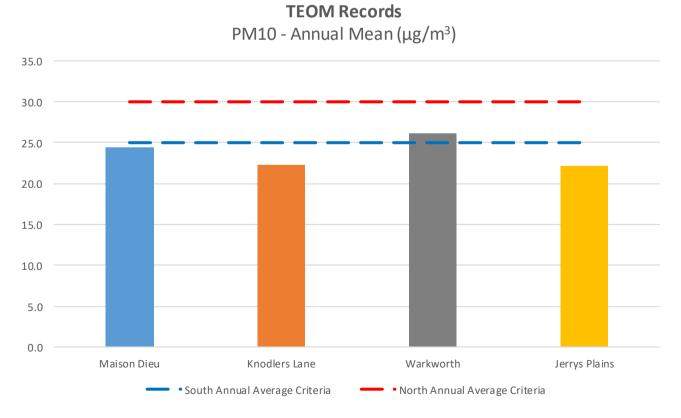


Figure 12: Real Time PM ₁₀ Annual Average - June 2020

2.3.5 Real Time Alarms for Air Quality

During June the real time monitoring system generated 100 automated air quality related alarms. Fifty five alarms were related to adverse weather conditions and forty five alarms related to PM₁₀.

3.0 WATER QUALITY

HVO maintains a network of surface water and groundwater monitoring sites.

3.1 Surface Water

Surface water courses are sampled on a quarterly sampling regime. Water quality is evaluated through the parameters of pH, Electrical Conductivity (EC) and Total Suspended Solids (TSS). The location of surface water monitoring locations is shown in Figure 13.

Figure 14 to Figure 16 show the long term surface water trend (2016-current) within HVO mine dams. Figure 17 to Figure 25 show the long term surface water trend (2016 – current) in surrounding watercourses.

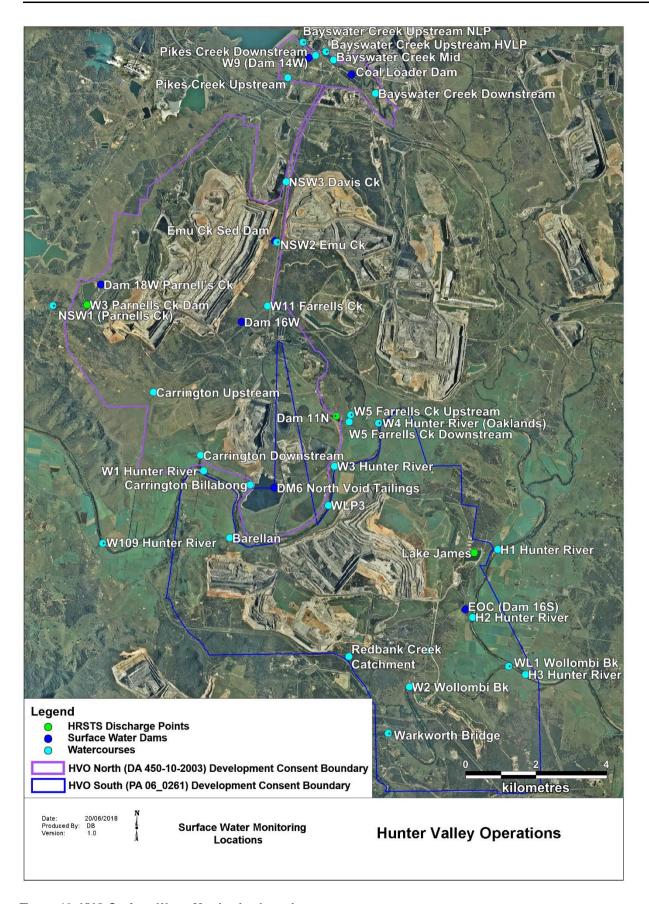


Figure 13: HVO Surface Water Monitoring Locations

Field Electrical Conductivity (µS/cm) 50 000 Field Electrical Conductivity (µ5/cm) 0 Jan '19 Jul '18 Jul '19 Jul '16 Jan '17 Jul '17 Jan '18

→ Dam 11(N)

→ Dam 18W Parnell's Ck

Emu Creek Sed Dam

- K Dam (Lake James)

→ W9 (Dam 14W)

Jan '20

Jul '20

Site Dams

Figure 14: Site Dams Field Electrical Conductivity Trend – June 2020

- Coal Loader Dam

→ DM6 North Void Tailings

→ W3 (Parnells Ck Dam)

- Dam 16W

→ EOC

Field pH (pH unit) 10 9.5 Field pH (pH unit) 9 8.5 8 7.5 Jul '16 Jan '17 Jul 17 Jul '18 Jan '18 Jan '19 Jul '19 Jan '20 Jul '20 - Coal Loader Dam → Dam 11(N) 🛨 Dam 18W Parnell's Ck - Dam 16W → DM6 North Void Tailings - Emu Creek Sed Dam **→** EOC K Dam (Lake James) ★ W3 (Parnells Ck Dam) **→** W9 (Dam 14W)

Figure 15: Site Dam's Field pH Trend - June 2020

Site Dams

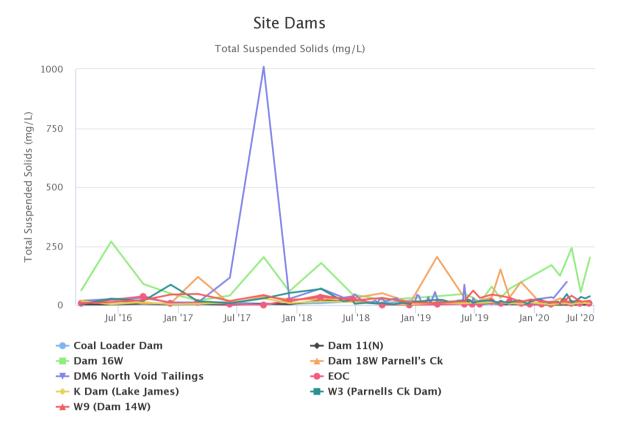


Figure 16: Site Dams Total Suspended Solids Trend - June 2020

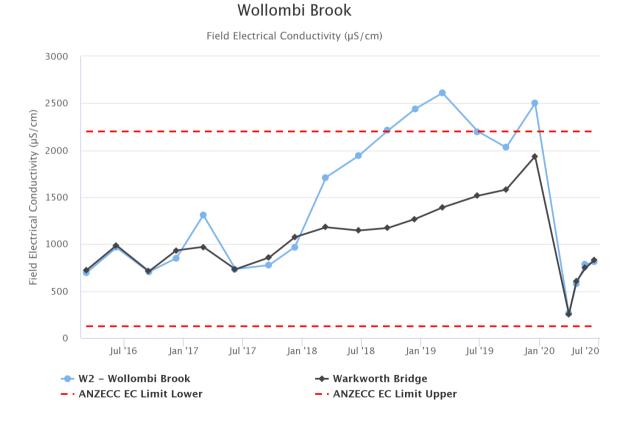


Figure 17: Wollombi Brook Field Electrical Conductivity Trend – June 2020

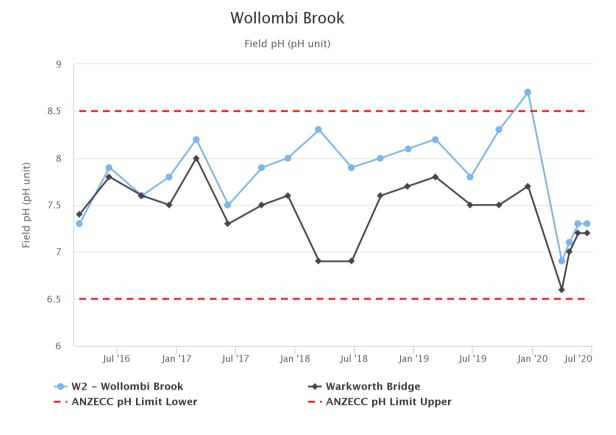


Figure 18: Wollombi Brook Field pH Trend - June 2020

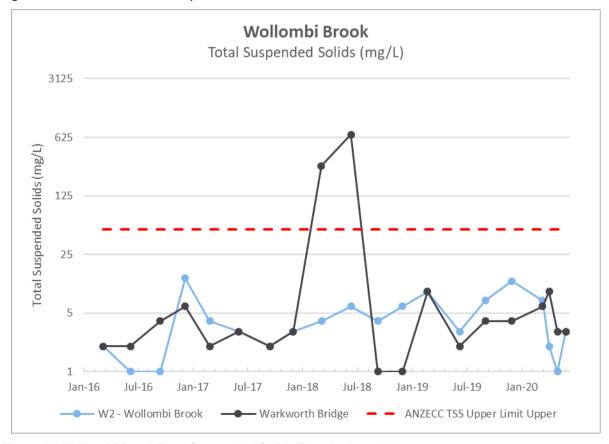


Figure 19: Wollombi Brook Total Suspended Solids Trend – June 2020

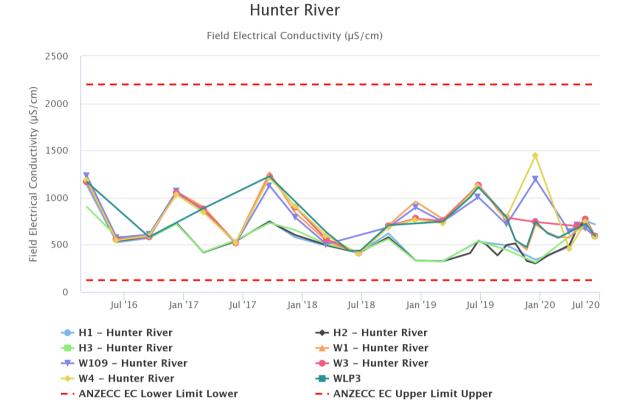


Figure 20: Hunter River Field Electrical Conductivity Trend – June 2020

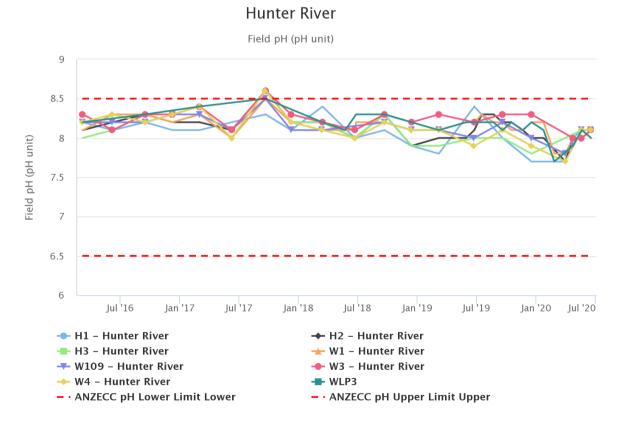


Figure 21: Hunter River Field pH Trend – June 2020

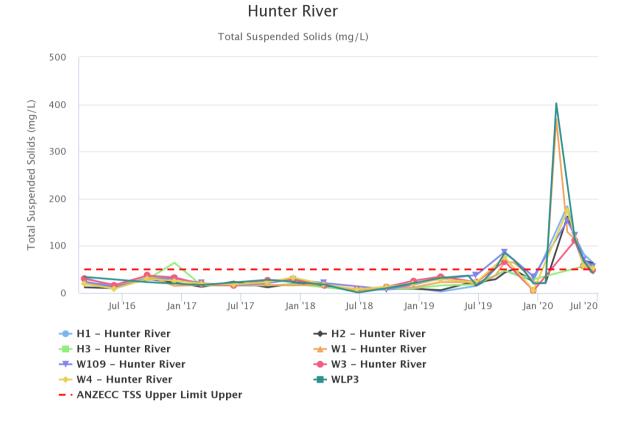


Figure 22: Hunter River Total Suspended Solids - June 2020

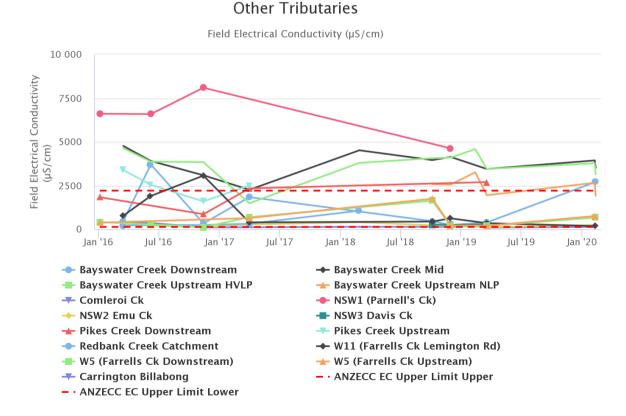


Figure 23: Other Tributaries Electrical Conductivity Trend – June 2020

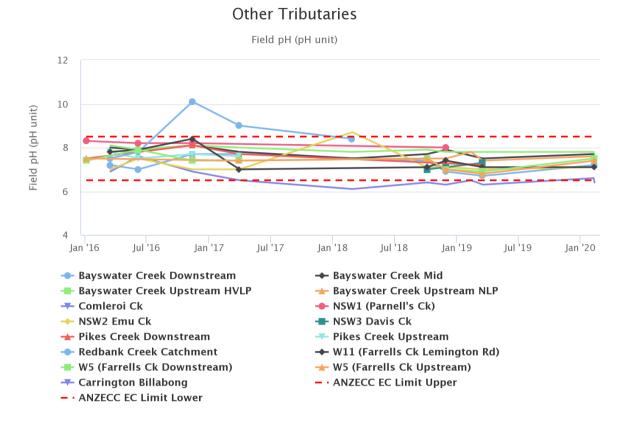


Figure 24: Other Tributaries pHTrend - June 2020

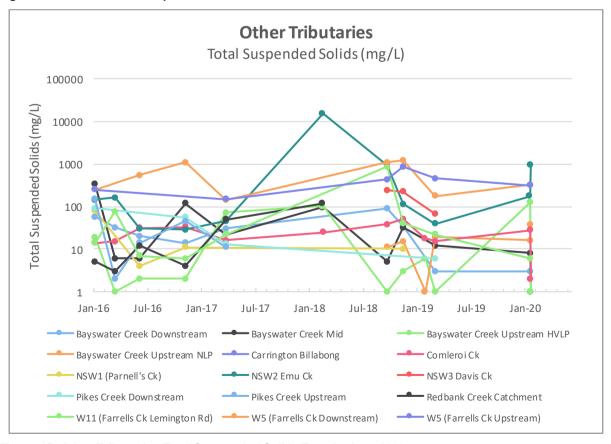


Figure 25: Other Tributaries Total Suspended Solids Trend – June 2020

3.2 Site Water Use

Under water allocation licenses issued by the Water NSW, HVO is permitted to extract water from the Hunter River. During the reporting period, HVO extracted 645.4 ML of water from the Hunter River.

3.3 HRSTS Discharge

HVO participates in the Hunter River Salinity Trading Scheme (HRSTS), allowing discharge from licensed discharge points Dam 11N (to Farrell's Creek), Lake James (to the Hunter River) and Parnell's Dam (to Parnell's Creek). Discharges can only take place subject to HRSTS regulations.

During the reporting period 0ML of water was discharged under the HRSTS.

3.4 Surface Water Trigger Limits

Internal trigger limits have been developed to assess monitoring data on an on-going basis, and to highlight potentially adverse surface water impacts. The process for evaluating monitoring results against the internal triggers and subsequent responses are outlined in the HVO Water Management Plan.

Current internal trigger limits that have been breached are summarised in Table 2.

Table 2: Surface Water Trigger Limit Summary - Q2 2020

Site	Date	Trigger Limit Breached	Action taken in response
WLP3	22/04/2020	TSS	Second breach – investigated and maintain watching brief
W3 – Hunter River	22/04/2020	TSS	First breach – investigated and established watching brief
Warkworth Bridge	22/04/2020	рН	Second breach – Maintain watching brief
WL1	22/04/2020	рН	Second breach – Maintain watching brief
H1- Hunter River	17/06/2020	TSS	Second breach – investigated and maintain watching brief
W4 – Hunter River	17/06/2020	TSS	Second breach – investigated and maintain watching brief
W109 – Hunter River	17/06/2020	TSS	Second breach – investigated and maintain watching brief
WL1	17/06/2020	TSS	First breach – investigated and established watching brief
H3 – Hunter River	17/06/2020	TSS	First breach – investigated and established watching brief
H2 – Hunter River	17/06/2020	TSS	Second breach – investigated and maintain watching brief
West Pit	18/06/2020	TSS	First breach – investigated and established watching brief

 $^{^{\}star}$ = Watching Brief established pending outcomes of subsequent monitoring events. No further action required.

3.5 Groundwater Monitoring Results

Groundwater monitoring is undertaken on a quarterly basis in accordance with the HVO Water Management Plan and Ground Water Monitoring Programme. Groundwater monitoring sites are shown in Figure 26. Figure 27 to Figure 83 show the long term trends (2016 – current) for ground water bores monitored at HVO.

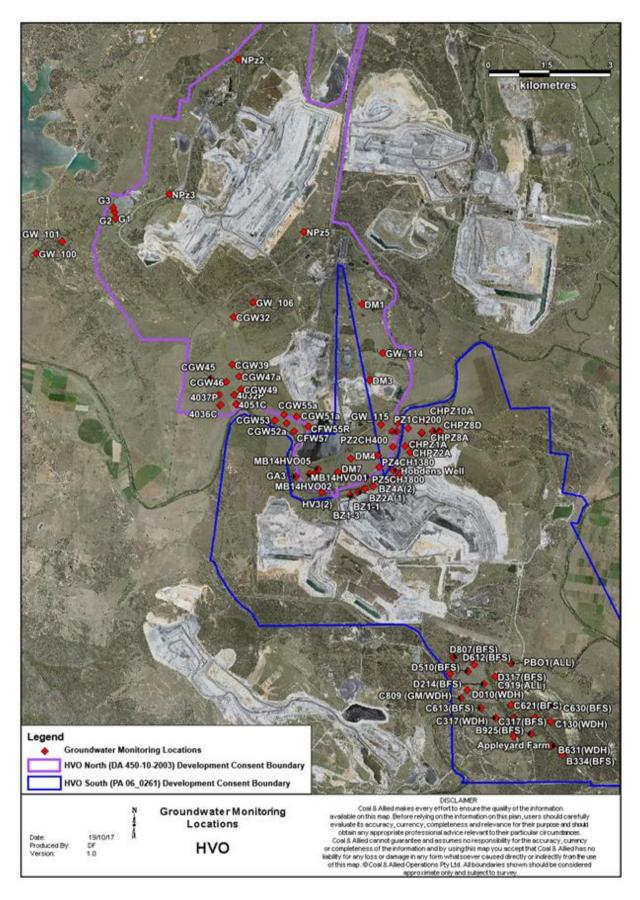


Figure 26: Groundwater Monitoring Locations at HVO

Carrington Alluvium

Field Electrical Conductivity (µS/cm) 12 500 Field Electrical Conductivity (µS/cm)
2000
2000
2000
2000
2000 0 Jul 16 Jan '18 Jan '17 Jul '17 Jul '18 Jan '19 Jul '19 Jul '20 Jan 20 - CFW55R **←** CFW57 CGW52A ★ CGW53A

Figure 27: Carrington Alluvium Field Electrical Conductivity Trend – June 2020

← CGW55A

Carrington Alluvium

- · Trigger Limits Upper

Field pH (pH unit) 9 8.5 Field pH (pH unit) 7.5 7 6.5 6 Jul '17 Jan '18 Jan '19 Jul '16 Jan '17 Jul '18 Jul '19 Jan '20 Jul '20 - CFW55R **←** CFW57 CGW52A ★ CGW53A **←** CGW55A – · Trigger Limits Upper - · Trigger Limits Lower

Figure 28: Carrington Alluvium Field pH Trend – June 2020

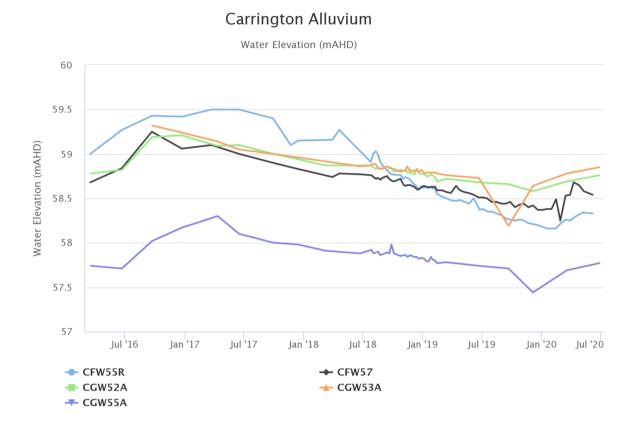
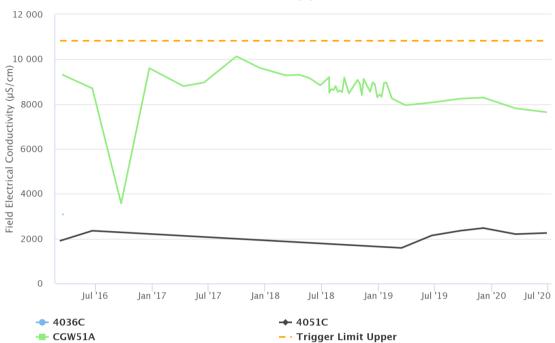


Figure 29: Carrington Alluvium Standing Water Level – June 2020

Carrington Interburden

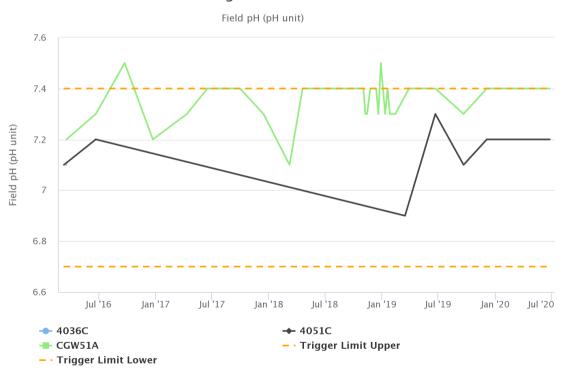
Field Electrical Conductivity (μS/cm)



Note: 4036C is dry or produced in sufficient water for a sample.

Figure 30: Carrington Interburden Field Electrical Conductivity Trend – June 2020

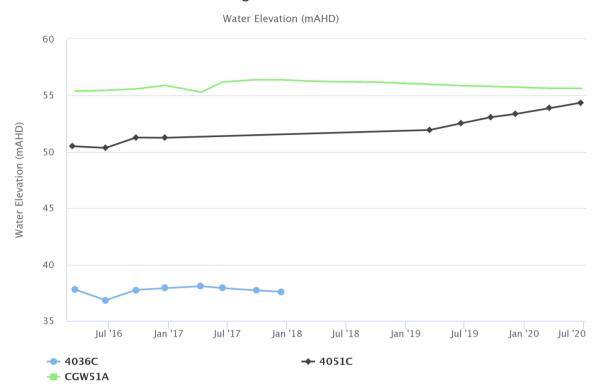
Carrington Interburden



Note: 4036C is dry or produced insufficient water for a sample.

Figure 31: Carrington Interburden Field pH Trend – June 2020

Carrington Interburden



Note: 4036C is dry or produced insufficient water for a sample.

Figure 32: Carrington Interburden Standing Water Level – June 2020

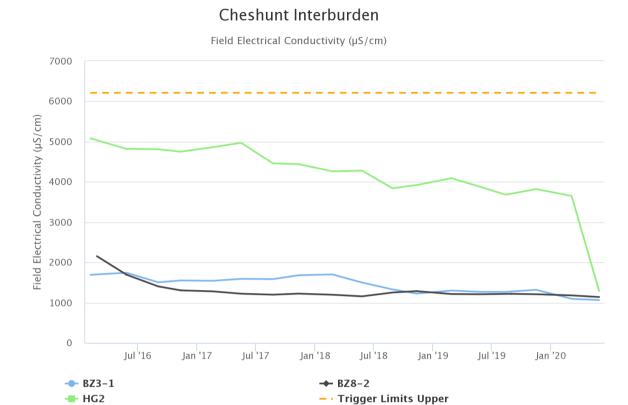


Figure 33: Cheshunt Interburden Field Electrical Conductivity Trend – June 2020

Field pH (pH unit) 8.5 8 Field pH (pH unit) 7.5 6.5 Jul '17 Jul '16 Jan '17 Jan '18 Jul '18 Jan '19 Jul '19 Jan '20 **→** BZ3-1 **→** BZ8-2 HG2 - · Trigger Limits Upper - · Trigger Limits Lower

Cheshunt Interburden

Figure 34: Cheshunt Interburden Field pH Trend – June 2020

30

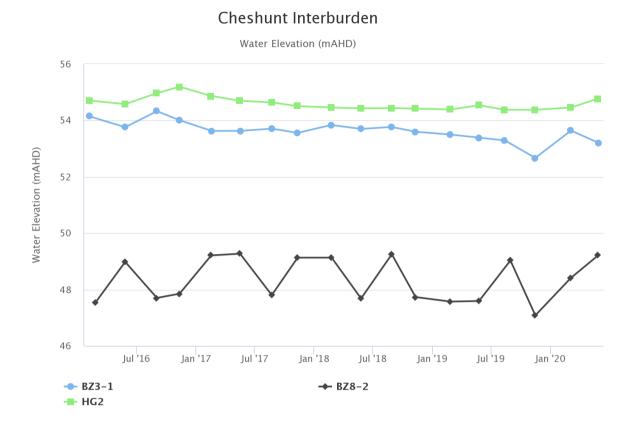


Figure 35: Cheshunt Interburden Standing Water Level – June 2020

Cheshunt Mt Arthur

Field Electrical Conductivity (µS/cm) 4000 Field Electrical Conductivity (µS/cm) 3000 2000 1000 0 Jul '16 Jan '20 Jan '17 Jul '17 Jan '18 Jul '18 Jan '19 Jul '19 - BC1a **→** BZ1-3 - BZ2A(1) <u></u> BZ3−3 **→** BZ4A(2) - CHPZ12D ← CHPZ3D - CHPZ8D ★ HG2A

Figure 36: Cheshunt Mt Arthur Field Electrical Conductivity Trend – June 2020

Cheshunt Mt Arthur

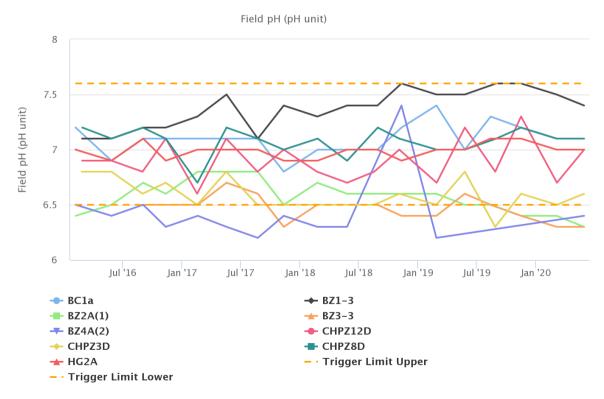


Figure 37: Cheshunt Mt Arthur Field pH Trend – June 2020

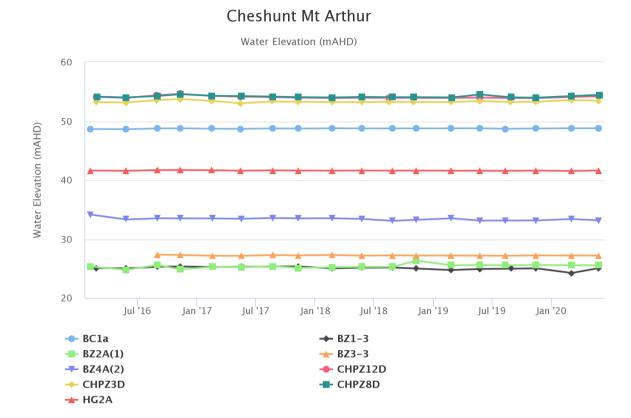


Figure 38: Cheshunt Mt Arthur Standing Water Level – June 2020

Cheshunt / North Pit Alluvium

Field Electrical Conductivity (µS/cm) 8000 Field Electrical Conductivity 6000 4000 (µS/cm) 2000 0 2017 2018 2019 2020 - BUNC45A **→** BZ1-1 - CHPZ10A ★ CHPZ12A CHPZ1A CHPZ2A CHPZ3A - CHPZ4A ★ CHPZ8A **₹** GA3 - Hobdens Well → HV3(2) - PZ1CH200 ★ PZ2CH400 **→** PZ3CH800 ◆ PZ4CH1380 → PZ5CH1800 - · Trigger Limit Upper

Figure 39: Cheshunt/North Pit Alluvium Field Electrical Conductivity Trend – June 2020

Cheshunt / North Pit Alluvium

Field pH (pH unit) 8 7.5 Field pH (pH unit) 6.5 6 2017 2018 2020 2019 - BUNC45A **→** BZ1-1 - CHPZ10A ★ CHPZ12A CHPZ1A CHPZ2A CHPZ3A - CHPZ4A ★ CHPZ8A **₹** GA3 - Hobdens Well → HV3(2) - PZ1CH200 **★** PZ2CH400 **→** PZ3CH800 - PZ4CH1380 → PZ5CH1800 – · Trigger Limit Upper - · Trigger Limit Lower

Figure 40: Cheshunt/North Pit Alluvium Field pH Trend – June 2020

Water Elevation (mAHD) 62.5 60 Water Elevation (mAHD) 57.5 55 52.5 50 2017 2018 2019 2020 - BUNC45A **→** BZ1-1 - CHPZ10A ★ CHPZ12A → CHPZ1A - CHPZ2A → CHPZ3A - CHPZ4A ★ CHPZ8A **₹** GA3 - Hobdens Well → HV3(2)

★ PZ2CH400

PZ4CH1380

Cheshunt / North Pit Alluvium

Figure 41: Cheshunt/North Pit Alluvium Standing Water Level – June 2020

- PZ1CH200

→ PZ3CH800

→ PZ5CH1800

Carrington West Wing Alluvium

Field Electrical Conductivity (µS/cm) 3500 3000 Field Electrical Conductivity (µS/cm) 2500 2000 1500 1000 500 Jul '16 Jan '17 Jul '18 Jul '17 Jan '18 Jan '19 Jul '19 Jul '20 Jan 20 - 4032P **→** 4034P - 4037P **★** 4040P **←** CGW49 – · Trigger Limit Upper

Figure 42: Carrington West Wing Alluvium Field Electrical Conductivity Trend – June 2020

Carrington West Wing Alluvium

Field pH (pH unit) 7.6 7.4 Field pH (pH unit) 7.2 7 6.8 Jul '17 Jan '18 Jul '16 Jan '17 Jul '18 Jan '19 Jul '19 Jan '20 Jul '20 - 4032P **→** 4034P - 4037P **★** 4040P **-** CGW49 – · Trigger Limit Upper - · Trigger Limit Lower

Figure 43: Carrington West Wing Alluvium Field pH Trend – June 2020

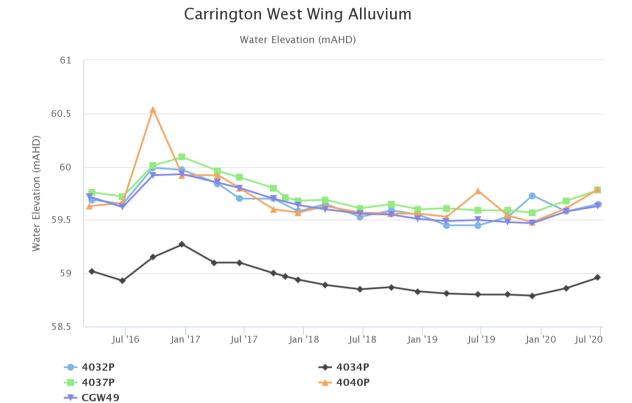


Figure 44: Carrington West Wing Alluvium Standing Water Level – June 2020

Carrington West Wing Flood Plain

Field Electrical Conductivity (µS/cm) 10 000 9000 Field Electrical Conductivity (µS/cm) 8000 7000 6000 5000 4000 Jul '16 Jan '17 Jan '18 Jul '20 Jul '17 Jan '19 Jul '19 Jul '18 Jan 20 - CGW32 **←** CGW39 - CGW47A **★** GW-106 – · Trigger Limit Upper

Figure 45: Carrington West Wing Flood Plain Electrical Conductivity Trend – June 2020

Carrington West Wing Flood Plain

Field pH (pH unit) 8 7.75 7.5 Field pH (pH unit) 7.25 6.75 6.5 Jul 16 Jan '17 Jul '17 Jan '18 Jul '18 Jan '19 Jul '19 Jan '20 Jul '20 - CGW32 **←** CGW39 CGW47A **★** GW-106 - · Trigger Limit Upper - · Trigger Limit Lower

Figure 46: Carrington West Wing Flood Plain Field pH Trend – June 2020

- CGW32

- CGW47A

Carrington West Wing Flood Plain Water Elevation (mAHD) 61 60 59 Water Elevation (mAHD) 58 57 56 55 54 Jul '16 Jan '17 Jul '17 Jul '20 Jan '18 Jul '18 Jan '19 Jul '19 Jan '20

← CGW39

→ GW-106

Figure 47: Carrington West Wing Flood Plain Standing Water Level – June 2020

Carrington West Wing LBL

Field Electrical Conductivity (µS/cm)



Note: CGW45 has been blocked since June 2017.

Figure 48: Carrington West Wing LBL Field Electrical Conductivity Trend – June 2020

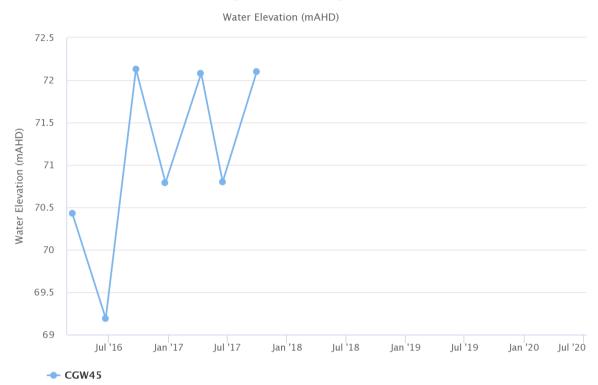
Carrington West Wing LBL



Note: CGW45 has been blocked since June 2017.

Figure 49: Carrington West Wing LBL Field pH Trend - June 2020

Carrington West Wing LBL



Note: CGW45 has been blocked since June 2017.

Figure 50: Carrington West Wing LBL Standing Water Level – June 2020

- Appleyard Farm

- PB01(ALL)

Lemington South Alluvium

Field Electrical Conductivity (μS/cm)

8000

4000

2000

Jul '16 Jan '17 Jul '17 Jan '18 Jul '18 Jan '19 Jul '19 Jan '20

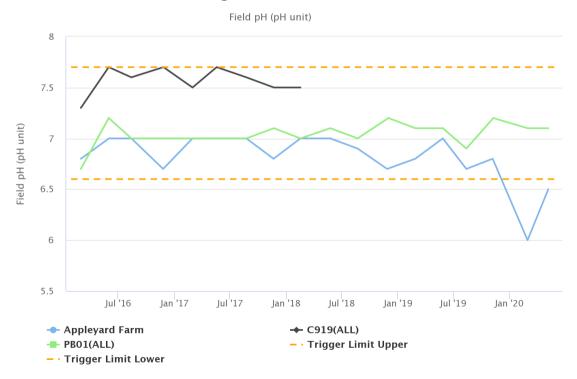
Note: C919(ALL) is dry or has produced insufficient water for a sample.

← C919(ALL)

- · Trigger Limit Upper

Figure 51: Lemington South Alluvium Field Electrical Conductivity Trend – June 2020

Lemington South Alluvium



Note: C919(ALL) is dry, or has produced insufficient water for a sample.

Figure 52: Lemington South Alluvium Field pH Trend – June 2020

40

Jul '16

- Appleyard Farm

-- PB01(ALL)

Water Elevation (mAHD) 48 46 42

Jan '18

Lemington South Alluvium

Note: C919(ALL) is dry, or has produced insufficient water for a sample.

Jul '18

← C919(ALL)

Jan '19

Jul '19

Jan '20

Figure 53: Lemington South Alluvium Standing Water Level Trend – June 2020

Jul '17

Jan '17

Lemington South Arrowfield

Field Electrical Conductivity (µS/cm)

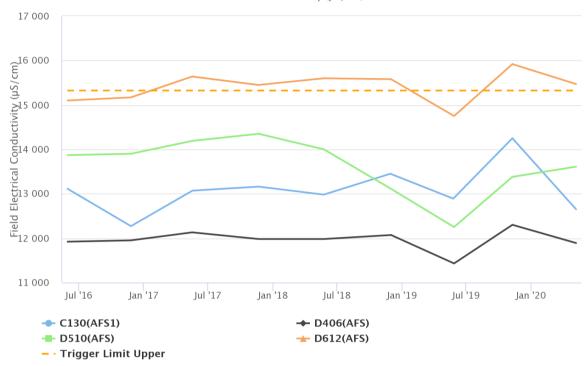


Figure 54: Lemington South Arrowfield Field Electrical Conductivity Trend – June 2020

Lemington South Arrowfield

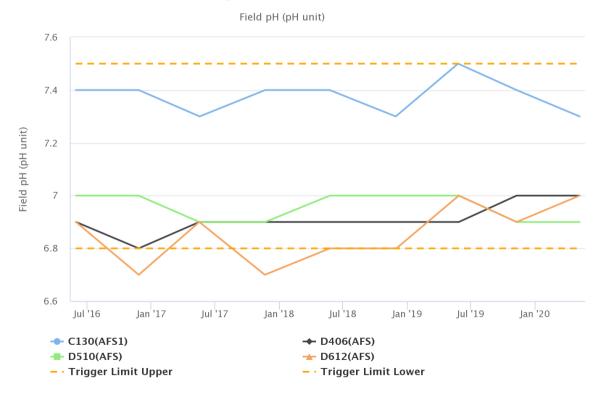


Figure 55: Lemington South Arrowfield Field pH Trend – June 2020

Lemington South Arrowfield

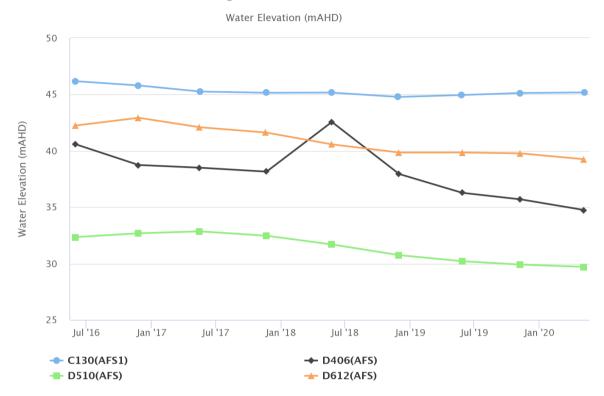


Figure 56: Lemington South Arrowfield Standing Water Level – June 2020

- · Trigger Limit Upper

Lemington South Bowfield

Field Electrical Conductivity (µS/cm) 15 000 Field Electrical Conductivity 10 000 (µS/cm) 5000 0 Jul '16 Jan '17 Jul '17 Jan '18 Jul 18 Jan '19 Jul '19 Jan '20 - B334(BFS) → B631(BFS) - B925(BFS) ★ C122(BFS) - C130(BFS) C317(BFS) C613(BFS) - C621(BFS) ★ C630(BFS) D010(BFS) - D214(BFS) → D317(BFS) - D406(BFS) ★ D510(BFS) D807(BFS) **→** D612(BFS)

Figure 57: Lemington South Bowfield Field Electrical Conductivity Trend – June 2020

Lemington South Bowfield

Field pH (pH unit) 10 9 Field pH (pH unit) 7 6 Jul '16 Jan '17 Jul 17 Jan '18 Jul '18 Jan '19 Jul '19 Jan '20 - B334(BFS) → B631(BFS) - B925(BFS) ★ C122(BFS) -- C130(BFS) C317(BFS) C613(BFS) - C621(BFS) ★ C630(BFS) D010(BFS) - D214(BFS) → D317(BFS) - D406(BFS) → D510(BFS) → D612(BFS) ◆ D807(BFS) - · Trigger Limit Upper - · Trigger Limit Lower

Figure 58: Lemington South Bowfield Field pH Trend – June 2020

Lemington South Bowfield

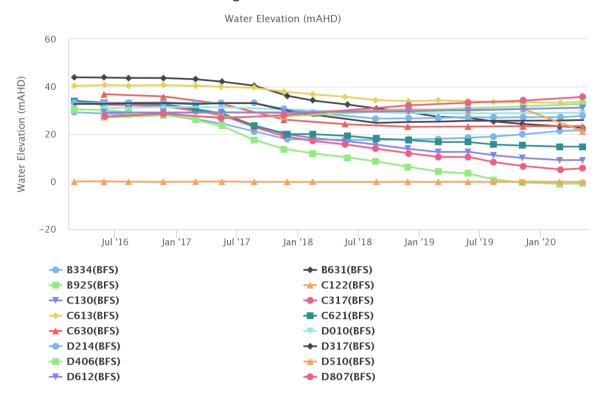


Figure 59: Lemington South Bowfield Standing Water Level – June 2020

Lemington South Woodlands Hill

Field Electrical Conductivity (µS/cm) 25 000 Field Electrical Conductivity (µ§/cm) 5000 Jan '17 Jul 17 Jul '19 Jan '20 Jul 16 Jan '18 Jul '18 Jan '19 - B425(WDH) → B631(WDH) - C122(WDH) ★ C130(WDH) **←** C317(WDH) - C809(GM/WDH) → D010(WDH) - · Trigger Limit Upper

Figure 60: Lemington South Woodlands Hill Field Electrical Conductivity Trend – June 2020

Lemington South Woodlands Hill

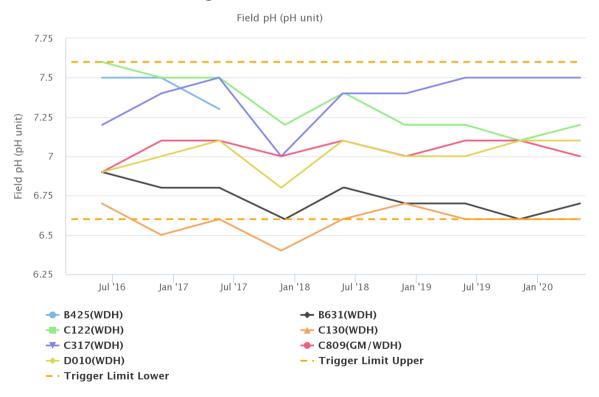


Figure 61: Lemington South Woodlands Hill Field pH Trend – June 2020

Lemington South Woodlands Hill

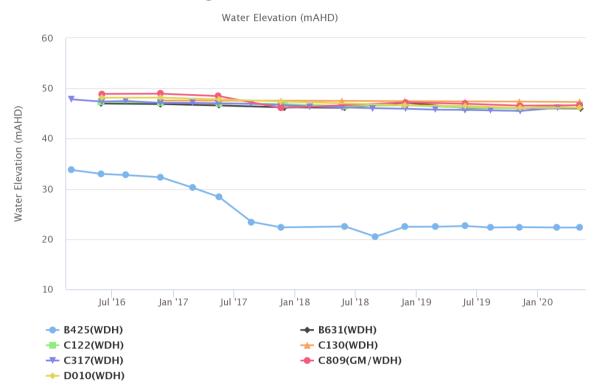


Figure 62: Lemington South Woodlands Hill Standing Water Level – June 2020

Lemington South Interburden

Field Electrical Conductivity (µS/cm) 35 000 32 500 Field Electrical Conductivity (µS/cm) 20 000 17 500 Jul '16 Jan '17 Jul '17 Jan '18 Jul '18 Jan '19 Jul '19 Jan '20 - C130(ALL) - · Trigger Limit Upper

Figure 63: Lemington South Interburden Field Electrical Conductivity Trend – June 2020

Lemington South Interburden

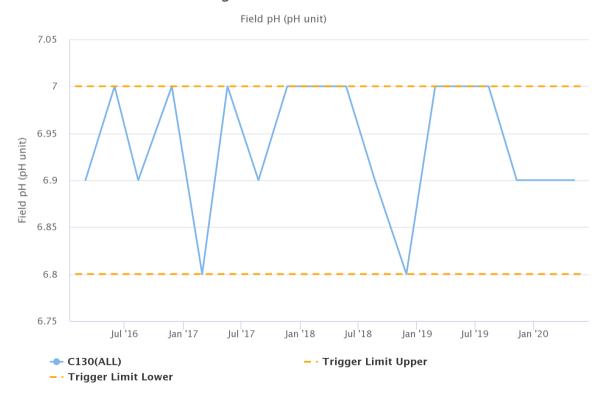
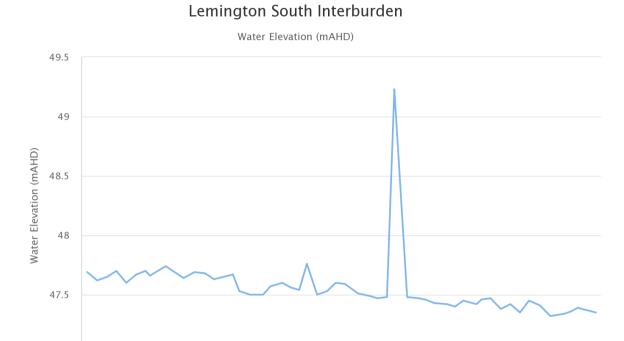


Figure 64: Lemington South Interburden Field pH Trend – June 2020

47

- C130(ALL)



Jan '18

Jul '18

Jan '19

Jul '19

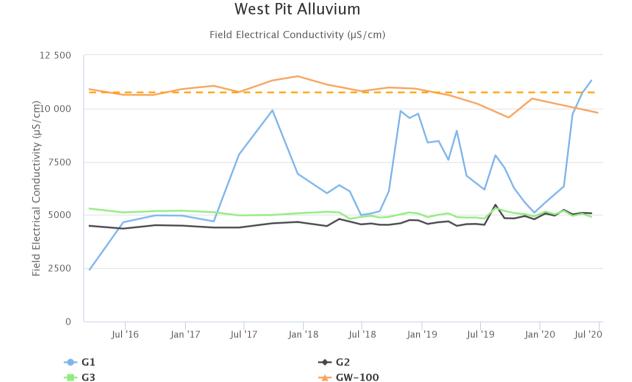
Jan '20

Figure 65: Lemington South Interburden Standing Water Level – June 2020

Jan '17

Jul '17

Jul '16



– · Trigger Limit Upper

Figure 66: West Pit Alluvium Field Electrical Conductivity Trend – June 2020

- GW−101

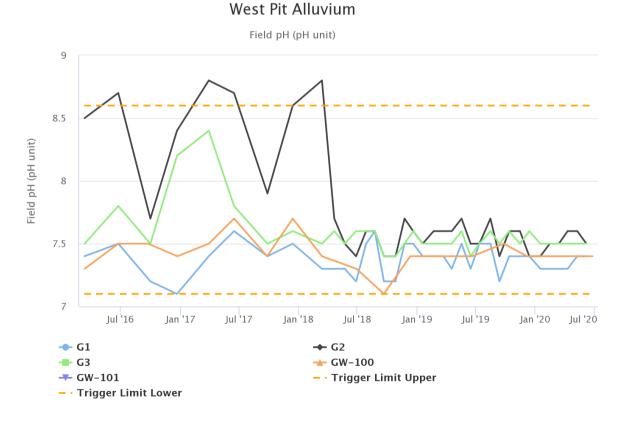
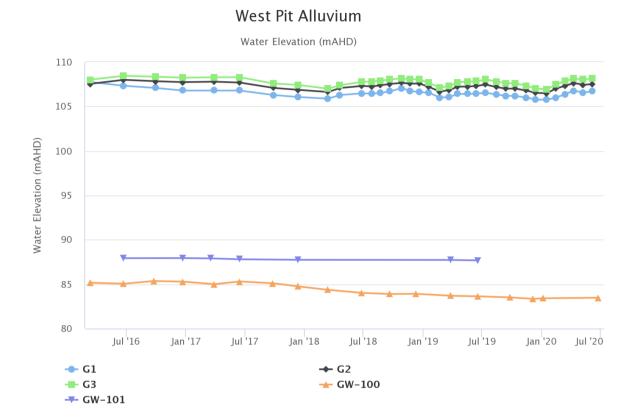


Figure 67: West Pit Alluvium Field pH Trend - June 2020



Note: GW101 has been dry since July 2019.

Figure 68: West Pit Alluvium Standing Water Level - June 2020

West Pit Siltstone

Field Electrical Conductivity (µS/cm) 16 000 14 000 Field Electrical Conductivity (µS/cm), 6000 4000 Jul '16 Jan '19 Jul '17 Jan '18 Jul '18 Jul '20 Jan '17 Jul '19 Jan '20 → NPZ2 → NPZ3

Note: NPZ5 could not be sampled due to unsafe access.

- · Trigger Limit Upper

Figure 69: West Pit Siltstone Field Electrical Conductivity Trend – June 2020

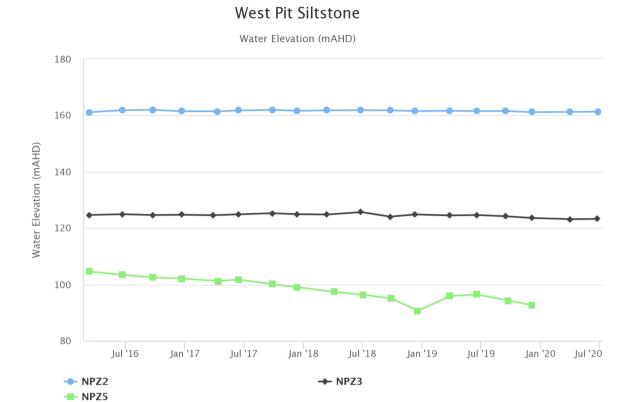
─ NPZ5

West Pit Siltstone

Field pH (pH unit) 8.25 8 7.75 Field pH (pH unit) 7.5 7.25 6.75 6.5 Jul '16 Jan '17 Jul '17 Jan '18 Jul '18 Jan '19 Jul '19 Jan '20 Jul '20 → NPZ2 → NPZ3 **─** NPZ5 – · Trigger Limit Upper - · Trigger Limit Lower

Note: NPZ5 could not be sampled due to unsafe access.

Figure 70: West Pit Siltstone Field pH Trend - June 2020



Note: NPZ5 could not be sampled due to unsafe access.

Figure 71: West Pit Siltstone Standing Water Level - June 2020

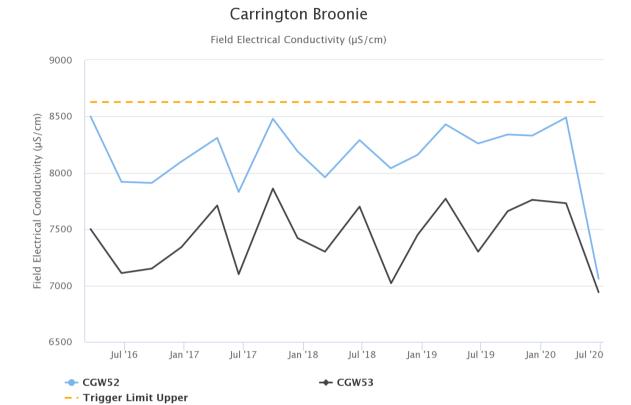


Figure 72: Carrington Broonie Field Electrical Conductivity Trend – June 2020

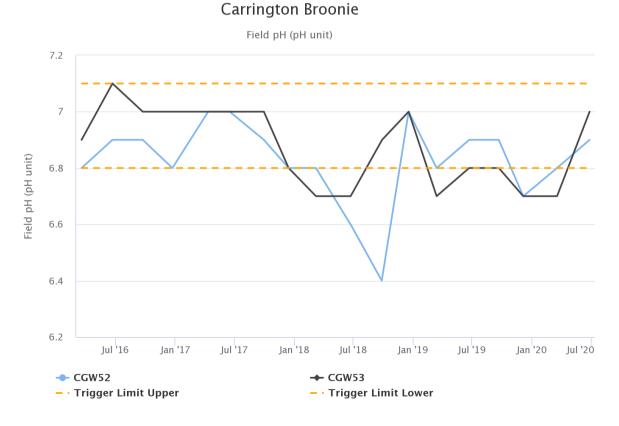


Figure 73: Carrington Broonie Field pH Trend – June 2020

Carrington Broonie Water Elevation (mAHD)

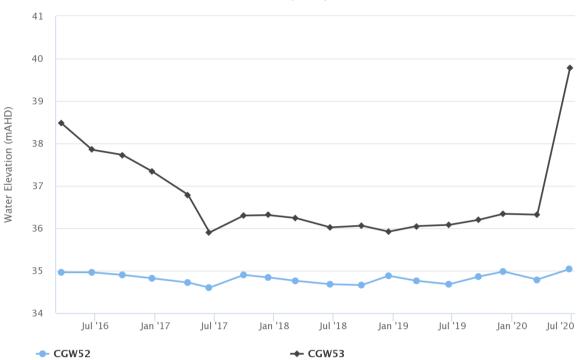


Figure 74: Carrington Broonie Standing Water Level – June 2020

Cheshunt Piercefield

Field Electrical Conductivity (µS/cm) 2650 2600 Field Electrical Conductivity (µS/cm) 2550 2500 2450 2400 2350 2300 Jul '16 Jan '17 Jul '17 Jul '18 Jan '19 Jan '18 Jul '19 Jan '20

Figure 75: Cheshunt Piercefield Field Electrical Conductivity Trend – June 2020

- BUNC45D

Cheshunt Piercefield

- · Trigger Limit Upper

Field pH (pH unit) 6.9 6.8 6.7 Field pH (pH unit) 6.6 6.5 6.4 6.3 Jul '16 Jan '17 Jul '17 Jul '18 Jan '19 Jan '18 Jul '19 Jan '20 - BUNC45D – · Trigger Limit Upper - · Trigger Limit Lower

Figure 76: Cheshunt Piercefield Field pH Trend – June 2020

48.525

48.5

48.475

Water Elevation (mAHD)

Water Elevation (mAHD)

Property Sept. Sep

48.375

48.35

48.325

Jul '16

- BUNC45D

Water Elevation (mAHD)

Jul '18

Jan '19

Jul '19

Jan '20

Cheshunt Piercefield

Figure 77: Cheshunt Piercefield Standing Water Level – June 2020

Jan '17

Jul '17

Jan '18

North Pit Spoil



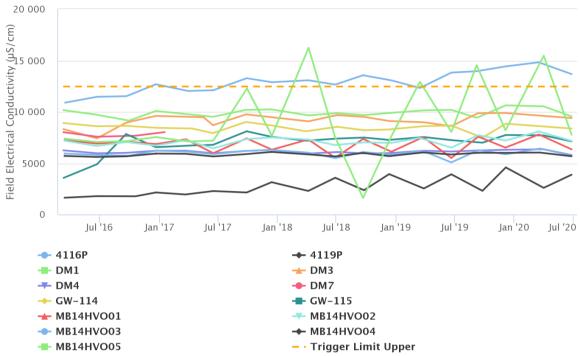


Figure 78: North Pit Spoil Field Electrical Conductivity Trend – June 2020

North Pit Spoil

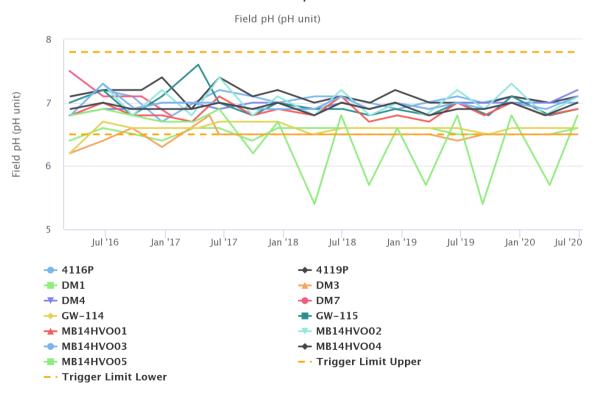


Figure 79: North Pit Spoil Field pH Trend - June 2020

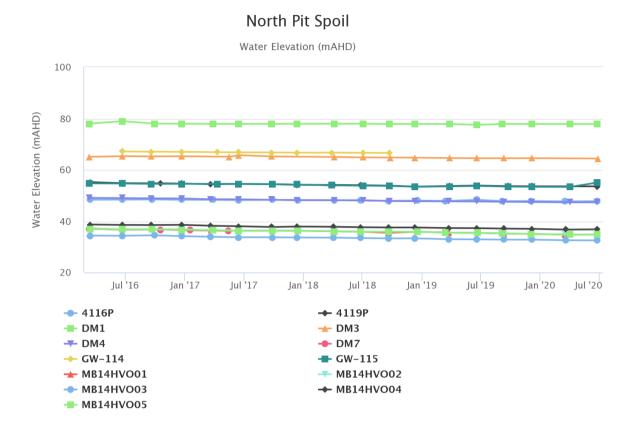


Figure 80: North Pit Spoil Standing Water Level - June 2020

Lemington South Glen Munro

Field Electrical Conductivity (µS/cm) 12 000 11 750 10 500 10 250 Jul '17 Jul '18 Jan '19 Jul '19 Jul '16 Jan '17 Jan '18 Jan '20 - D010(GM) - · Trigger Limit Upper

Figure 81: Lemington South Glen Munro Field Electrical Conductivity Trend – June 2020

Lemington South Glen Munro

Field pH (pH unit) 7.4 7.2 Field pH (pH unit) 7 6.8 6.6 6.4 Jul '17 Jul '18 Jul '16 Jan '17 Jan '18 Jan '19 Jul '19 Jan '20 - D010(GM) – · Trigger Limit Upper - · Trigger Limit Lower

Figure 82: Lemington South Glen Munro Field pH Trend – June 2020

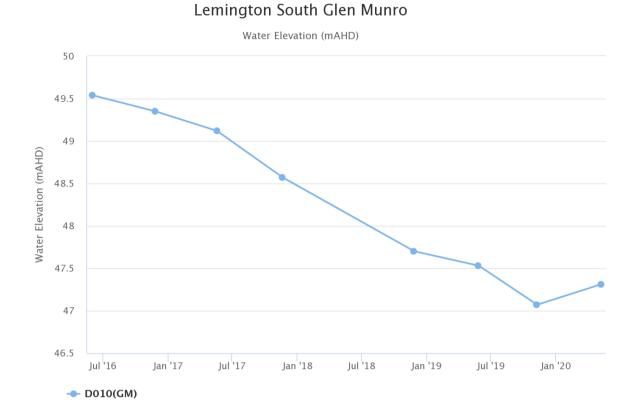


Figure 83: Lemington South Glen Munro Standing Water Level Trend - June 2020

3.5 Groundwater Trigger Tracking

Internal trigger limits have been developed to assess monitoring data on an on-going basis, and to highlight potentially adverse groundwater impacts. The process for evaluating monitoring results against the internal triggers and subsequent responses are outlined in the HVO Water Management Plan.

Current internal trigger limits breaches are summarised in Table 3.

Table 3: Groundwater Triggers - Q2 2020

Site	Date	Trigger Limit Breached	Action Taken in Response
Appley ard Farm	06/05/2020	рН	Second breach - maintain watching brief
B631(BFS)	06/05/2020	рН	First breach – established watching brief
B631(BFS)	06/05/2020	EC	Second breach - maintain watching brief
C130(ALL)	06/05/2020	EC	Inv estigation in progress
C130(WDH)	06/05/2020	EC	Second breach - maintain watching brief
C630(BFS)	06/05/2020	рН	Second breach - maintain watching brief
D612(AFS)	06/05/2020	EC	Second breach - maintain watching brief
CFW55R	06/05/2020	рН	First breach – established watching brief
CFW55R	06/05/2020	EC	Inv estigation in progress
BZ2A(1)	27/05/2020	рН	Inv estigation in progress
BZ3-1	27/05/2020	рН	Inv estigation in progress

Site	Date	Trigger Limit Breached	Action Taken in Response
BZ3-3	27/05/2020	рН	Investigation in progress
BZ4A(2)	27/05/2020	рН	Second breach - maintain watching brief
BZ8-2	27/05/2020	рН	First breach – established watching brief
HG2A	27/05/2020	EC	First breach – established watching brief
Hobden's Well	27/05/2020	pН	First breach – established watching brief
CFW55R	4/06/2020	EC	Inv estigation in progress
G1	05/06/2020	EC	First breach – established watching brief
NPZ2	24/06/2020	EC	First breach – established watching brief
4116P	25/06/2020	EC	First breach – established watching brief

^{* =} Watching brief established pending outcomes of subsequent monitoring events. No specific actions required.

4.0 BLASTING

HVO have a network of five blast monitoring units. These are located at nearby privately owned residences and function as regulatory compliance monitors. The location of these monitors can be found in Figure 86. Blasting criteria are summarised in Table 4.

Table 4: Blasting Criteria

Airblast Overpressure (dB(L))	Comments
115	5% of the total number of blasts in a 12 month period
120	0%
Ground Vibration (mm/s)	Comments
5	5% of the total number of blasts in a 12 month period
10	0%

4.1 Blast Monitoring Results

During June, 14 blasts were initiated at HVO. Figure 84 and Figure 85 show the blast monitoring results for the reporting period against the impact assessment criteria.

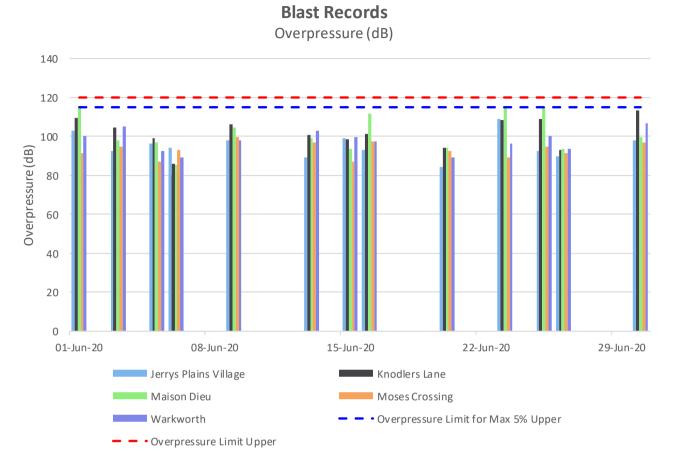


Figure 84: Overpressure Blast Monitoring Results – June 2020



Figure 85: Ground Vibration Blast Monitoring Results – June 2020

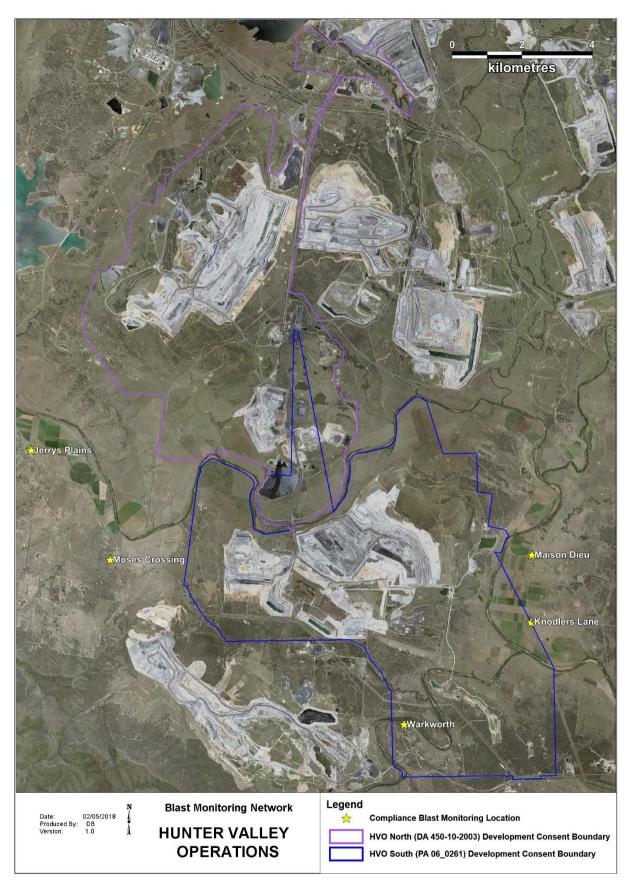


Figure 86: Blast Monitoring Location Plan

5.0 NOISE

Routine attended noise monitoring is carried out at defined locations around HVO as described in the HVO Noise Monitoring Programme. The purpose of the noise surveys is to quantify and describe the acoustic environment around the site and compare results with specified limits. Unattended monitoring (real time noise monitoring) also occurs at five sites surrounding HVO. The attended noise monitoring locations are displayed in Figure 87.

5.1 Attended Noise Monitoring Results

Attended monitoring was conducted at receiver locations surrounding HVO on the night of 23rd June 2020 with no non-compliances recorded. Monitoring results are detailed in Table 5 to Table 9.

Table 5: LAeq, 15 minute HVO South - Against Impact Assessment Criteria - June 2020

Location	Date and Time	Wind Speed (m/s) ¹	Stability Class ¹	Criterion dB (A)	Criterion Applies? ²	HVO South L _{Aeq} dB ^{3,4,6,7}	Exceedance ^{4,5}
Knodlers Lane	23/06/2020 21:43	5.5	D	39	No	35	NA
Maison Dieu	23/06/2020 21:20	4.5	D	39	No	37	NA
Shearers Lane	23/06/2020 21:00	5.5	D	41	No	38	NA
Kilburnie South	23/06/2020 22:59	6.4	D	39	No	<25	NA
Jerrys Plains Village	23/06/2020 21:01	5.5	D	35	No	IA	NA
Jerrys Plains East	23/06/2020 21:22	4.5	D	35	No	IA	NA
Long Point Road	23/06/2020 21:01	5.4	D	35	No	IA	NA
HVGC	23/06/2020 23:31	5.8	D	35	No	38	NA

^{1.} Atmospheric data is sourced from the HVO Cheshunt (or MTW Charlton Ridge for Long Point) AWS using logged meteorological data;

^{2.} Noise criteria apply for wind speeds up to 3 metres per second (at a height of 10m), or during stability class G conditions. Criterion may or may not apply due to rounding of meteorological data values;
3. Site-only LAeq, 15minute attributed to HVO South PitArea, including modifying factors if applicable;

^{4.} Bold results in red indicate exceedance of relevant criterion;

^{5.} NA in exceedance column means atmospheric conditions outside specified in approval and so criterion is not applicable;

^{6.} IA means inaudible, there was no site noise at the monitoring location; and

^{7.} NM means not measurable, noise was audible but could not be quantified.

Table 6: LA1, 1 minute HVO South - Against Impact Assessment Criteria - June 2020

Location	Date and Time	Wind Speed (m/s) ¹	Stability Class ¹	Criterion dB (A)	Criterion Applies? ²	HVO South L _{A1, 1min} dB ^{3,4,6,7}	Exceedance ^{4,5}
Knodlers Lane	23/06/2020 21:43	5.5	D	45	No	44	NA
Maison Dieu	23/06/2020 21:20	4.5	D	45	No	42	NA
Shearers Lane	23/06/2020 21:00	5.5	D	45	No	43	NA
Kilburnie South	23/06/2020 22:59	6.4	D	45	No	<25	NA
Jerrys Plains Village	23/06/2020 21:01	5.5	D	45	No	IA	NA
Jerrys Plains East	23/06/2020 21:22	4.5	D	45	No	IA	NA
Long Point Road	23/06/2020 21:01	5.4	D	45	No	IA	NA
HVGC	23/06/2020 23:31	5.8	D	NA	No	40	NA

^{1.} Atmospheric data is sourced from the HVO Cheshunt (or MTW Charlton Ridge for Long Point) AWS using logged meteorological data; 2. Noise criteria apply for wind speeds up to 3 metres per second (at a height of 10m), or during stability class G conditions. Criterion may

or may not apply due to rounding of meteorological data values; 3. Site-only LA1,1minute attributed to HVO South PitArea;

^{4.} Bold results in red indicate exceedance of relevant criterion;

^{5.} NA in criterion column indicates no criterion is applicable at this location. NA in exceedance column means atmospheric conditions outside specified in approval and so criterion is not applicable;

^{6.} IA means inaudible, there was no site noise at the monitoring location; and

^{7.} NM means not measurable, noise was audible but could not be quantified.

Table 7: LAeq, 15 minute HVO North - Against Impact Assessment Criteria - June 2020

Location	Date and Time	Wind Speed (m/s) ¹	Stability Class ¹	Criterion dB (A)	Criterion Applies? ²	HVO North L _{Aeq} dB ^{3,4,6,7}	Exceedance ^{4,5}
Knodlers Lane	23/06/2020 21:43	4.6	D	35	No	IA	NA
Maison Dieu	23/06/2020 21:20	5.1	D	35	No	IA	NA
Shearers Lane	23/06/2020 21:00	5.1	D	35	No	IA	NA
Kilburnie South	23/06/2020 22:59	5.8	D	39	No	IA	NA
Jerrys Plains Village	23/06/2020 21:01	5.1	D	36	No	IA	NA
Jerrys Plains East	23/06/2020 21:22	5.1	D	39	No	IA	NA
Long Point Road	23/06/2020 21:01	5.4	D	35	No	IA	NA
HVGC	23/06/2020 23:31	5.6	D	NA	No	IA	NA

^{1.} Atmospheric data is sourced from the HVO Corporate (or MTW Charlton Ridge for Long Point) AWS using logged meteorological data;

^{2.} Noise emission limits apply under all meteorological conditions, except during periods of rain or hail, when average winds speed at microphone heights exceeds 5 metres per second, when wind speeds greater than 3 metres per second are measured at 10mabove ground level, or during stability class G conditions. Criterion may or may not apply due to rounding of meteorological data values; 3. Site-only LAeq, 15minute attributed to HVO North Pit Area, including modifying factors if applicable;

^{4.} Bold results in red indicate exceedance of criteria;

^{5.} NA in criterion column indicates no criterion is applicable at this location. NA in exceedance column means atmospheric conditions outside specified in approval and so criterion is not applicable;

^{6.} IA means inaudible, there was no site noise at the monitoring location; and

^{7.} NM means not measurable, noise was audible but could not be quantified.

Table 8: LAeq,15 minute HVO North - Against Land Acquisition Criteria - June 2020

Location	Date and Time	Wind Speed (m/s) ¹	Stability Class ¹	Criterion dB (A)	Criterion Applies? ²	HVO North L _{Aeq} dB ^{3,4,6,7}	Exceedance ^{4,5}
Knodlers Lane	23/06/2020 21:43	4.6	D	41	No	IA	NA
Maison Dieu	23/06/2020 21:20	5.1	D	41	No	IA	NA
Shearers Lane	23/06/2020 21:00	5.1	D	41	No	IA	NA
Kilburnie South	23/06/2020 22:59	5.8	D	41	No	IA	NA
Jerrys Plains Village	23/06/2020 21:01	5.1	D	41	No	IA	NA
Jerrys Plains East	23/06/2020 21:22	5.1	D	41	No	IA	NA
Long Point Road	23/06/2020 21:01	5.4	D	41	No	IA	NA
HVGC	23/06/2020 23:31	5.6	D	NA	No	IA	NA

^{1.} Atmospheric data is sourced from the HVO Corporate (or MTW Charlton Ridge for Long Point) AWS using logged meteorological data;

^{2.} Noise emission limits apply under all meteorological conditions, except during periods of rain or hail, when average winds speed at microphone heights exceeds 5 metres per second, when wind speeds greater than 3 metres per second are measured at 10mabove ground level, or during stability class G conditions. Criterion may or may not apply due to rounding of meteorological data values;

^{3.} Site-only LAeq, 15minute attributed to HVO North Pit Area, including modifying factors if applicable;

^{4.} Bold results in red indicate exceedance of relevant criterion;

^{5.} NA in criterion column indicates no criterion is applicable at this location. NA in exceedance column means atmospheric conditions outside specified in approval and so criterion is not applicable;

^{6.} IA means inaudible, there was no site noise at the monitoring location; and

^{7.} NM means not measurable, noise was audible but could not be quantified.

Table 9: LA1, 1 Minute HVO North - Against Impact Assessment Criteria - June 2020

Location	Date and Time	Wind Speed (m/s) ¹	Stability Class ¹	Criterion dB (A)	Criterion Applies? ²	HVO North L _{A1, 1min} dB ^{3,4,6,7}	Exceedance ^{4,5}
Knodlers Lane	23/06/2020 21:43	4.6	D	46	No	IA	NA
Maison Dieu	23/06/2020 21:20	5.1	D	46	No	IA	NA
Shearers Lane	23/06/2020 21:00	5.1	D	46	No	IA	NA
Kilburnie South	23/06/2020 22:59	5.8	D	46	No	IA	NA
Jerrys Plains Village	23/06/2020 21:01	5.1	D	46	No	IA	NA
Jerrys Plains East	23/06/2020 21:22	5.1	D	46	No	IA	NA
Long Point Road	23/06/2020 21:01	5.4	D	46	No	IA	NA
HVGC	23/06/2020 23:31	5.6	D	NA	No	IA	NA

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^{1.} Atmospheric data is sourced from the HVO Corporate (or MTW Charlton Ridge for Long Point) AWS using logged meteorological data;

^{2.} Noise emission limits apply under all meteorological conditions, except during periods of rain or hail, when average winds speed at microphone heights exceeds 5 metres per second, when wind speeds greater than 3 metres per second a re measured at 10 mabove ground level, or during stability class G conditions. Criterion may or may not apply due to rounding of meteorological data values;

^{3.} Site-only LA1,1 minute attributed to HVO North Pit Area;

^{4.} Bold results in red indicate exceedance of relevant criterion;

^{5.} NA in criterion column indicates no criterion is applicable at this location. NA in exceedance column means atmospheric conditions outside specified in approval and so criterion is not applicable;

^{6.} IA means inaudible, there was no site noise at the monitoring location; and

^{7.} NM means not measurable, noise was audible but could not be quantified.

5.2 NPfl Low Frequency Assessment

In accordance with the requirements of the EPA's Noise Policy for Industry (NPfI), the applicability of the low frequency modification penalty has been assessed. During June 2020 no penalties were applied. The assessment for low frequency noise is shown in Table 10.

Table 10: Modifying Factor Assessment - HVO South - June 2020

Location	Date and Time	Measured HVO South L _{Aeq} dB ^{1,2,3}	Criterion Applied?	Intermittency Modifying Factor?	Tonality Modifying Factor?	Frequency of Tonality	Low- frequency Modifying Factor?	Maximum Exceedance of NPfl Reference Spectrum ⁴	Total Penalty dB⁴
Knodlers Lane	23/06/20 21:43	35	No	NA	NA	NA	NA	NA	NA
Maison Dieu	23/06/20 21:20	37	No	NA	NA	NA	NA	NA	NA
Shearers Lane	23/06/20 21:00	38	No	NA	NA	NA	NA	NA	NA
Kilburnie South	23/06/20 22:59	<25	No	NA	NA	NA	NA	NA	NA
Jerrys Plains Village	23/06/20 21:01	IA	No	NA	NA	NA	NA	NA	NA
Jerrys Plains East	23/06/20 21:22	IA	No	NA	NA	NA	NA	NA	NA
Long Point Road	23/06/20 21:01	IA	No	NA	NA	NA	NA	NA	NA
HVGC	23/06/20 23:31	38	No	NA	NA	NA	NA	NA	NA

^{1.} NA means not applicable;

^{2.} IA means inaudible, there was no site noise at the monitoring location;

^{3.} NM means not measurable, noise was audible but could not be quantified; and

^{4.} Bold results indicate that NPfl low-frequency modifying factor has been triggered and application of correction is required.

Table 11: Modifying Factor Assessment – HVO North – June 2020

Location	Date and Time	Measured HVO South L _{Aeq} dB ^{1,2,3}	Criterion Applied?	Intermittency Modifying Factor?	Tonality Modifying Factor?	Frequency of Tonality	Low- frequency Modifying Factor?	Maximum Exceedance of NPfl Reference Spectrum ⁴	Total Penalty dB⁴
Knodlers Lane	23/06/20 21:43	IA	No	NA	NA	NA	NA	NA	NA
Maison Dieu	23/06/20 21:20	IA	No	NA	NA	NA	NA	NA	NA
Shearers Lane	23/06/20 21:00	IA	No	NA	NA	NA	NA	NA	NA
Kilburnie South	23/06/20 22:59	IA	No	NA	NA	NA	NA	NA	NA
Jerrys Plains Village	23/06/20 21:01	IA	No	NA	NA	NA	NA	NA	NA
Jerrys Plains East	23/06/20 21:22	IA	No	NA	NA	NA	NA	NA	NA
Long Point Road	23/06/20 21:01	IA	No	NA	NA	NA	NA	NA	NA
HVGC	23/06/20 23:31	IA	No	NA	NA	NA	NA	NA	NA

^{1.} NA means not applicable;

^{2.} IA means inaudible, there was no site noise at the monitoring location;

^{3.} NM means not measurable, noise was audible but could not be quantified; and

^{4.} Bold results indicate that NPfl low-frequency modifying factor has been triggered and application of correction is required.

5.3 Real Time Noise Monitoring

HVO utilises a network of real-time directional noise monitors to manage noise impacts on a continuous basis. Noise alarms are in place at five monitoring locations (Knodlers Lane, Maison Dieu, Jerrys Plains, Moses Crossing, and Long Point), which alert HVO staff to elevated noise levels likely to be attributable to HVO.

Noise alarms are investigated and responded to with the appropriate level of operational modification. Changes in response to a noise alarm can include replacing equipment with quieter (noise attenuated) units, changing or relocating tasks, and shutting down equipment. It should be noted that this assessment does not compliment or conflict with attended noise monitoring detailed in Section 5.1, and that real time monitoring data includes non-mine noise sources such as dogs, cows, or more commonly, road traffic.

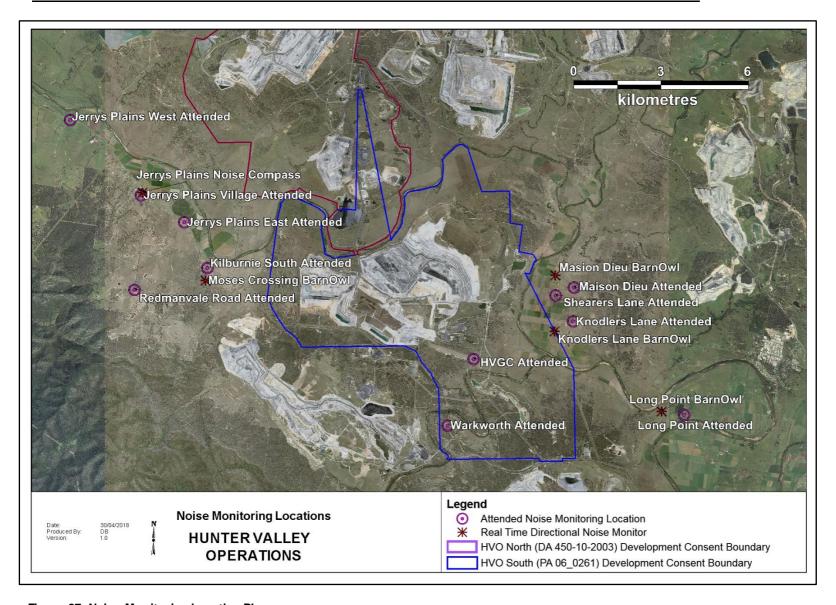


Figure 87: Noise Monitoring Location Plan

6.0 OPERATIONAL DOWNTIME

During June, a total of 10.9 hours of equipment downtime was logged in response to real time monitoring and visual inspections for environmental reasons such as dust, noise and meteorological conditions. Operational downtime by equipment type and reason is shown in Figure 88.

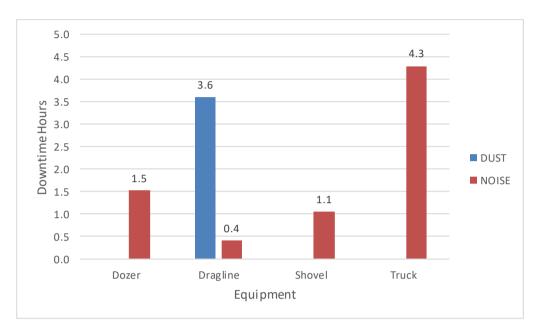


Figure 88: Operational Downtime by Equipment Type - June 2020

7.0 REHABILITATION

During June, 12.15 Ha of land was bulk shaped, 2.61 Ha of land was topsoiled, 25.83 Ha of land was released and no land was rehabilitated. Year to date progress can be viewed in Figure 89.

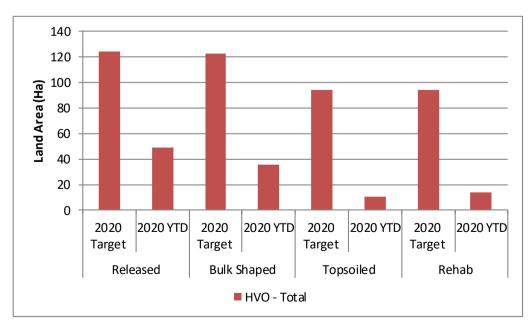


Figure 89: Rehabilitation YTD - June 2020

8.0 COMPLAINTS

Two complaints were received during June 2020. Five complaints have been received in 2020. Details of complaints received are shown in Table 12 below.

Table 12: Complaints Summary 2020

Month	Noise	Dust	Blast	Lighting	Other	Total
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	3	-	-	-	-	3
June	2	-	-	-	-	2
July						
August						
September						
October						
November						
December						
Total	5	0	0	0	0	5

9.0 ENVIRONMENTAL INCIDENTS

During the reporting period there were two reportable environmental incidents:

3/06/2020 – Golden Highway TEOM Data Miscapture

The Golden Highway TEOM air quality monitor suffered an unplanned power outage, resulting in insufficient data capture on 03/06/2020 and 04/06/2020.

Environmental Consequence: Nil Category

4/06/2020 – Howick TEOM Data Miscapture

The Howick TEOM air quality monitor was taken out of service for annual maintenance, resulting in insufficient data capture on 04/06/2020 and 05/06/2020.

Environmental Consequence: Nil Category

APPENDIX A: METEOROLOGICAL DATA

Table 13: Meteorological Data - HVO Corporate Meteorological Station - June 2020

Date	Air Temp Max (°C)	Air Temp Min (°C)*	Relative Humidit y Max (%)	Relative Humidit y Min (%)*	Solar Radiation Maximum (W/Sq. M)	Wind Dir. Avg (°)	Wind Speed Avg (m/sec)	Rainfall (mm)
1/06/2020	21.16	4.47	95.5	36.02	550.9	286.9	5.779	0
2/06/2020	13.08	1.38	85	52.7	705.3	291.8	6.145	0
3/06/2020	18.65	2.56	88.9	39.97	563.4	212.8	2.764	0
4/06/2020	16.22	2.85	92.9	50.32	730.9	149.8	1.191	0
5/06/2020	17.82	0.37	100	42.69	501.6	277.4	2.043	0
6/06/2020	18.69	2.05	100	44.03	498.5	222.7	1.372	0
7/06/2020	16.95	0.73	100	53.08	504.5	195.5	1.454	0
8/06/2020	17.23	3.53	109.3	40.99	505.3	182.4	1.455	0
9/06/2020	15.36	4.97	112.4	86.1	795.2	126.3	2.007	6.2
10/06/2020	15.46	7.92	113.1	100	414	132.9	1.196	5
11/06/2020	20.4	7.24	113.4	61.05	615.4	190.6	1.796	0.2
12/06/2020	17.9	6.81	100	72.94	772.4	122.6	1.824	0
13/06/2020	18.32	6.68	110.9	75.87	814	146	0.789	0
14/06/2020	19.88	5.61	112.9	41.54	734.8	263	3.72	21.6
15/06/2020	17.43	2.75	92.7	48.74	508.7	291.8	2.902	0
16/06/2020	18.97	2.62	95.9	49.47	518.2	282.8	3.165	0
17/06/2020	18.82	3.36	112.2	56.2	727.2	190.9	2.567	3.2
18/06/2020	17.38	4.60	100	58.02	776.7	119.2	2.27	0
19/06/2020	17.01	1.84	112.6	63.08	635.4	200.4	0.755	0.2
20/06/2020	20.4	0.50	112.8	52.48	513.1	214.8	0.948	0.2
21/06/2020	16.51	3.99	111.2	58.68	890	250.9	2.383	13
22/06/2020	13.65	2.95	89.9	60.12	782.3	279.1	4.649	0
23/06/2020	13.52	2.12	96.4	52.96	770.5	288.2	4.315	0
24/06/2020	14.62	2.90	94.4	55.33	503.8	288.5	5.282	0
25/06/2020	14.98	0.85	92.7	56.01	559.4	285.3	3.673	0
26/06/2020	15.98	-1.78	95.9	45.21	515.7	204.7	1.665	0
27/06/2020	15.63	0.35	108.1	60.89	735.5	151	1.8	0
28/06/2020	16.12	2.50	100	52.75	594.9	112.6	1.665	0
29/06/2020	15.85	2.84	112.1	61.05	661	174.8	1.358	0
30/06/2020	17.45	-1.34	113.2	45.05	509.9	240	1.121	0.2