HUNTER VALLEY
OPERATIONS

MONTHLY ENVIRONMENTAL MONITORING REPORT MARCH 2025

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REVIEW
[Planned Review Date]

OWNER
Superintendent - Environment and Community

Table of Figures

1 | 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 1 – 31 March 2025 (the 'Reporting Period').

2 | AIR QUALITY

2.1 | METEOROLOGICAL MONITORING

HVO maintains two meteorological stations: 'HVO Corporate' and 'Cheshunt' (refer to Figure 4).

2.1.1 | RAINFALL

Rainfall recorded at the HVO Corporate weather station during the period is summarised in Table 1. The 2023, 2024 and 2025 trends are shown in Figure 1.

Table 1 - Rainfall data for the reporting period

2025	Monthly Rainfall (mm)	Cumulative Rainfall (mm)
March	108.0	220.4

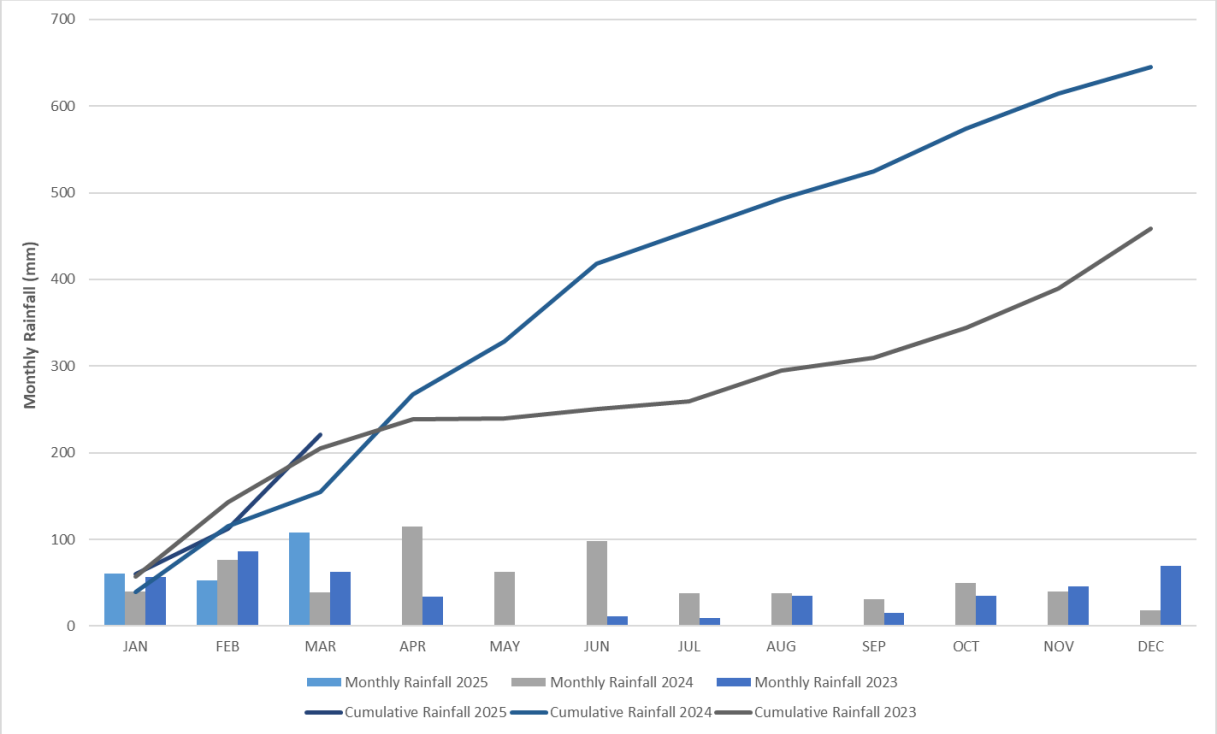

Figure 1: Rainfall Summary 2025

2.1.2 | WIND SPEED AND DIRECTION

South easterly winds were prevailing at both HVO Corporate and HVO Cheshunt weather stations during the reporting period as shown in Figure 2 and Figure 3.

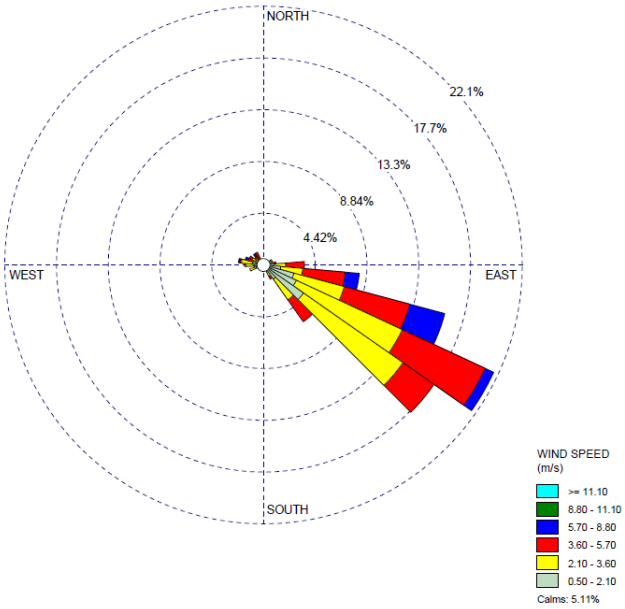

Figure 2: HVO Corporate Wind Rose for the Reporting Period

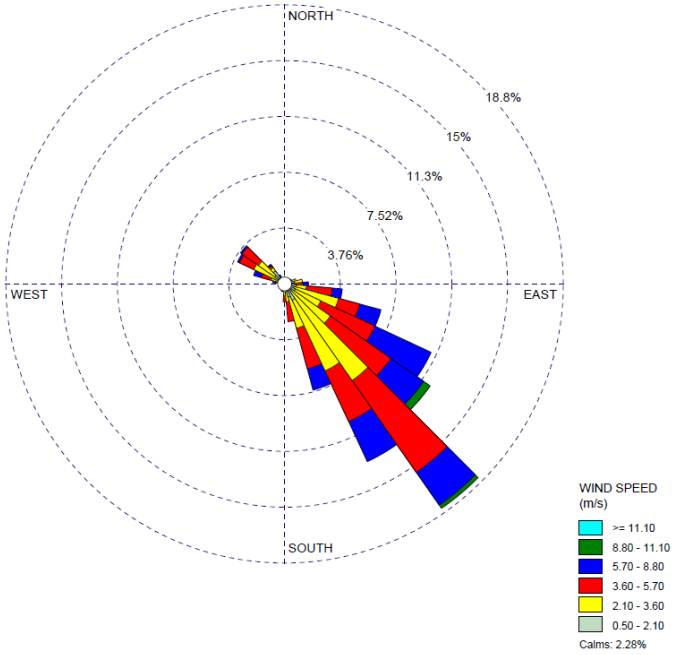

Figure 3: HVO Cheshunt Wind Rose for the Reporting Period

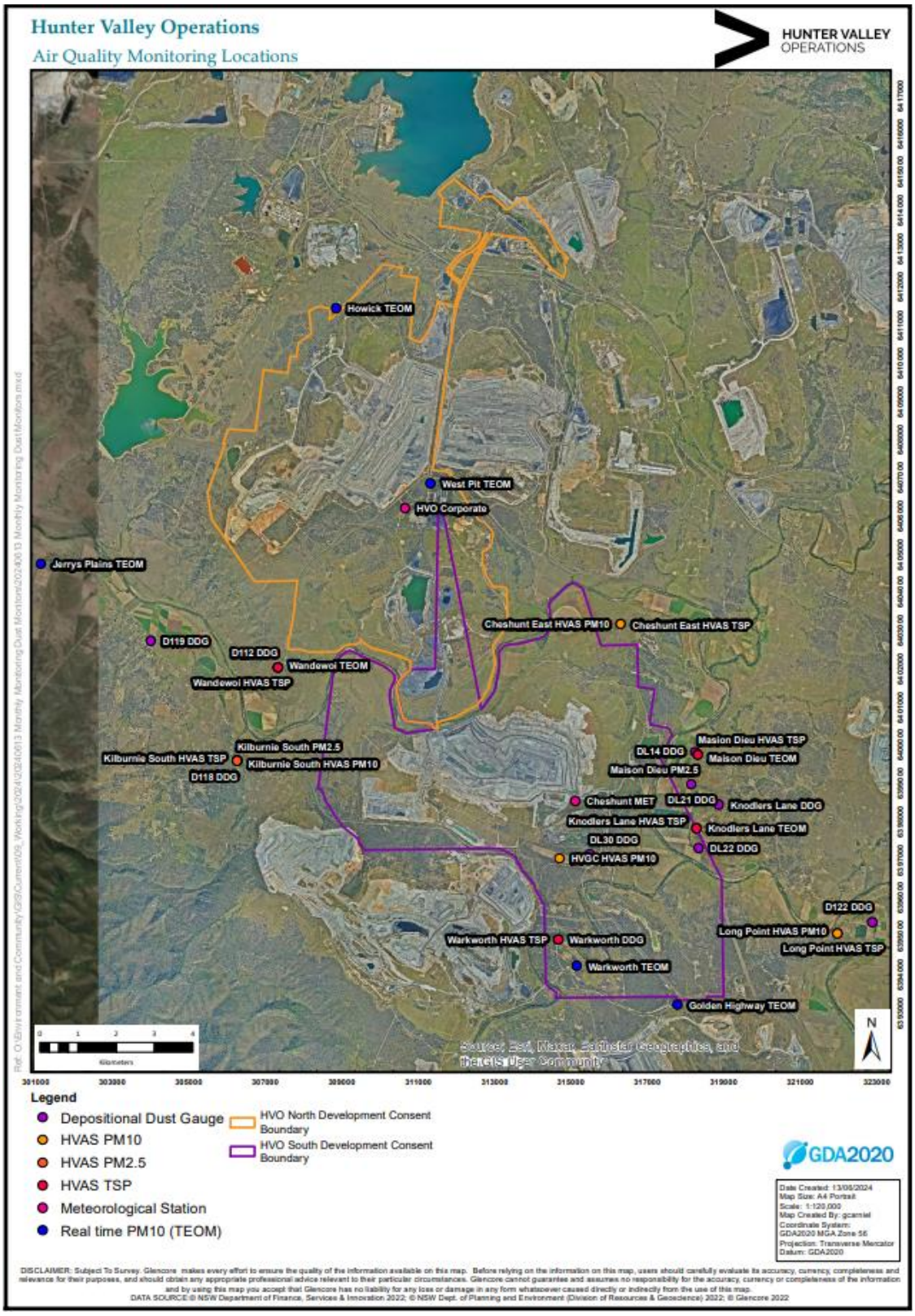

Figure 4: Air Quality Monitoring Location Plan

2.2 | DEPOSITIONAL DUST

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

Error! Reference source not found. displays year-to-date (YTD) insoluble solids results from depositional dust gauges during the reporting period compared against the annual impact assessment criteria. Any monthly results deemed to be contaminated (due to presence of bird droppings, insects, etc.) are not displayed. An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

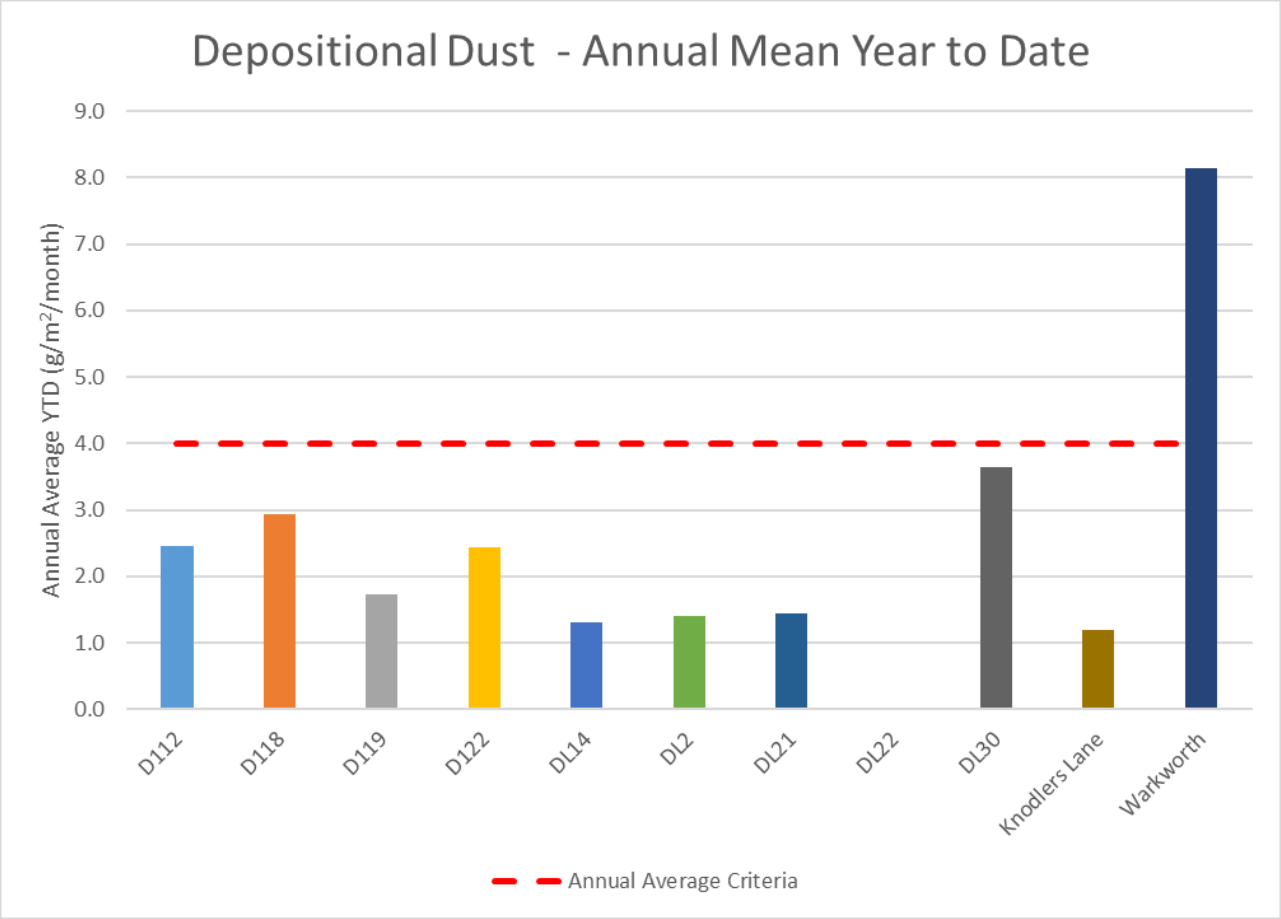

Figure 5: Depositional Dust Results as at the Reporting Period

2.3 | SUSPENDED PARTICLES

Suspended particles are measured by a network of High-Volume Air Samplers (HVAS) measuring Total Suspended Particulates (TSP) and Particulate Matter <10µm (PM_{10}). The Kilburnie South (Moses Crossing) and Maison Dieu HVAS also monitor Particulate Matter <2.5µm ($PM_{2.5}$). The location of these monitors is presented in Figure 4. Each HVAS runs for 24-hours on a six-day cycle.

2.3.1 | HVAS PM_{10} RESULTS

2.3.1.1 | PERFORMANCE AGAINST SHORT TERM IMPACT ASSESSMENT CRITERIA

Figure 6 shows individual PM_{10} results at each monitoring station against the short-term impact assessment criteria of 50µg/m^3. No exceedances were recorded during the reporting period.

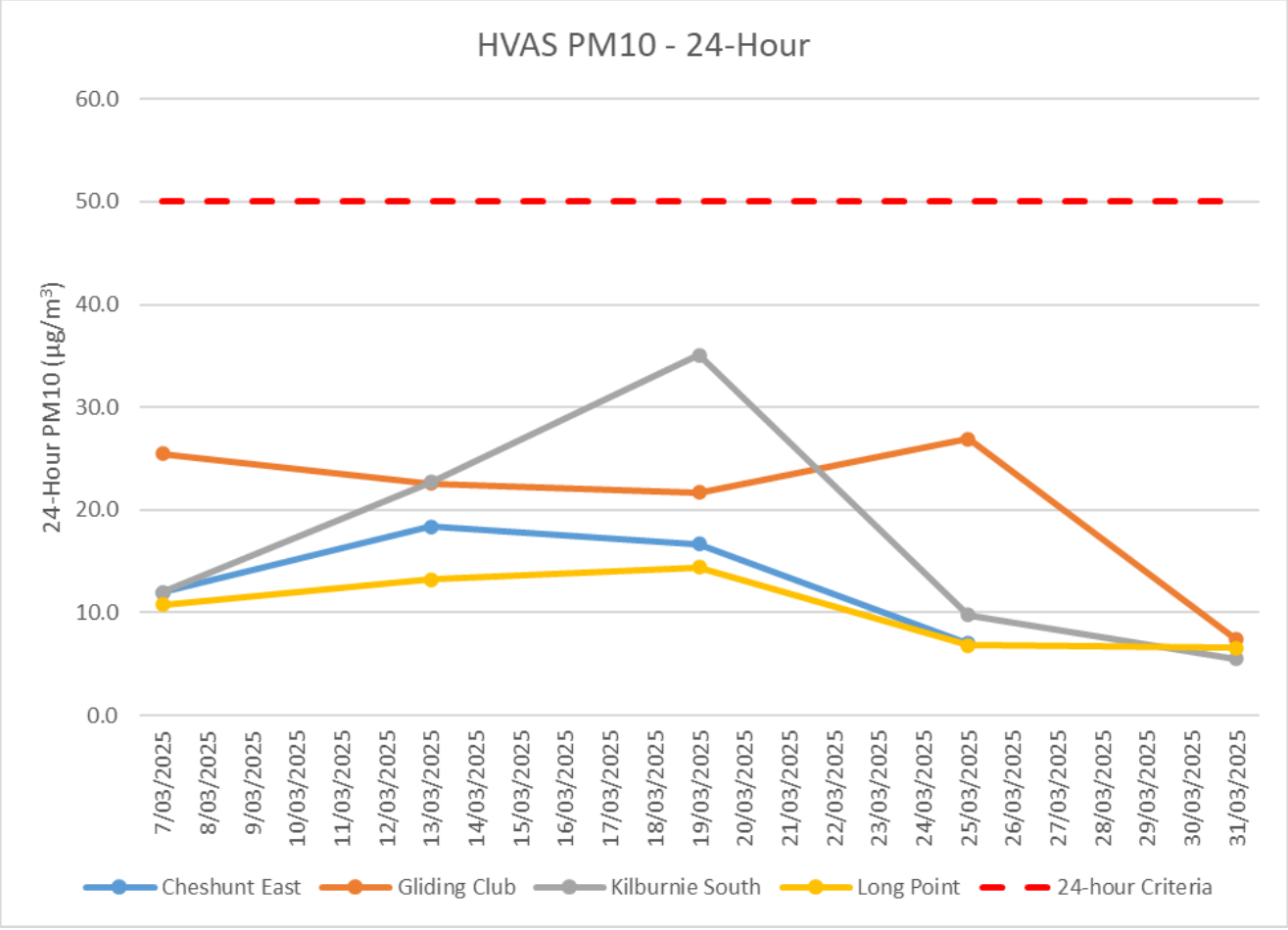

Figure 6: Individual PM_{10} Results for the Reporting Period

2.3.1.2 | PERFORMANCE AGAINST LONG TERM IMPACT ASSESSMENT CRITERIA

Figure 7 shows the year-to-date annual average PM_{10} results. The Cheshunt East and Gliding Club monitoring sites were above the short-term criteria and were below the long-term criteria. All other monitors were below the relevant long term impact assessment criteria during the reporting period.

An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

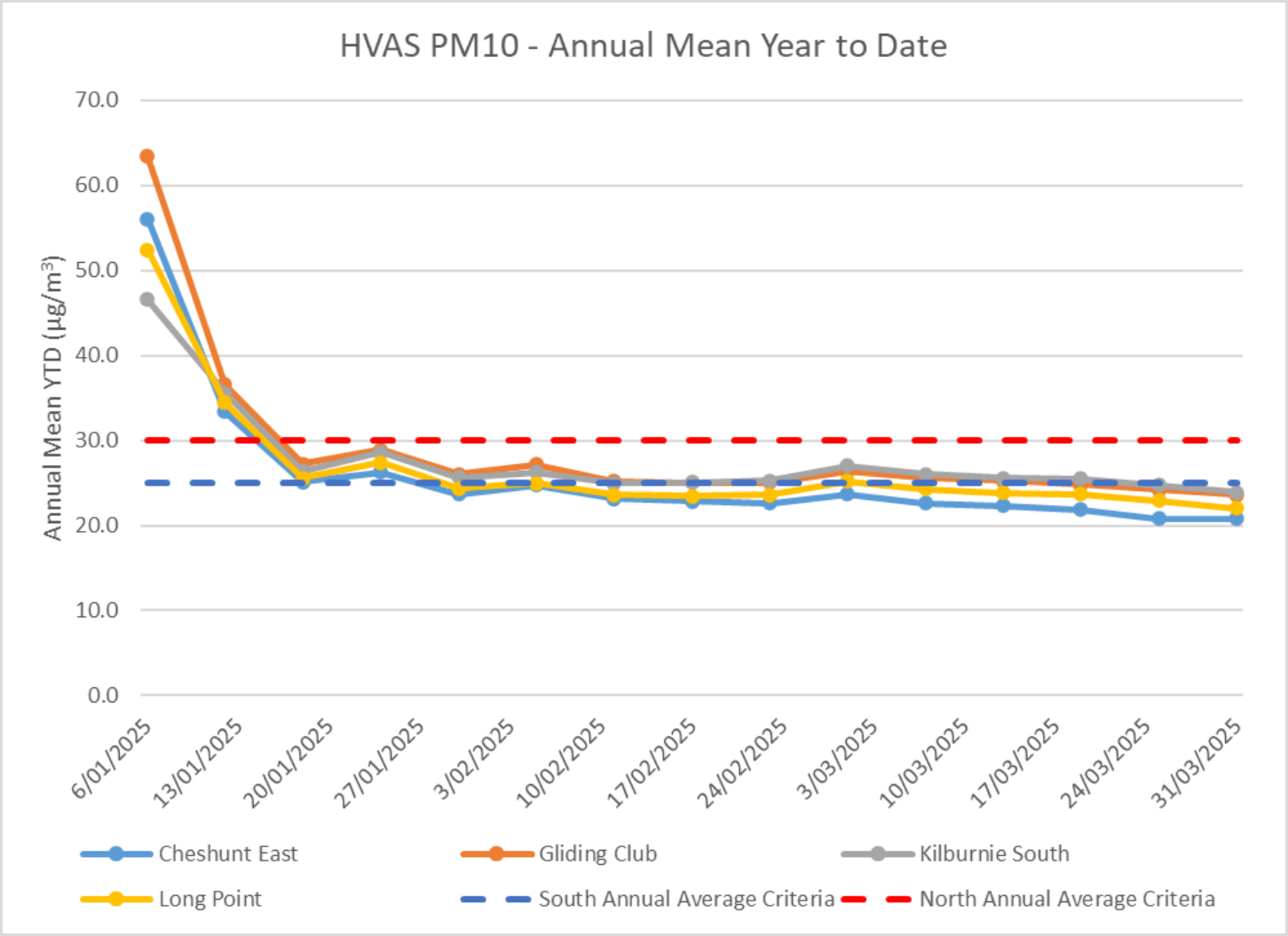

Figure 7: Year to Date Average PM_{10} as at end of the Reporting Period

2.3.2 | HVAS $PM_{2.5}$ RESULTS

HVO monitors $PM_{2.5}$ at two HVAS locations, Kilburnie South (Moses Crossing) and Maison Dieu.

2.3.2.1 | HVAS $PM_{2.5}$ RESULTS

Figure 8 shows individual $PM_{2.5}$ results at each monitoring station against the HVO South short-term impact assessment criteria of 25µg/m^3. Both monitors were below the relevant short-term impact assessment criteria during the reporting period.

An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

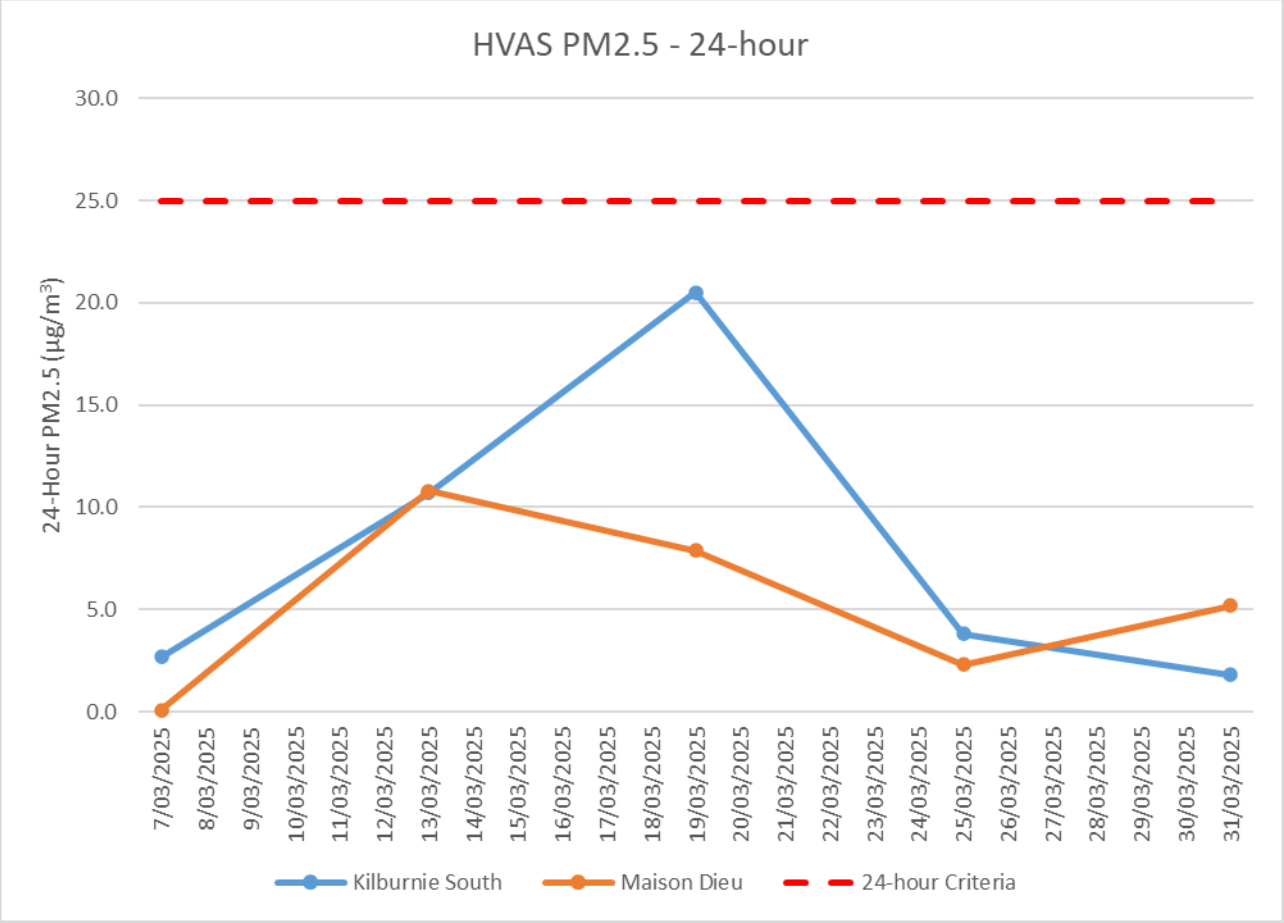

Figure 8: Results for the Reporting Period

2.3.2.2 | 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 Kilburnie South and Maison Dieu monitor annual average year to date results were above the $PM_{2.5}$ Annual Rolling Mean criteria of 8µg/m^3.

An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

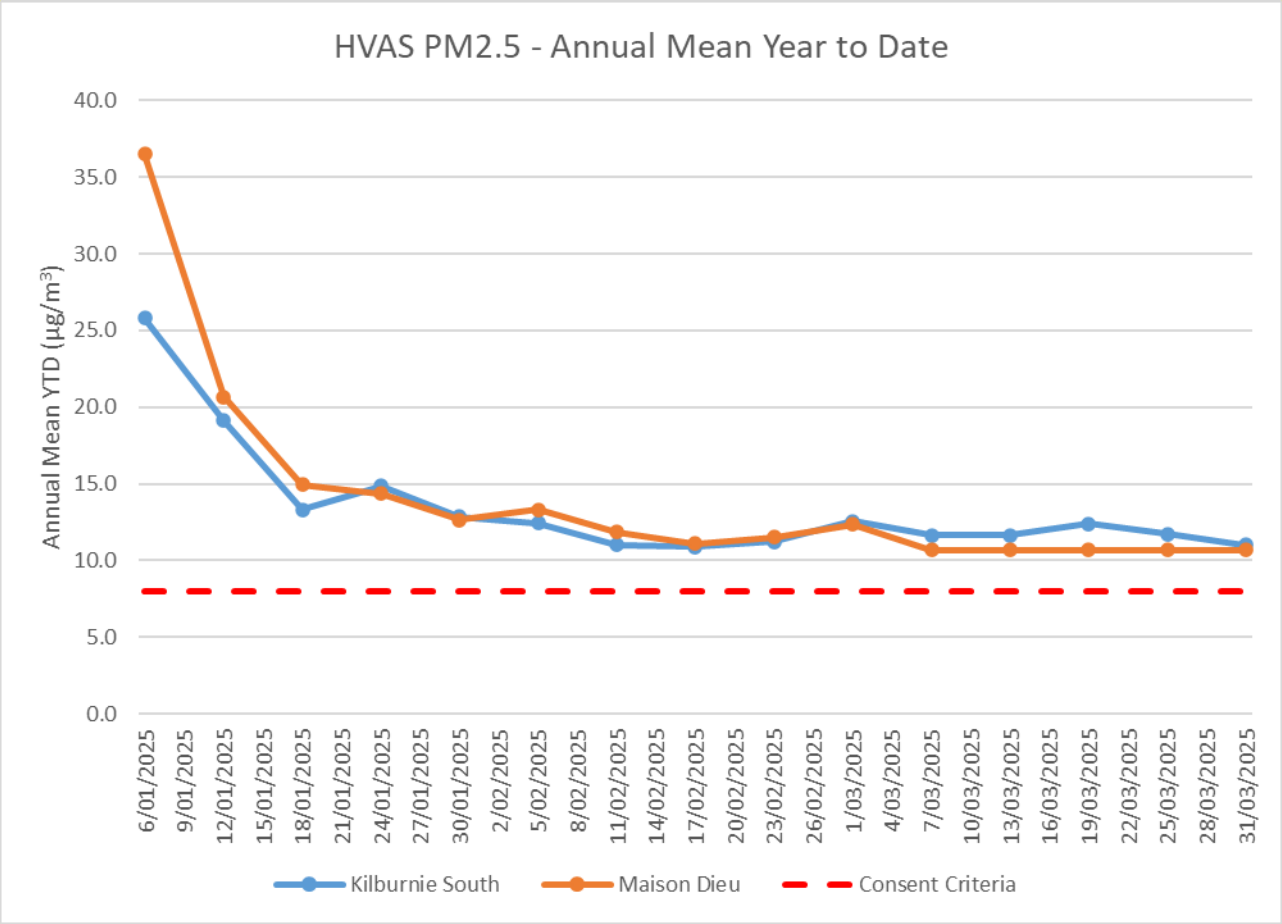

Figure 9: Year to Date Average $PM_{2.5}$ as at end of the Reporting Period

2.3.3 | TSP RESULTS

2.3.3.1 | PERFORMANCE AGAINST LONG TERM IMPACT ASSESSMENT CRITERIA

Figure 10 shows the annual average TSP results compared against the long-term impact assessment criteria of 90µg/m^3.

All monitors, except Warkworth were below than the long-term impact assessment criteria during the reporting period.

Additionally, a data mis-capture occurred at Wandewoi on 18 Jauary.

An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

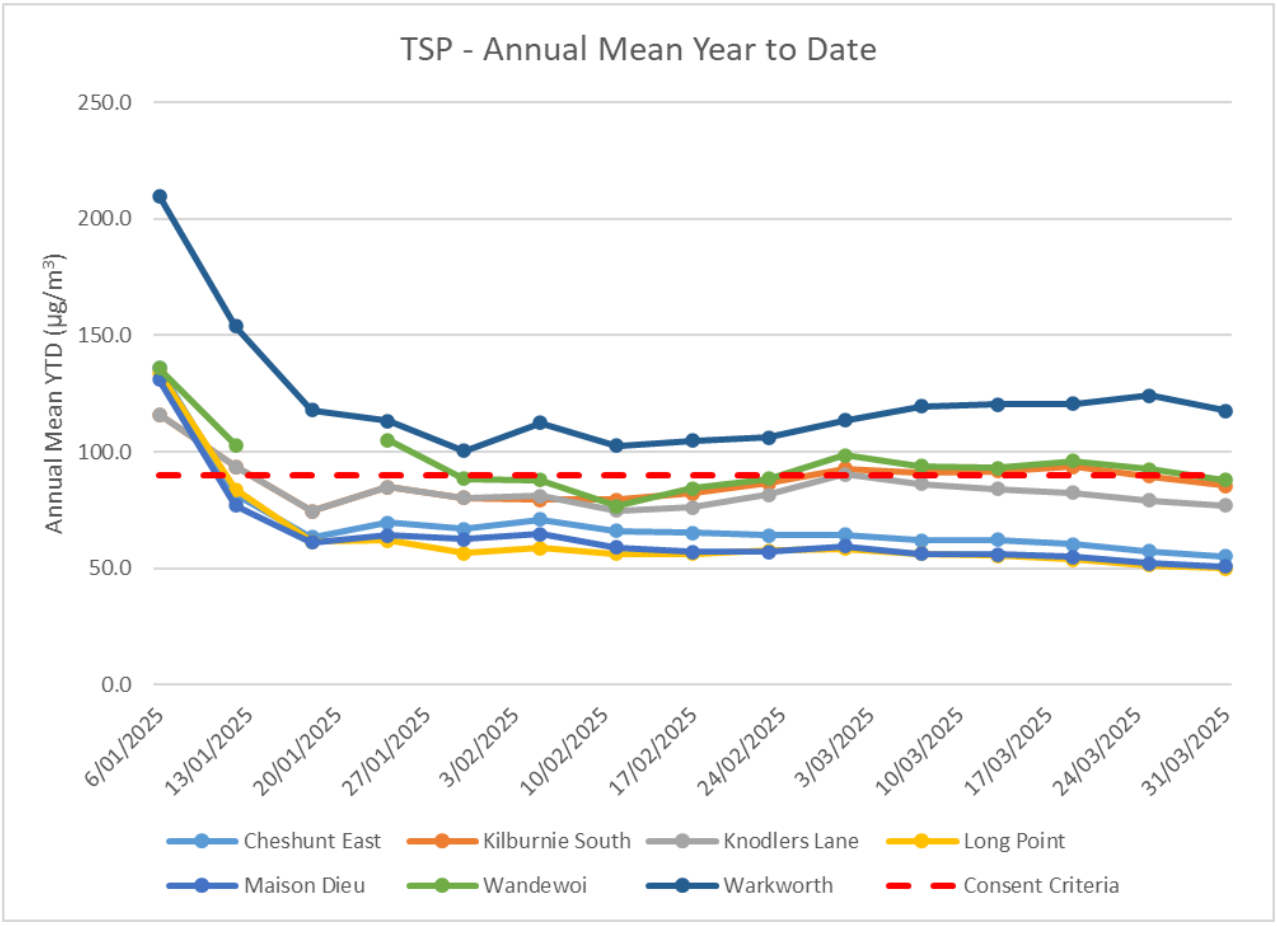

Figure 10: Year to Date Average Total Suspended Particulates as at end of the Reporting Period

2.3.4 | REAL TIME PM_{10} RESULTS

HVO maintains a network of real time PM_{10} monitors. The real time air quality monitoring stations continuously record information and transmit data to a central database, generating alarms when particulate matter levels exceed internal trigger levels. Results from real time PM_{10} monitoring are used as a reactive measure to guide mining operations to help achieve compliance with the relevant conditions of the project approval.

Figure 11 shows the daily 24-hour average PM_{10} result from the real time monitoring sites. During the reporting period, daily results were below the 24-hr average criteria of 50µg/m^3 with the exception of:

- Warkworth on 1 and 17 March.

Figure 12 shows the annual rolling average PM_{10} results from the real time monitoring sites. The annual average results for all monitors are currently below the relevant long-term impact assessment criteria for the reporting period.

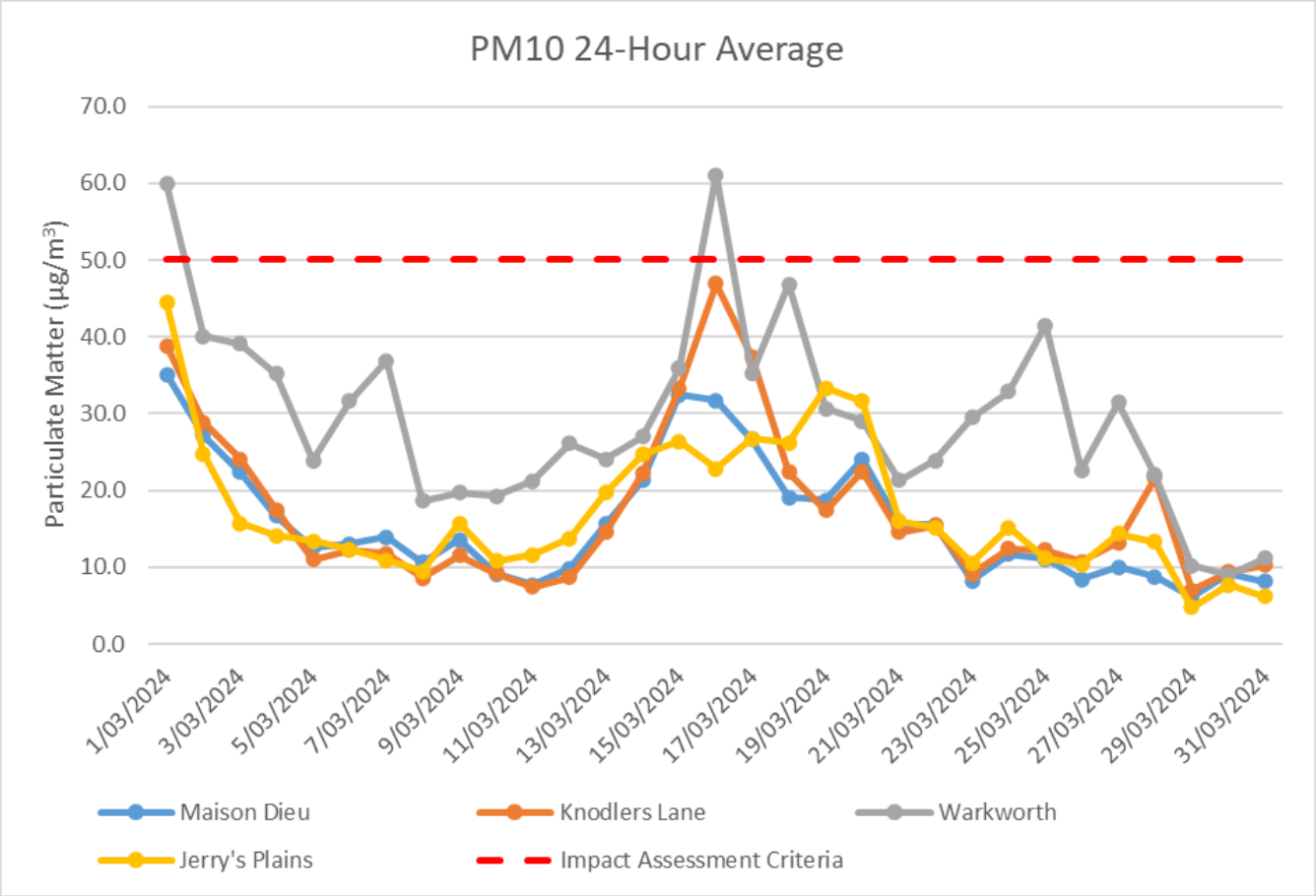

Figure 11: Real Time PM_{10} 24hr for the Reporting Period

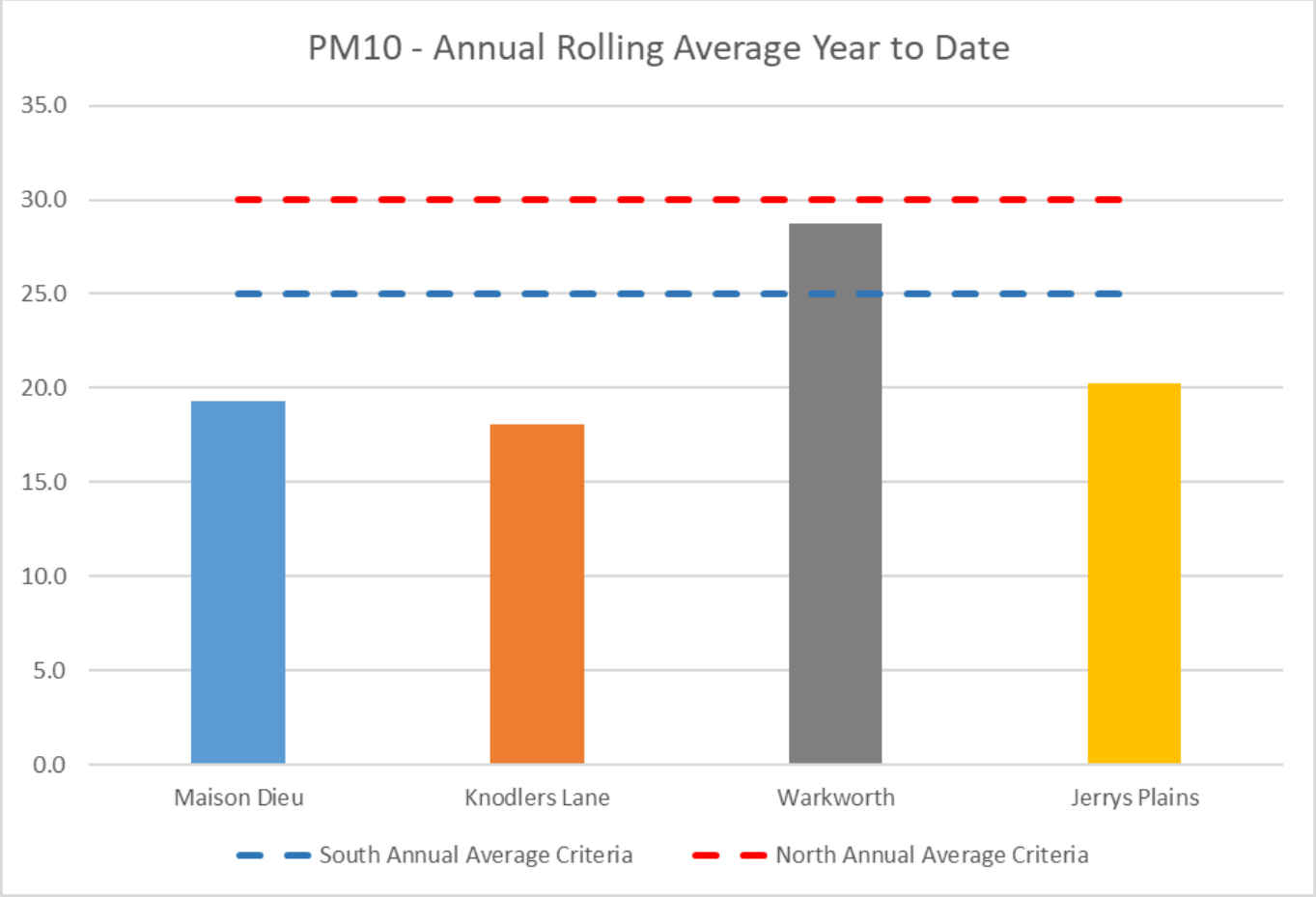

Figure 12: Real Time PM_{10} Annual Average for the Reporting Period

2.3.5 | REAL TIME ALARMS FOR AIR QUALITY

The real time monitoring system generated one-hundred and twenty-one (121) automated air quality related alarms during the reporting period. Twenty-nine (29) alarms related to adverse weather conditions (wind or rain) and ninety-two (92) alarms related to dust conditions.

3 | WATER QUALITY

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

3.1 | SURFACE WATER

Surface watercourses are sampled on a quarterly sampling regime. Water quality is assessed through the parameters of pH, electrical conductivity (EC) and Total Suspended Solids (TSS). The location of surface water monitoring points across HVO is shown in Figure 13.

Results from monitoring on site dams, the Hunter River and other natural tributaries are provided in Figure 14 to 25.

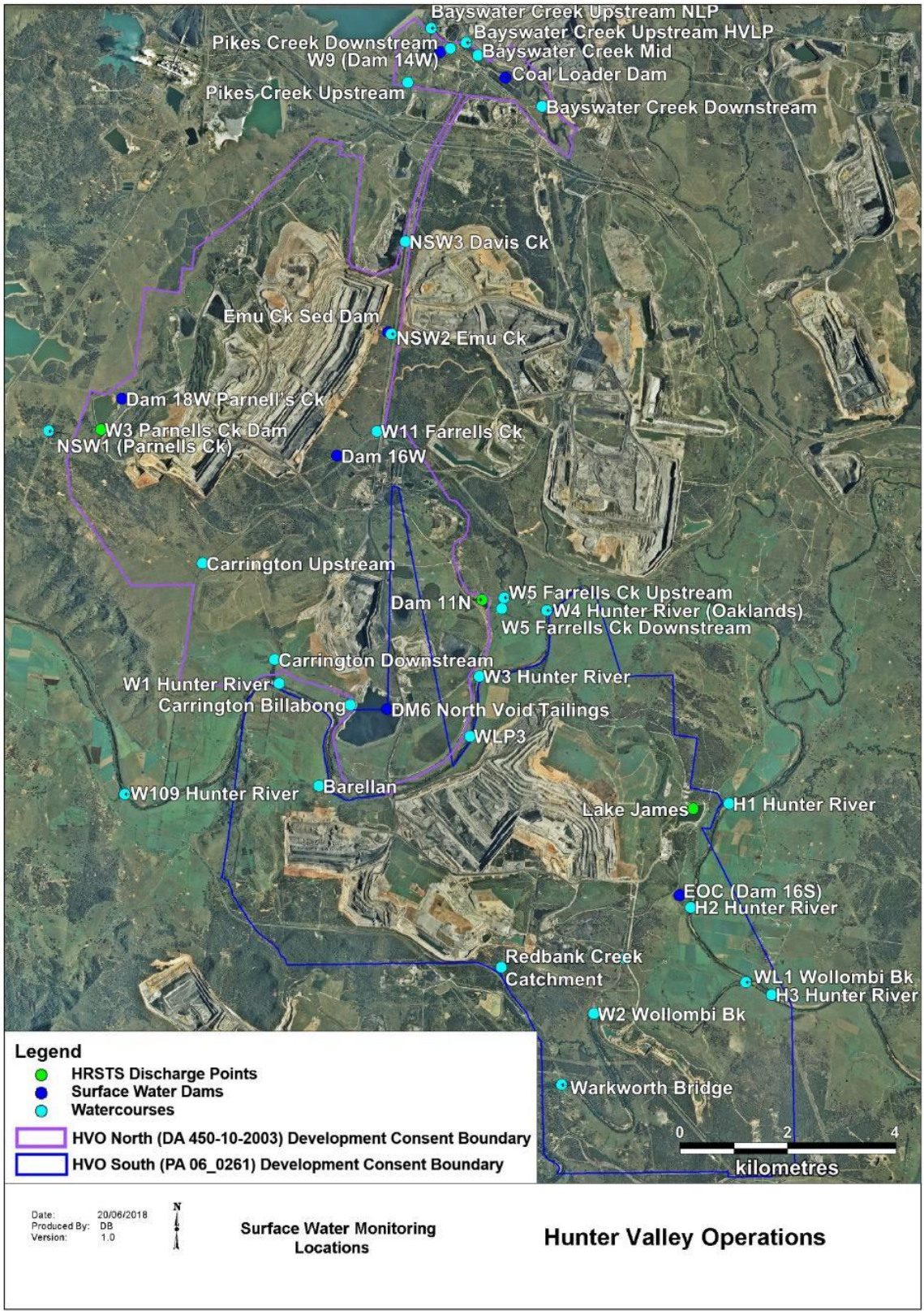

Figure 13: HVO Surface Water Monitoring Locations

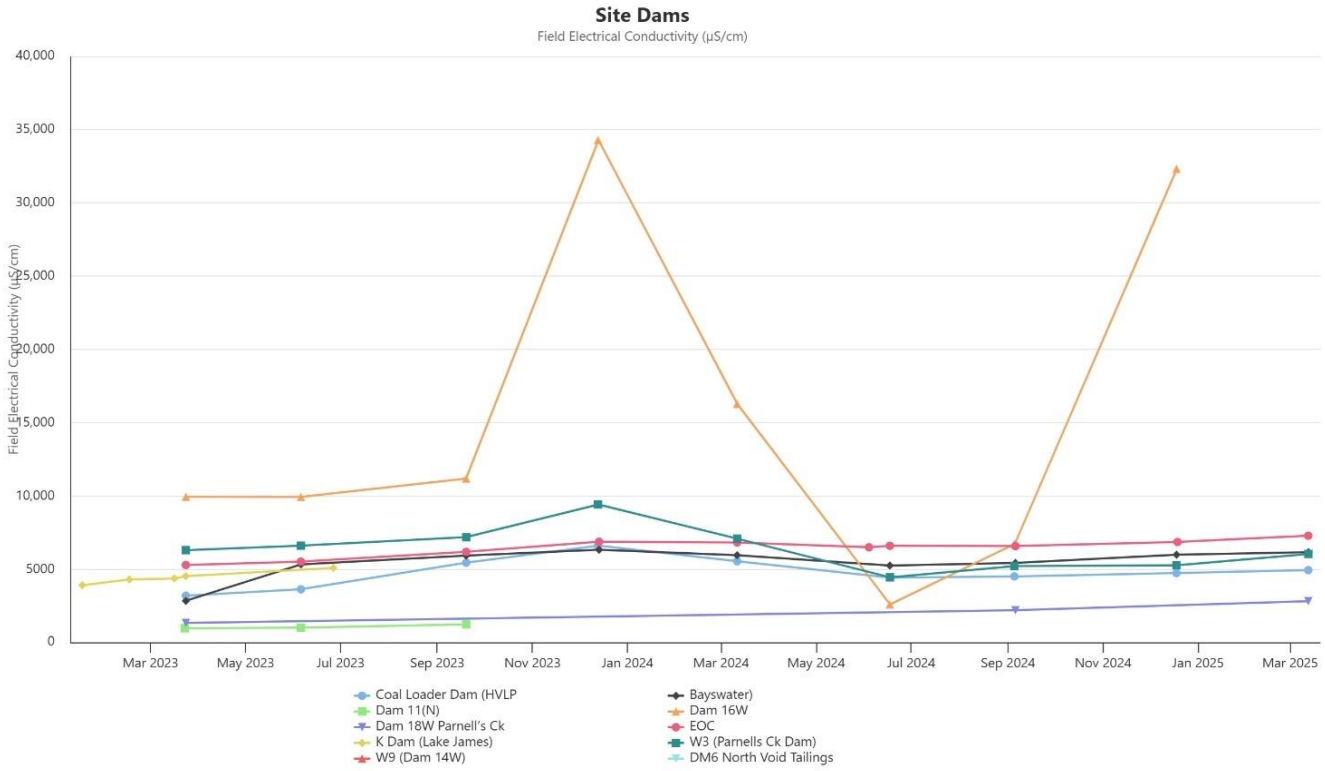

Figure 14 Site Dams Electrical Conductivity - March 2025

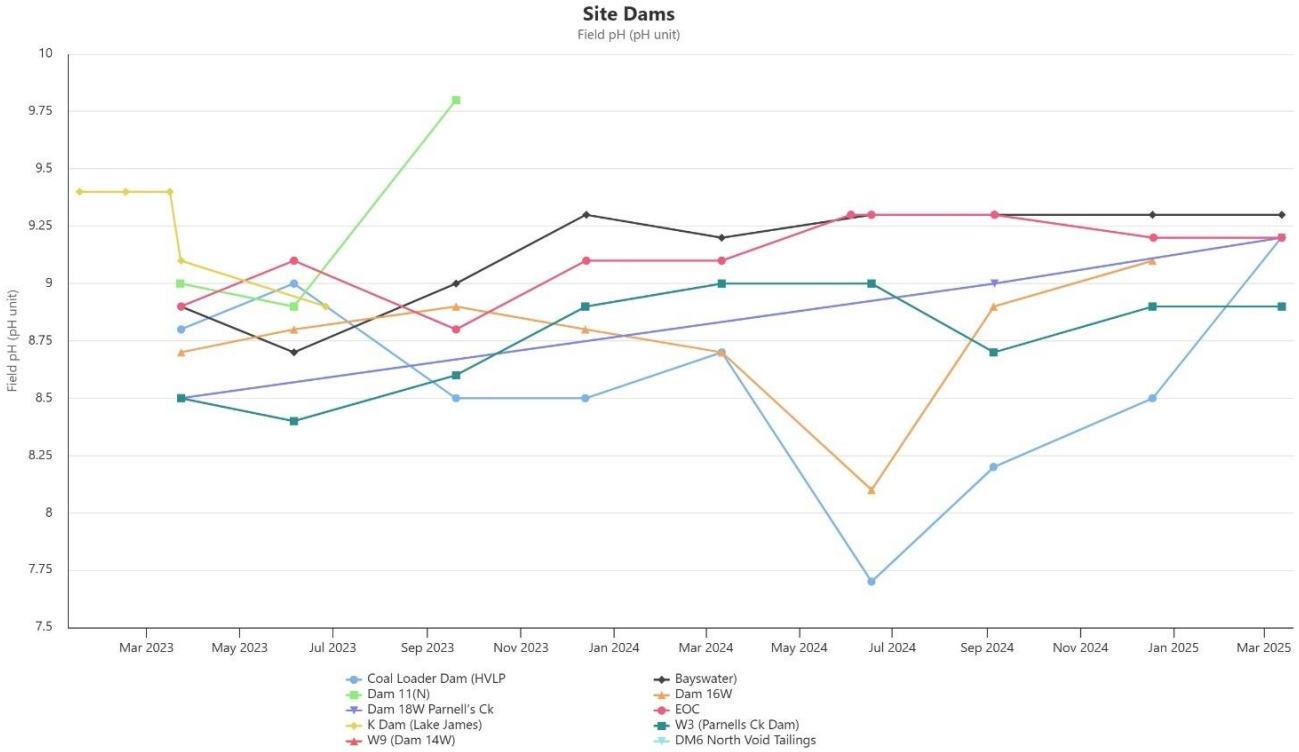

Figure 15 Site Dams Field pH - March 2025

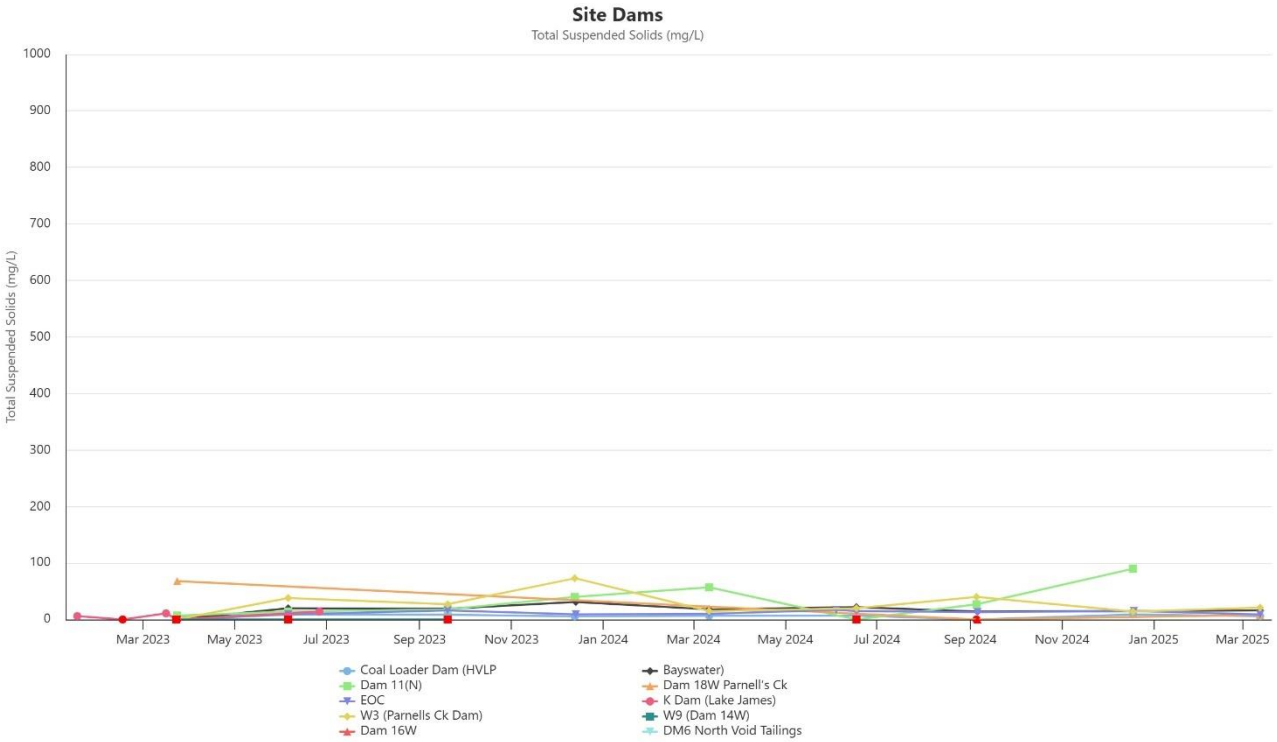

Figure 16 Site Dams Total Suspended Solids - March 2025

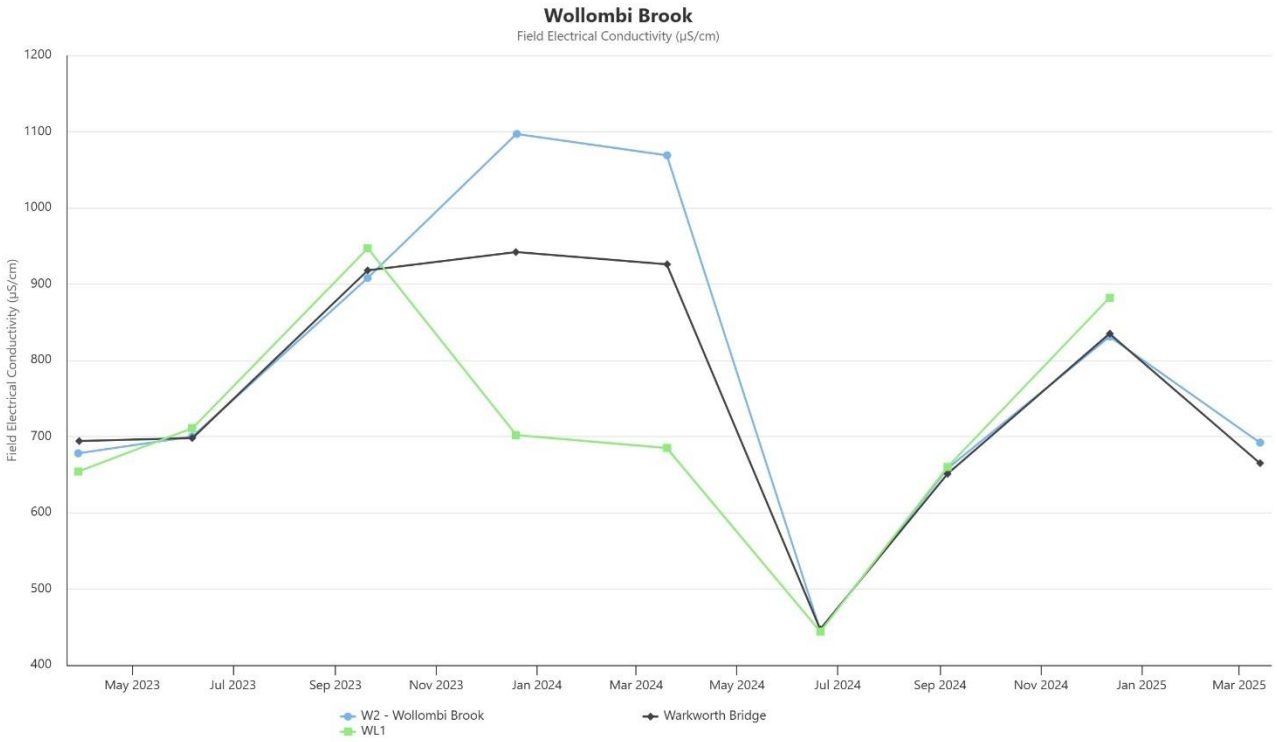

Figure 17 Wollombi Brook Electrical Conductivity - March 2025

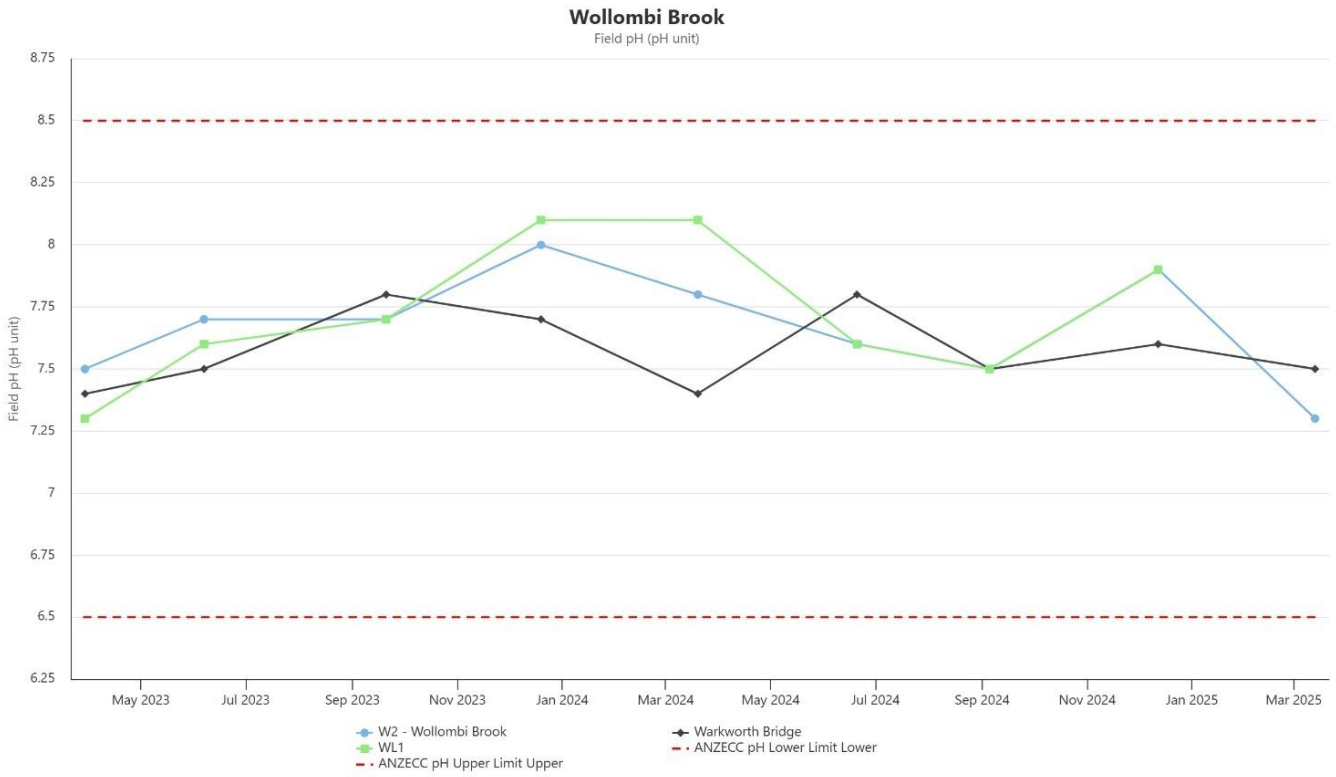

Figure 18 Wollombi Brook Field pH - March 2025

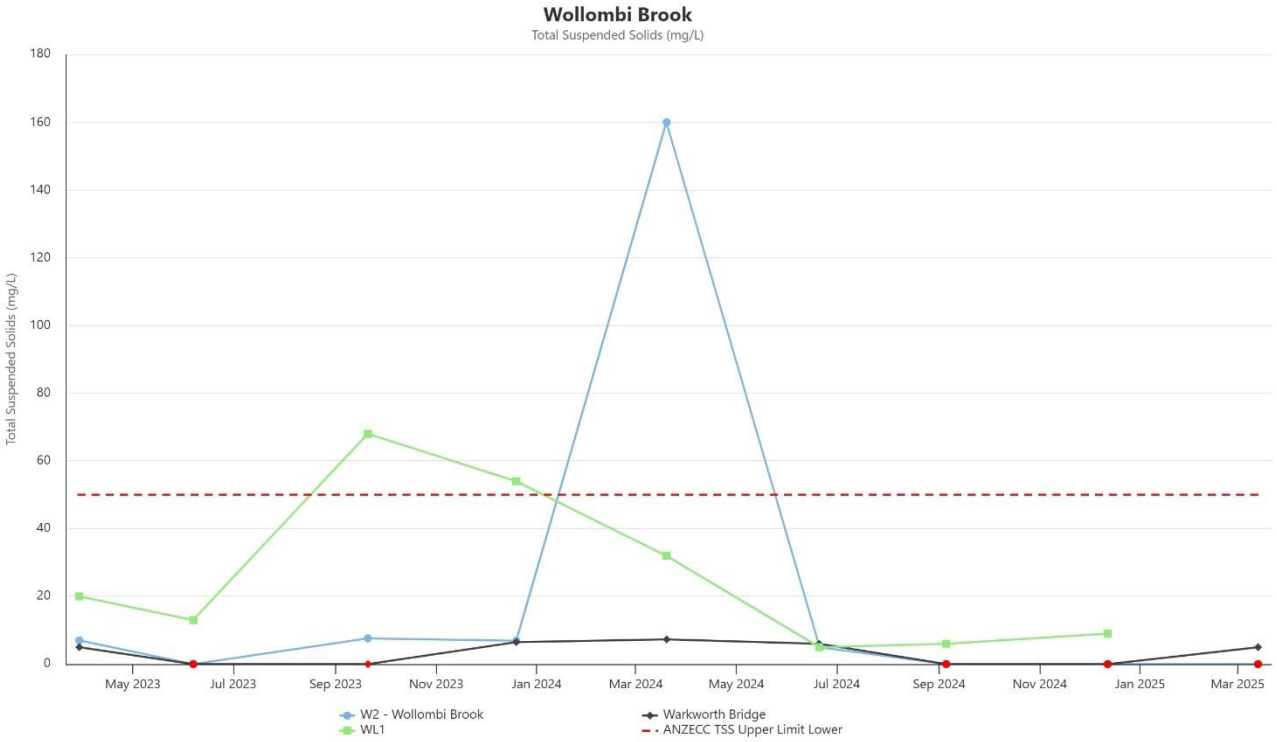

Figure 19 Wollombi Brook Total Suspended Solids - March 2025

Figure 20 Hunter River Electrical Conductivity - March 2025

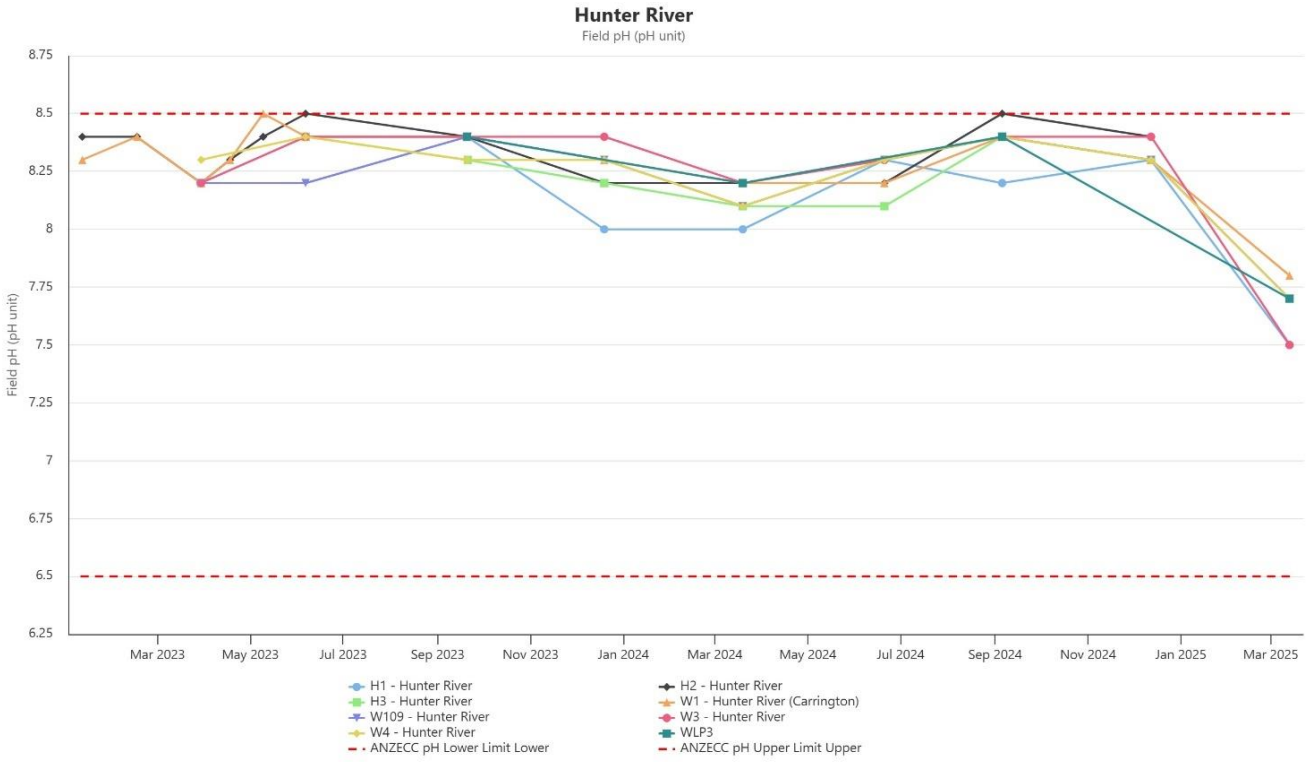

Figure 21 Hunter River Field pH - March 2025

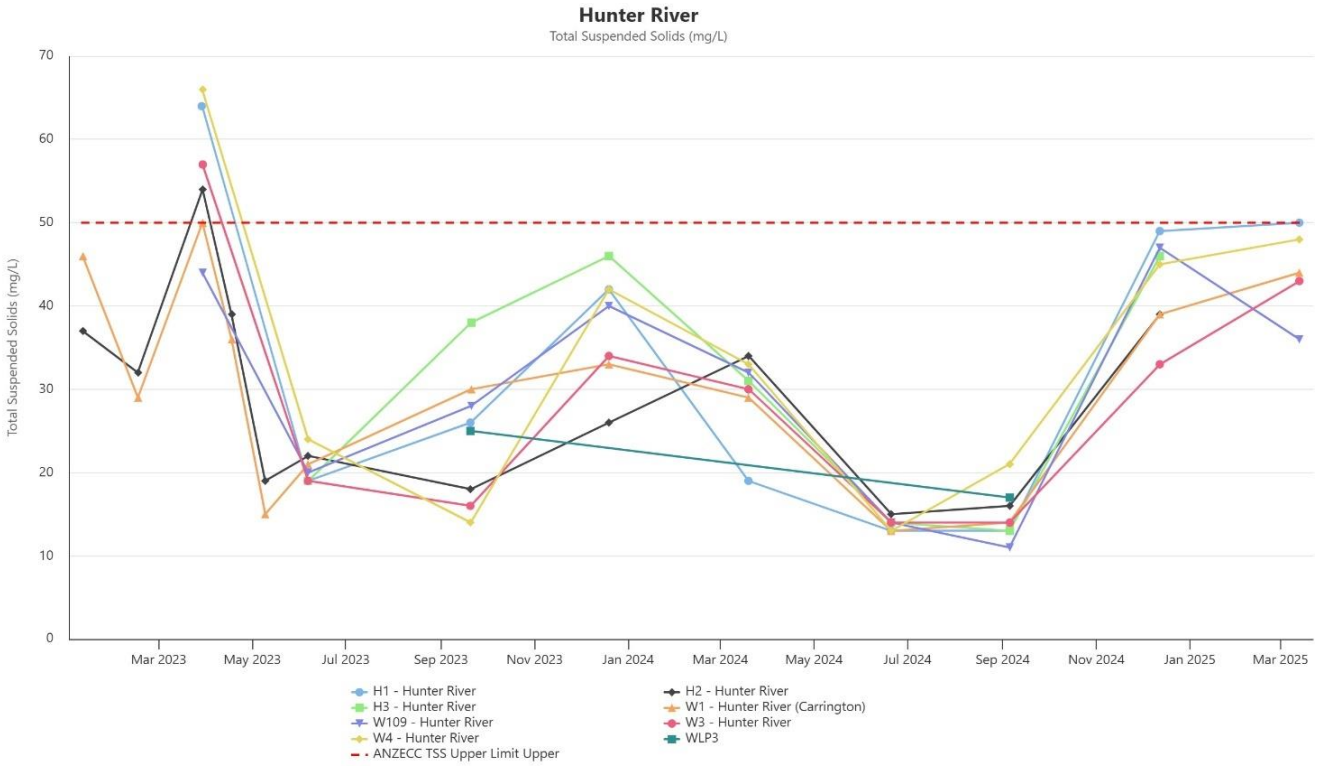

Figure 22 Hunter River Field TSS - March 2025

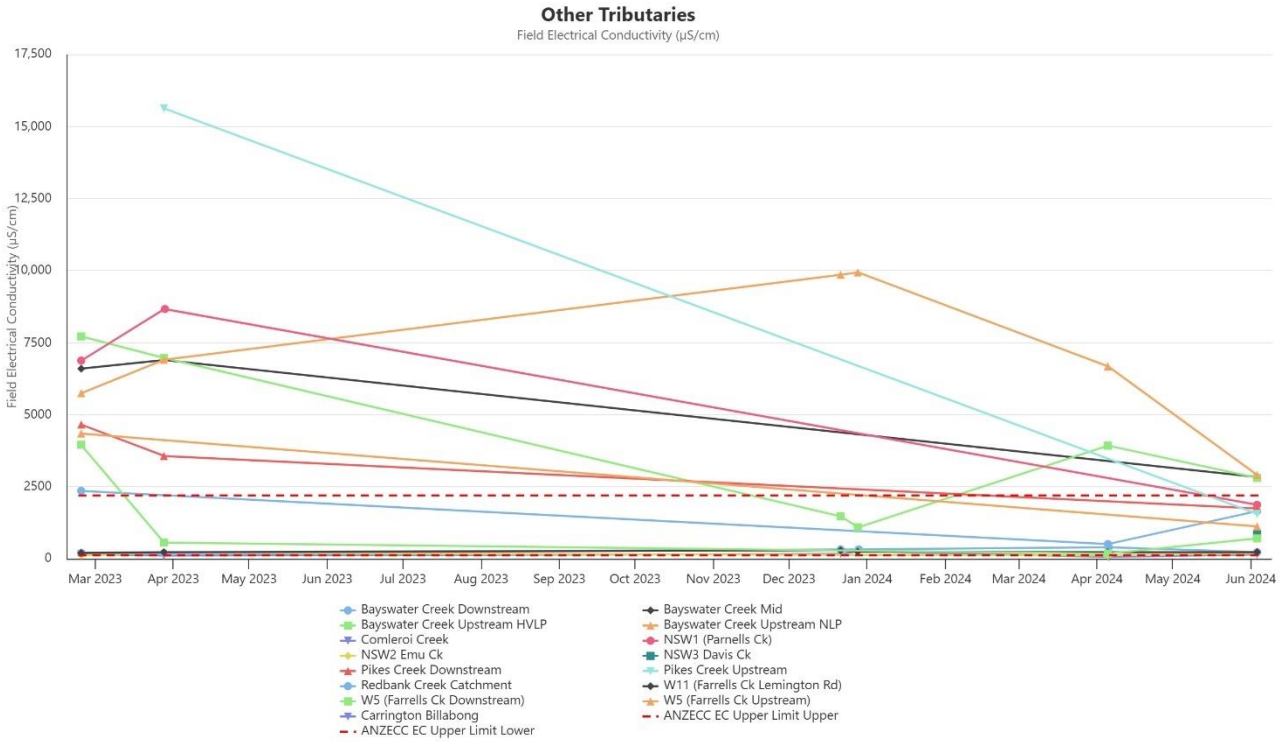

Figure 23 Other Tributaries Electrical Conductivity - March 2025

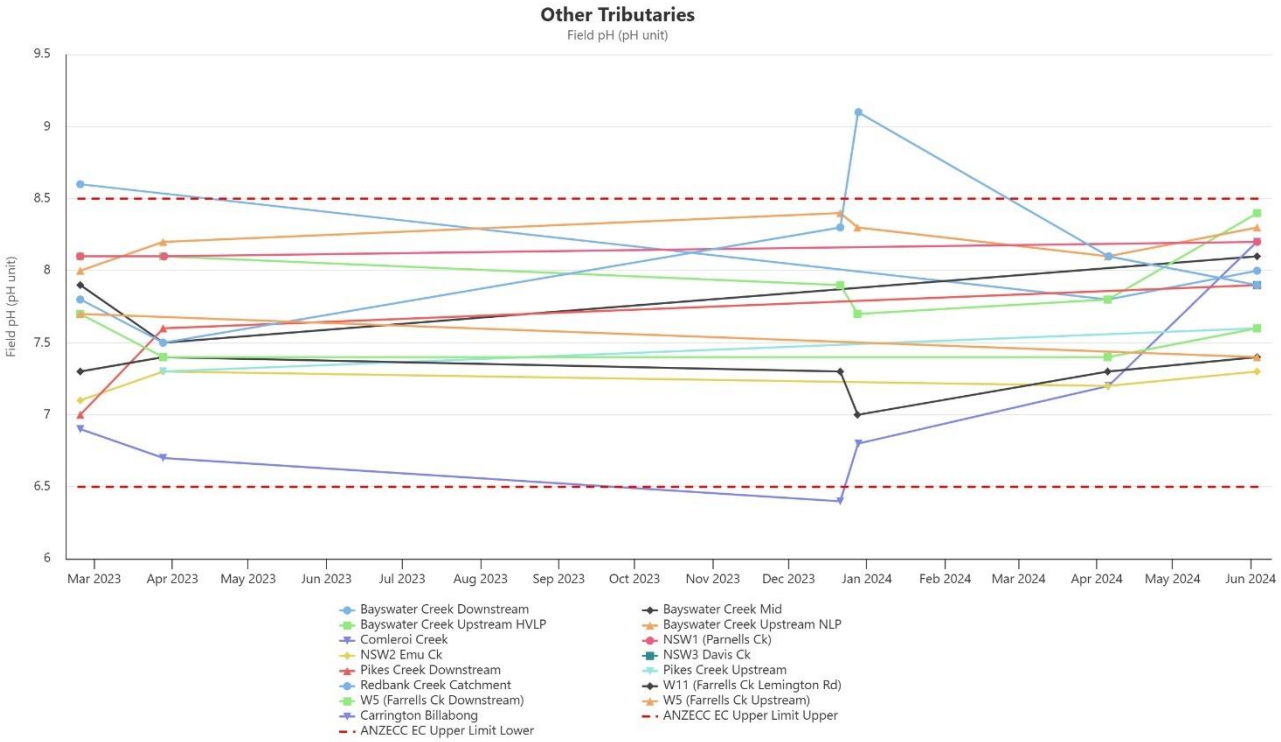

Figure 24 Other Tributaries Field pH - March 2025

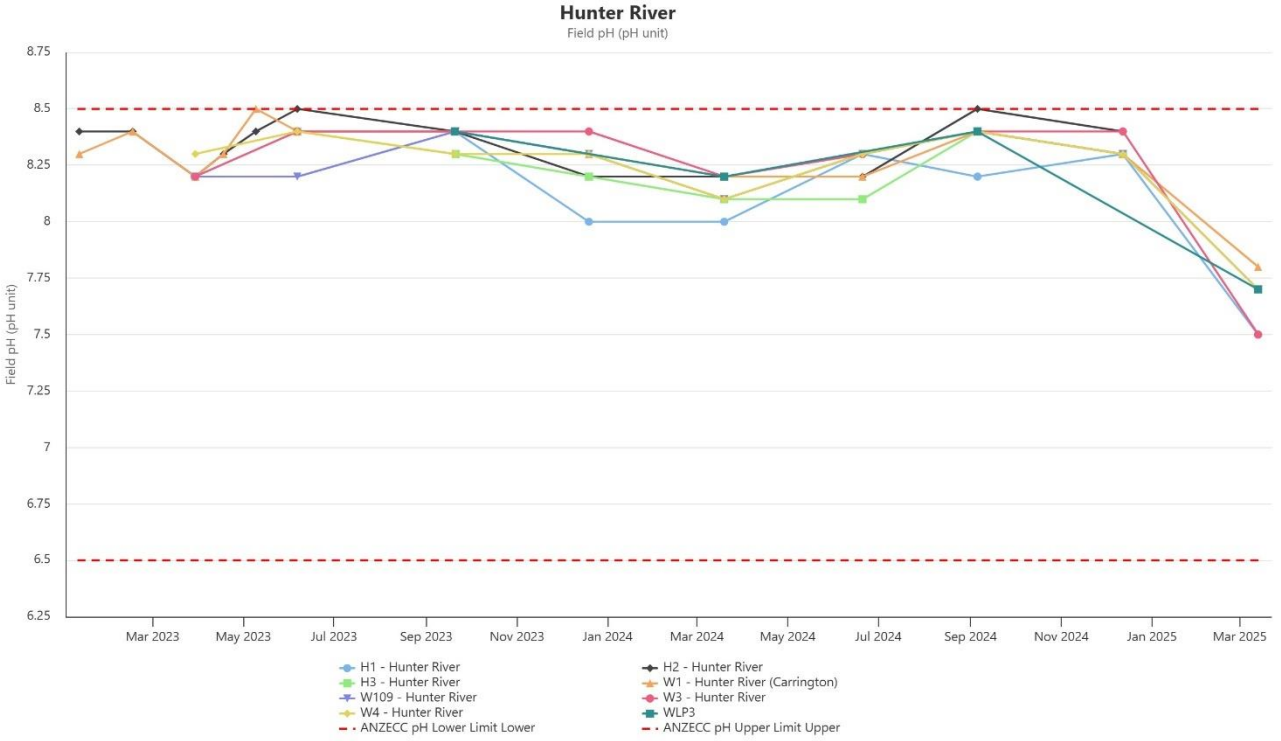

Figure 25 Other Tributaries Total Suspended Solids - March 2025

3.1.1 | SURFACE WATER TRIGGER TRACKING

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.

Surface water trigger tracking results are summarised in Table 2.

Table 2 - Surface Water Trigger Tracking - Q1 2025

Site	Date	Trigger Limit Breached	Response Action
W2 - Wollombi Brook	11/03/2024	Total Suspended Solids (mg/L)	No investigation required - first trigger exceedance.
W2 - Wollombi Brook	19/03/2024	Field Electrical Conductivity (ug/cm)	No investigation required - second trigger exceedance
Bayswater Creek Upstream HPLV	3/06/2024	Total Suspended Solids (mg/L)	Investigation required - exceedance of TSS trigger value. Large rain event 2 days prior to exceedance (39.4mm at Cheshunt and 45.2mm at HVO Corp on 01/06/2024) and significant rainfall day prior (9mm at Cheshunt and 14.4mm at HVO Corp on 02/06/2024) is considered to have resulted in the elevated reading due to transportation of particulates in rainwater runoff to Bayswater Creek. The result on 3/6/24 is consistent with the most recent previous elevated TSS result (50 mg/L, 21/12/2023) following significant rain event (30.4mm at Cheshunt and 39mm at HVO Corp between 19/12/2023 and 20/12/2023).
Bayswater Creek Mid	3/06/2024	Total Suspended Solids (mg/L)	Investigation required - exceedance of TSS trigger value. Large rain event 2 days prior to exceedance (39.4mm at Cheshunt and 45.2mm at HVO Corp on 01/06/2024) and significant rainfall day prior (9mm at Cheshunt and 14.4mm at HVO Corp on 02/06/2024) is considered to have resulted in the elevated reading due to transportation of particulates in rainwater runoff to Bayswater Creek. The result on 3/6/24 is consistent with the upstream result on the

Site	Date	Trigger Limit Breached	Response Action
			same day (77 mg/L TSS at Bayswater Creek Upstream HVLP) and the most recent previous elevated TSS result (50 mg/L, 21/12/2023) following significant rain event (30.4mm at Cheshunt and 39mm at HVO Corp between 19/12/2023 and 20/12/2023).
Comleroi Creek	3/06/2024	Field pH (pH unit)	No investigation required - first trigger exceedance.
H3 - Hunter River	5/09/2024	Field Electrical Conductivity (ug/cm)	No investigation required - first trigger exceedance.
H3 - Hunter River	12/12/2024	Field Electrical Conductivity (ug/cm)	No investigation required - second trigger exceedance.
H2 - Hunter River	12/12/2024	Field Electrical Conductivity (ug/cm)	No investigation required - first trigger exceedance.
H1 - Hunter River	13/03/2025	Field pH (pH unit)	No investigation required - first trigger exceedance.
W4 - Hunter Rover	13/03/2025	Field pH (pH unit)	No investigation required - first trigger exceedance.
W1 - Hunter River (Carrington)	13/03/2025	Field pH (pH unit)	No investigation required - first trigger exceedance.
W109 - Hunter River	13/03/2025	Field pH (pH unit)	No investigation required - first trigger exceedance.
W3 - Hunter River	13/03/2025	Field pH (pH unit)	No investigation required - first trigger exceedance.
H1 - Hunter River	13/03/2025	Total Suspended Solids (mg/L)	Investigation required - trigger exceedance. No rainfall was received on the day of sampling however, in the 9 days leading up to the sample 24.4 mm of rainfall was recorded at the Cheshunt Met station. Elevated TSS result is a consequence of sediment entrainment in broader catchment runoff due to recent rainfall.
W11 (Farrells Ck Lemington Rd	31/03/2025	Field pH (pH unit)	No investigation required - first trigger exceedance.

Site	Date	Trigger Limit Breached	Response Action
Pikes Creek Upstream	31/03/2025	Field pH (pH unit)	No investigation required - first trigger exceedance.
NSW2 Emu Ck	31/03/2025	Total Suspended Solids (mg/L)	Investigation required - trigger exceedance. No rainfall was received on the day of sampling, however, two days prior (29/03/2025) a daily rainfall of 52.8mm at the HVO Corporate Met station. The elevated TSS result is likely a consequence of sediment entrainment in broader catchment runoff due to recent rainfall.

3.2 | SITE WATER USE

HVO is permitted to extract water from the Hunter River under water allocation licenses issued by Water NSW.

HVO extracted 3.8ML water from the Hunter River during the reporting period.

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.

Under the HRSTS, HVO discharged approximately 0.29ML on the 30 April from Dam 15S (Lake James). No discharges were undertaken from Dam 9W or 11N during this reporting period.

3.4 | GROUNDWATER MONITORING RESULTS

Groundwater monitoring is undertaken on a quarterly basis in accordance with the HVO Water Management Plan and Groundwater Monitoring Programme. The location of groundwater monitoring points across HVO are show in Figure 26.

Groundwater monitoring results are provided in Figures 27 to 77.

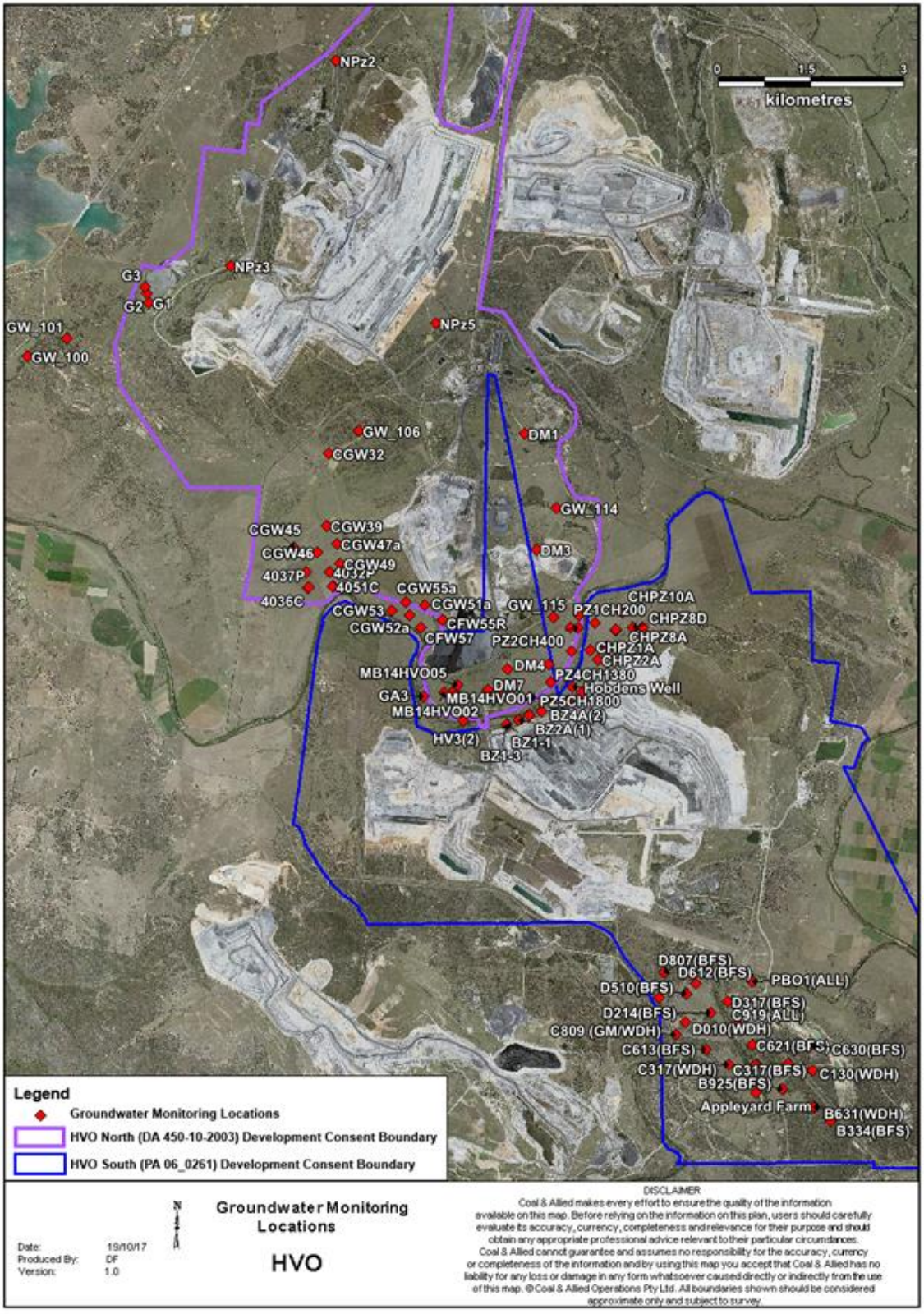

Figure 26: Groundwater Monitoring Locations at HVO

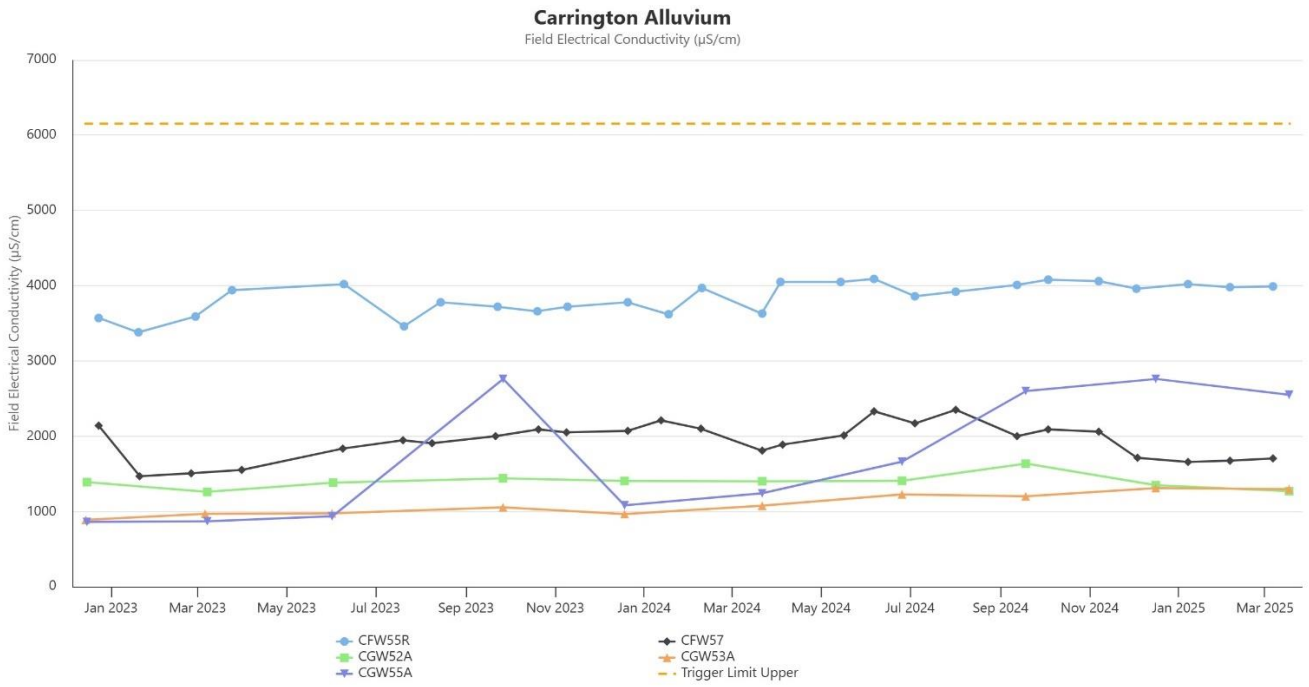

Figure 27 - Carrington Alluvium Electrical Conductivity Trend - Q1 2025

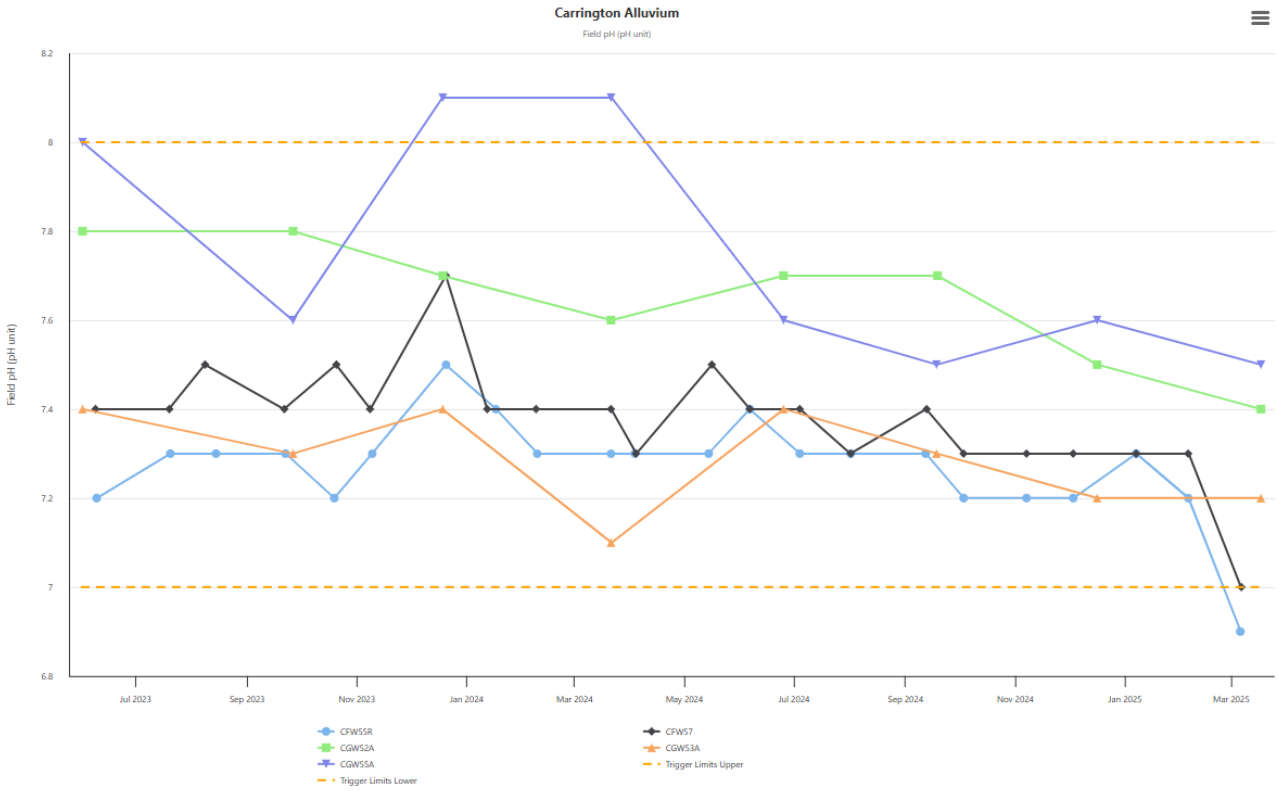

Figure 28 Carrington Alluvium Field pH Trend - Q1 2025

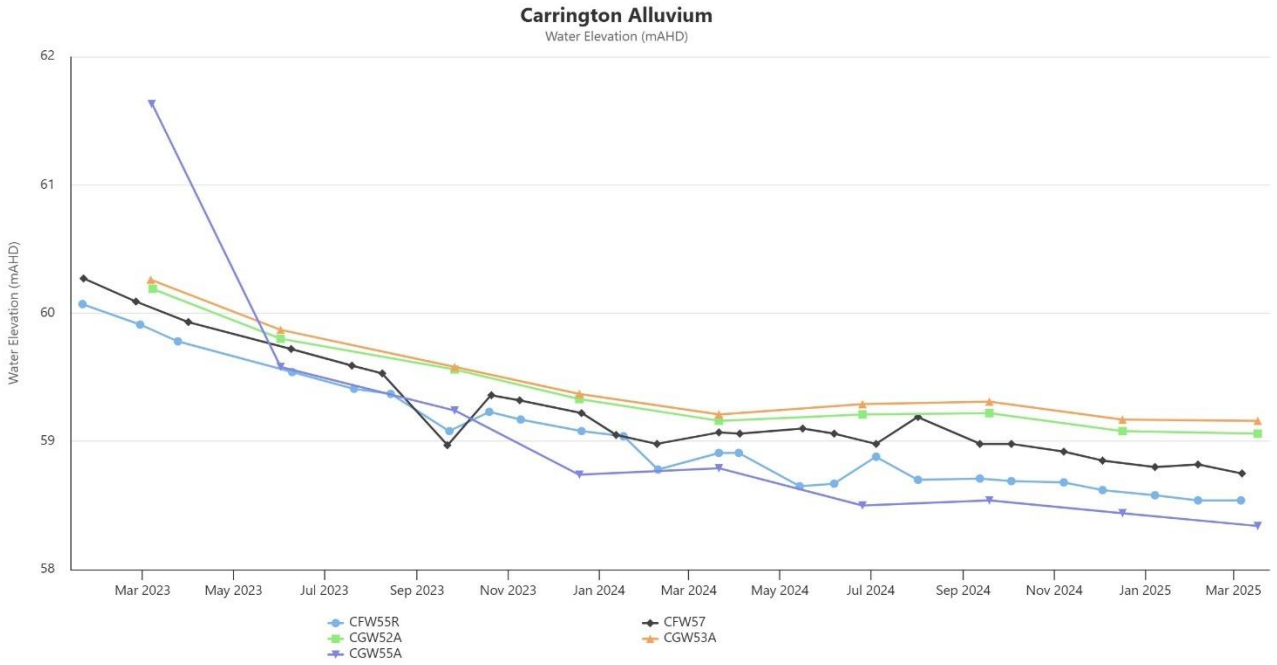

Figure 29 - Carrington Alluvium Water Elevation Trend - Q1 2025

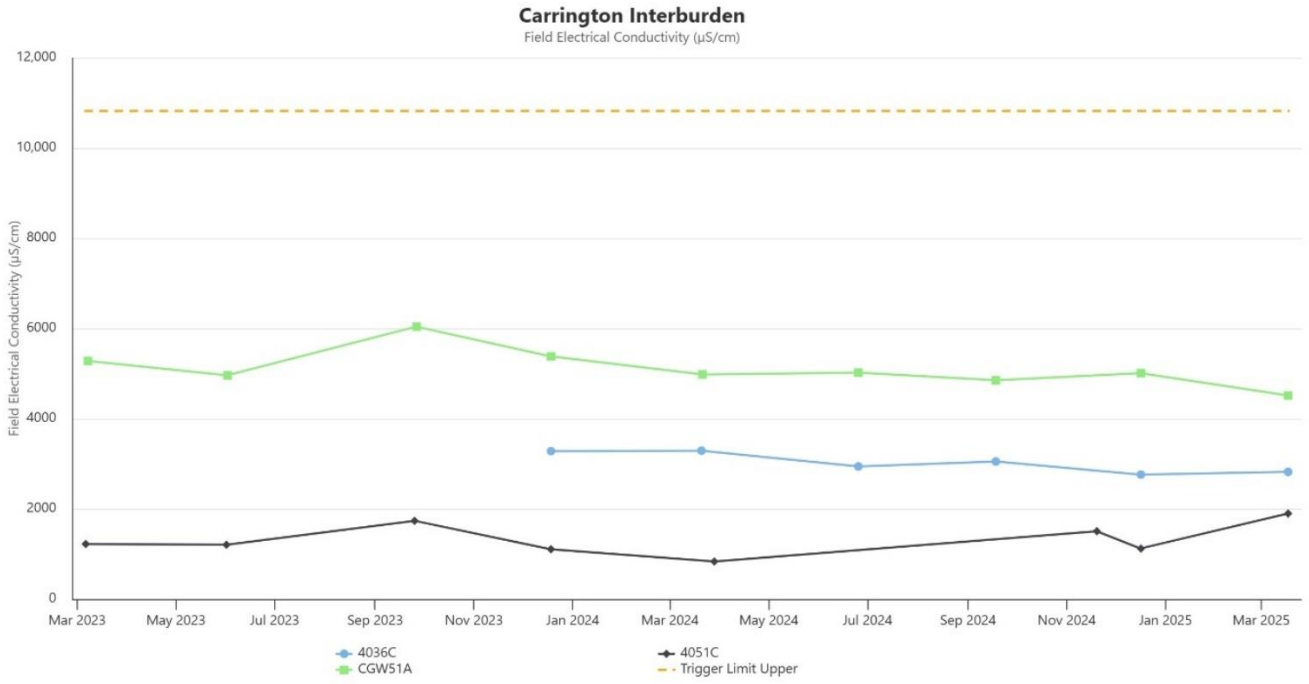

Figure 30 - Carrington Interburden Electrical Conductivity Trend - Q1 2025

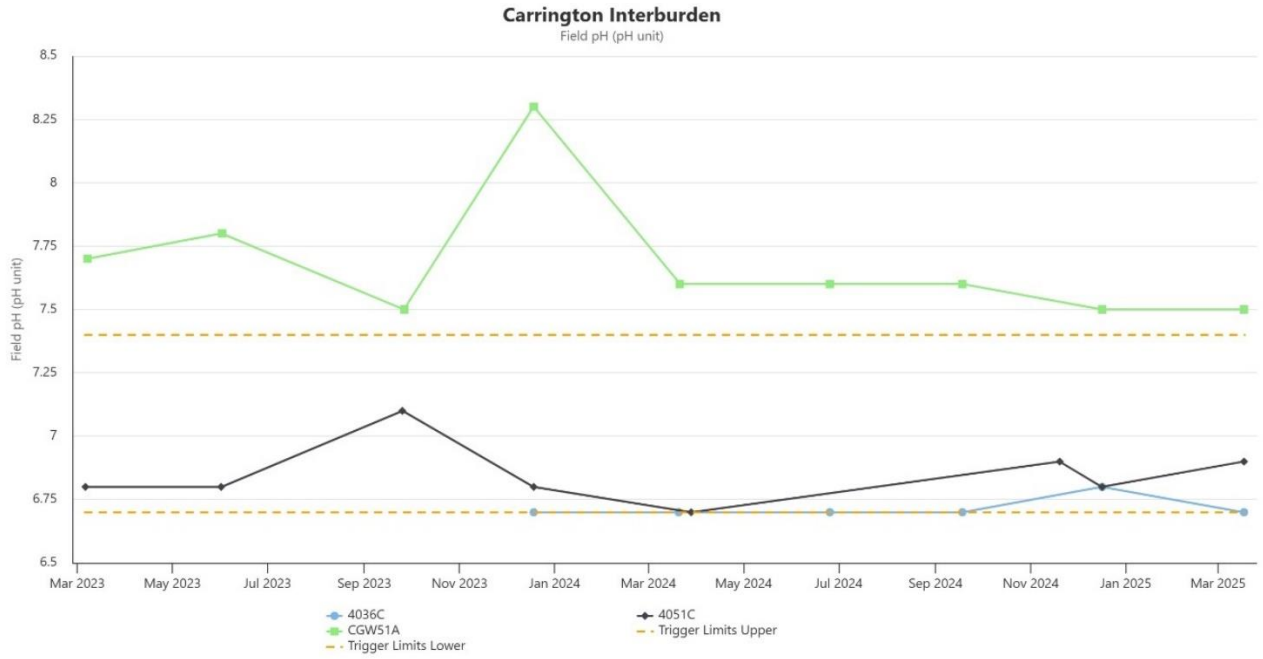

Figure 31 - Carrington Interburden Field pH Trend - Q1 2025

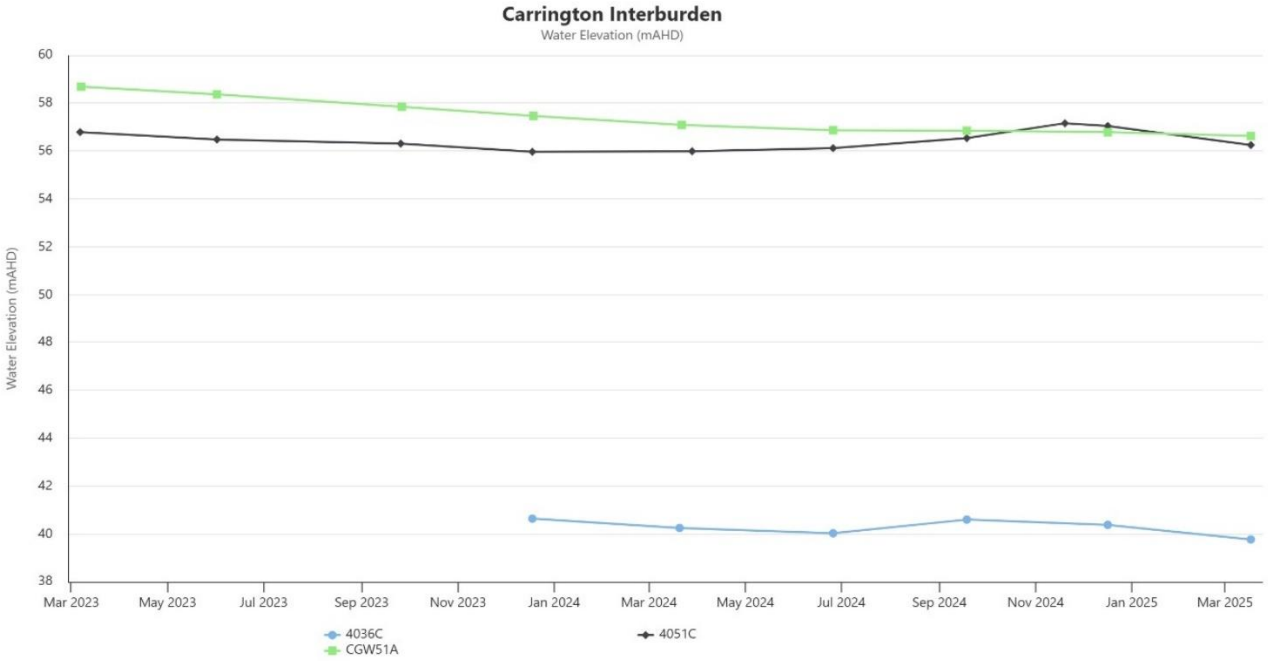

Figure 32 - Carrington Interburden Water Elevation Trend - Q1 2025

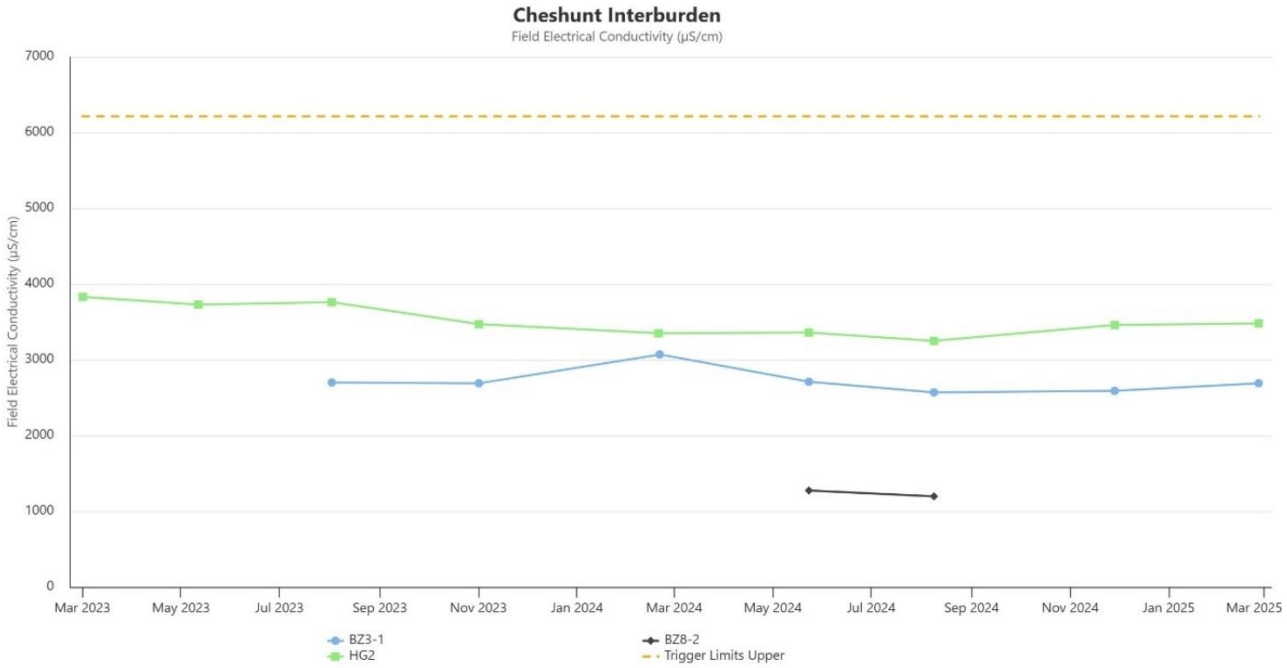

Figure 33 - Cheshunt Interburden Electrical Conductivity Trend - Q1 2025

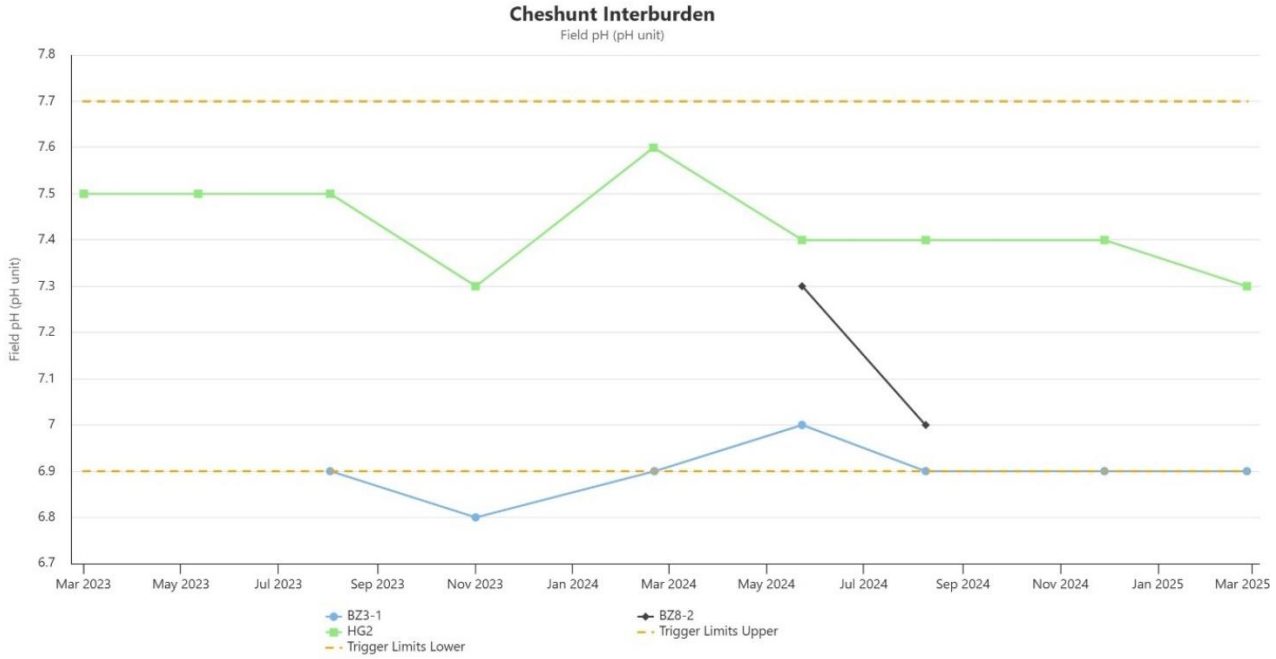

Figure 34 - Cheshunt Interburden Field pH Trend - Q1 2025

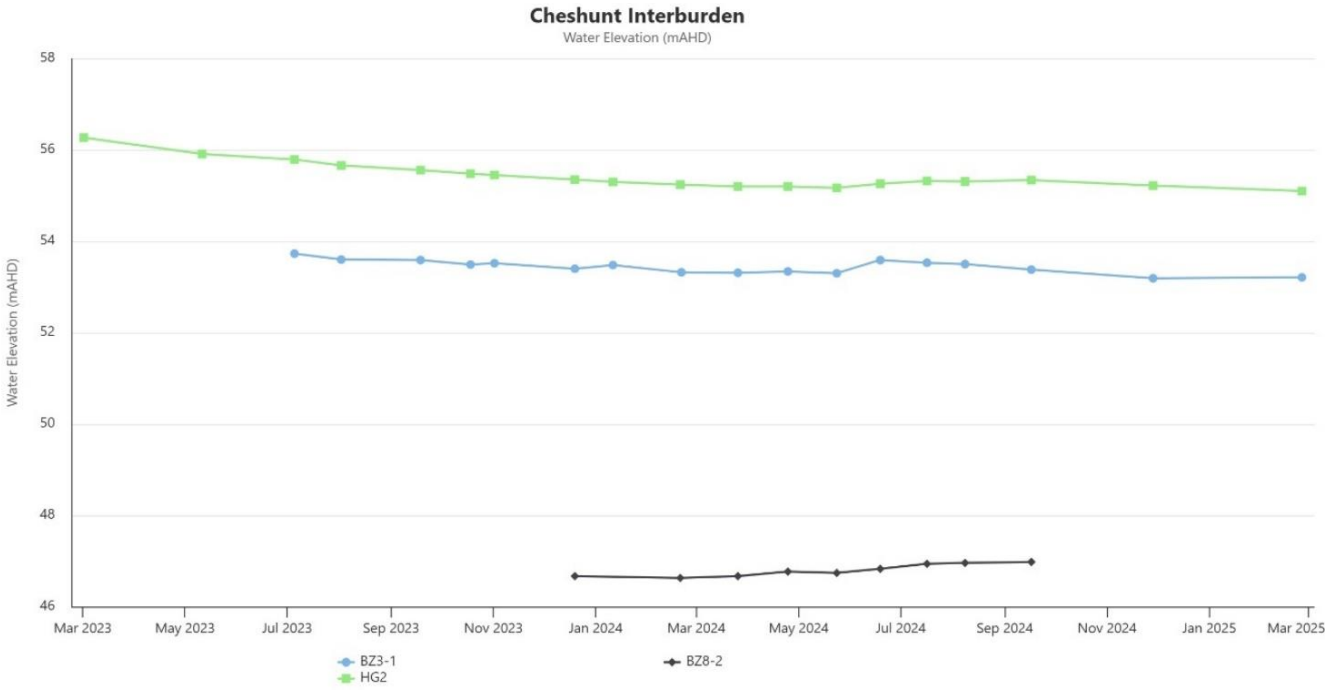

Figure 35 - Cheshunt Interburden Water Elevation Trend - Q1 2025

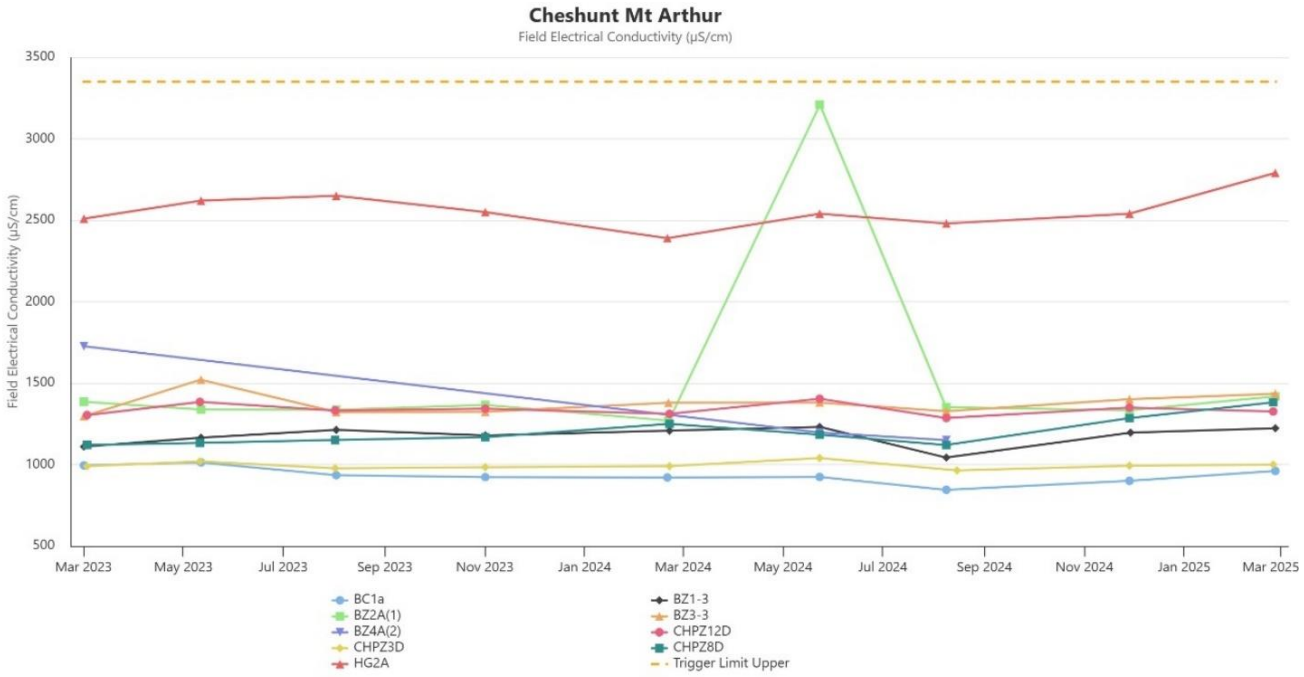

Figure 36 – Cheshunt Mt Arthur Electrical Conductivity Trend – Q1 2025

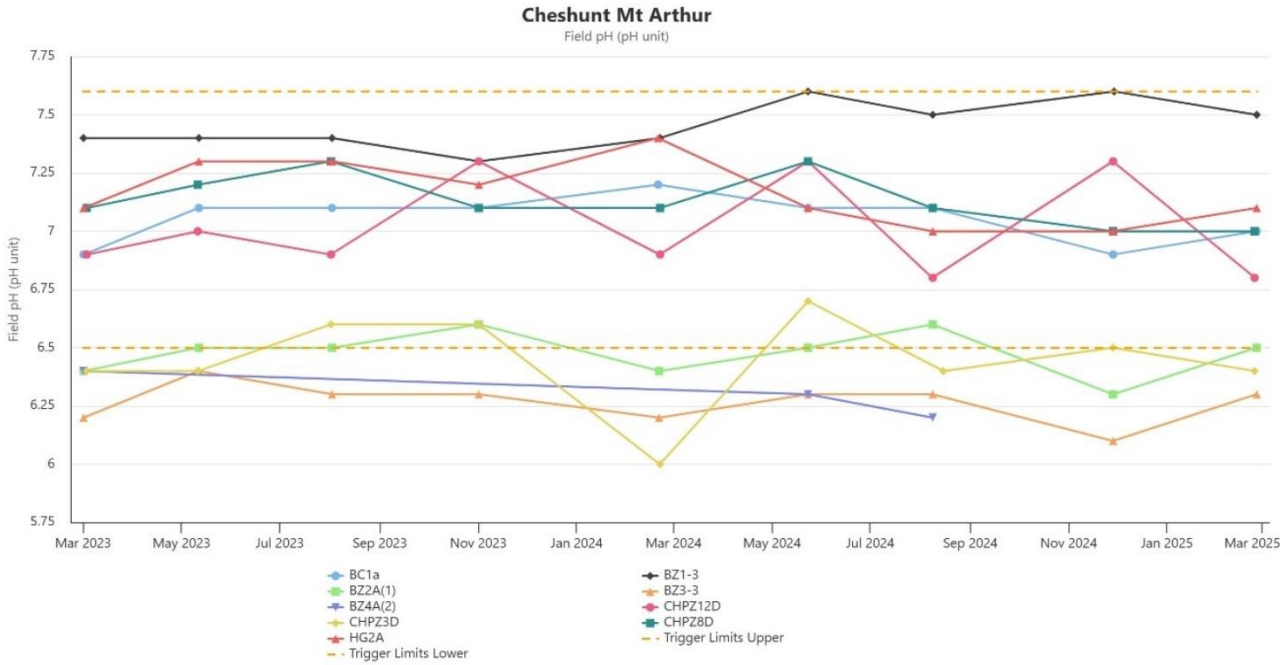

Figure - 37 Cheshunt Mt Arthur Field pH Trend - Q1 2025

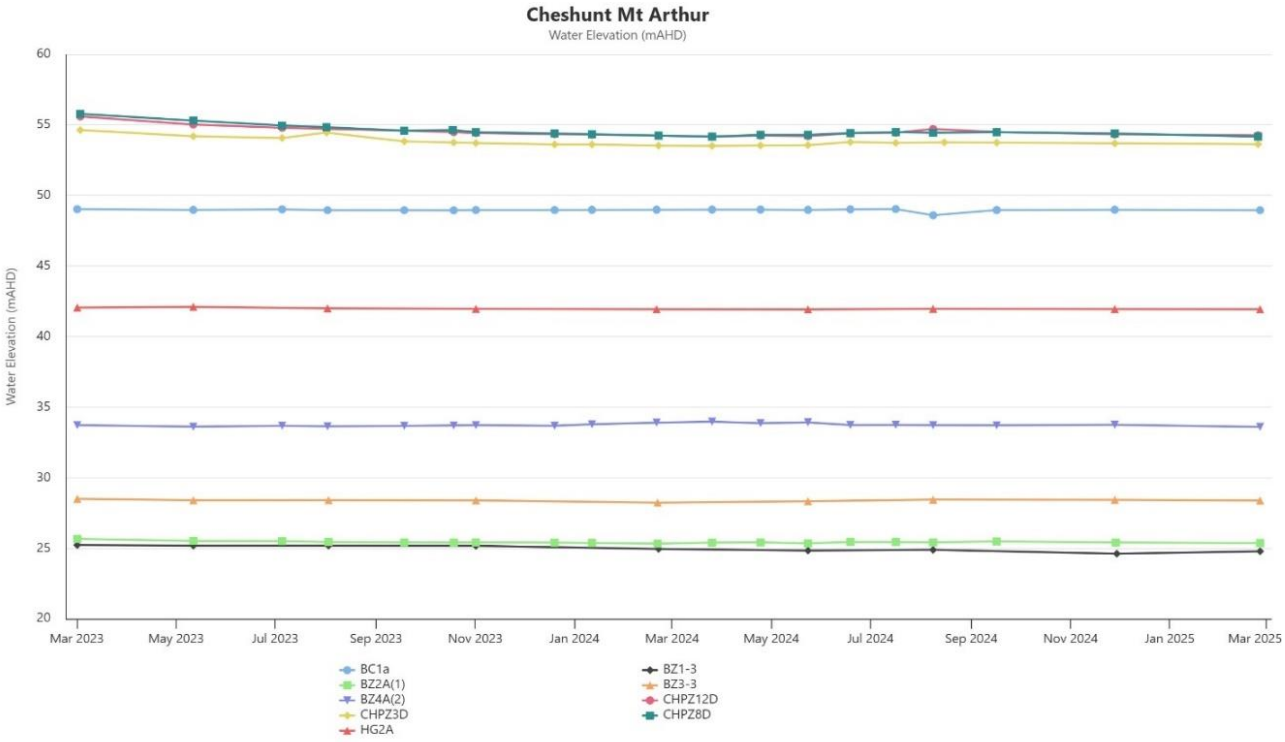

Figure 38 - Cheshunt Mt Arthur Water Elevation Trend - Q1 2025

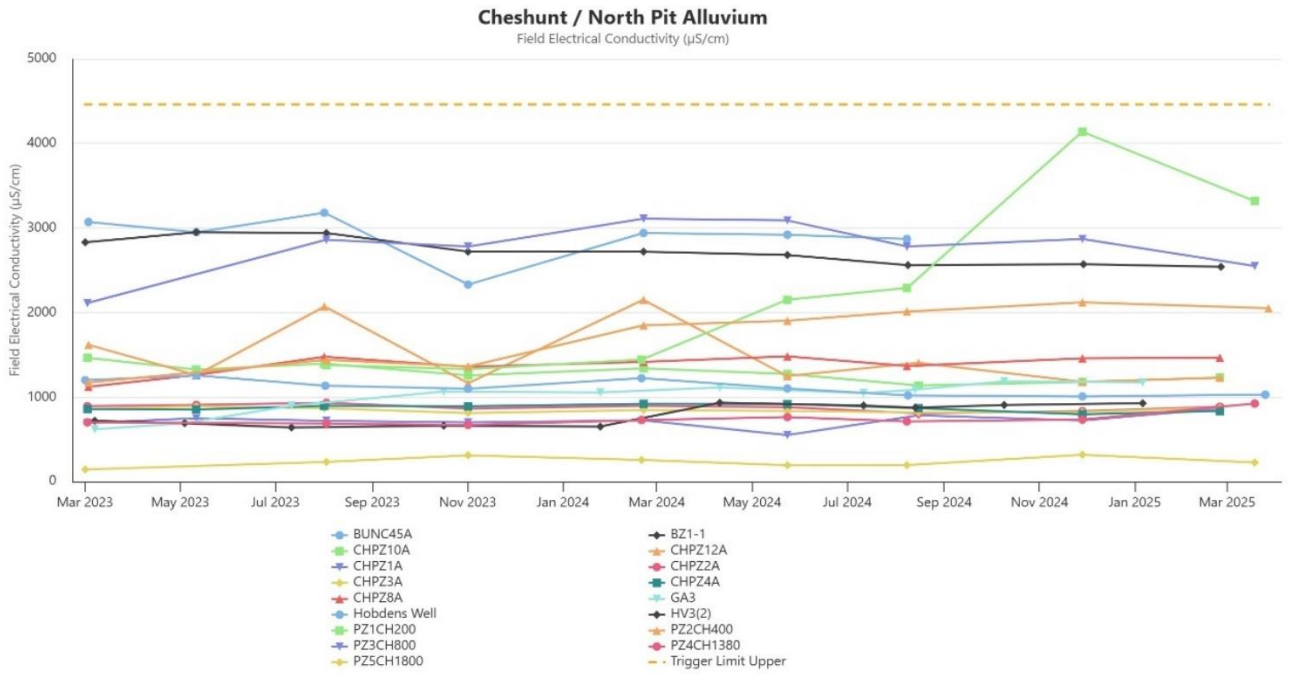

Figure 39 - Cheshunt North Pit Alluvium Electrical Conductivity Trend – Q1 2025

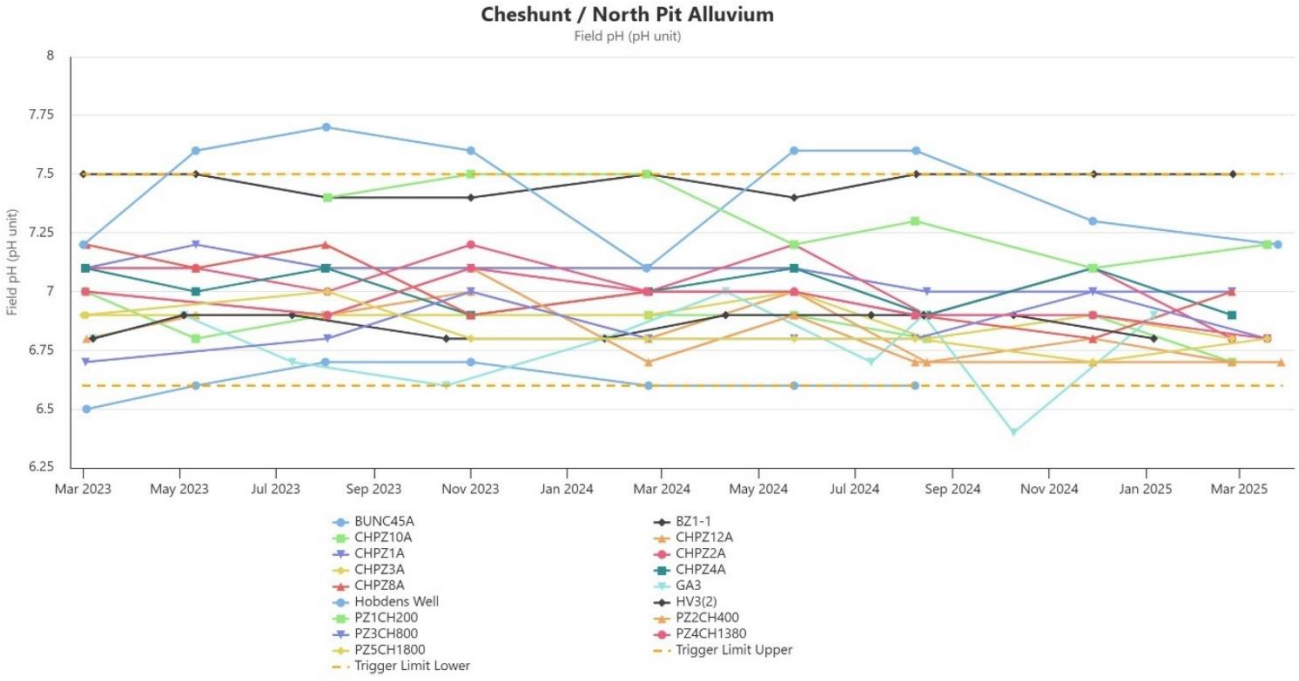

Figure 40 - Cheshunt North Alluvium Field pH Trend – Q1 2025

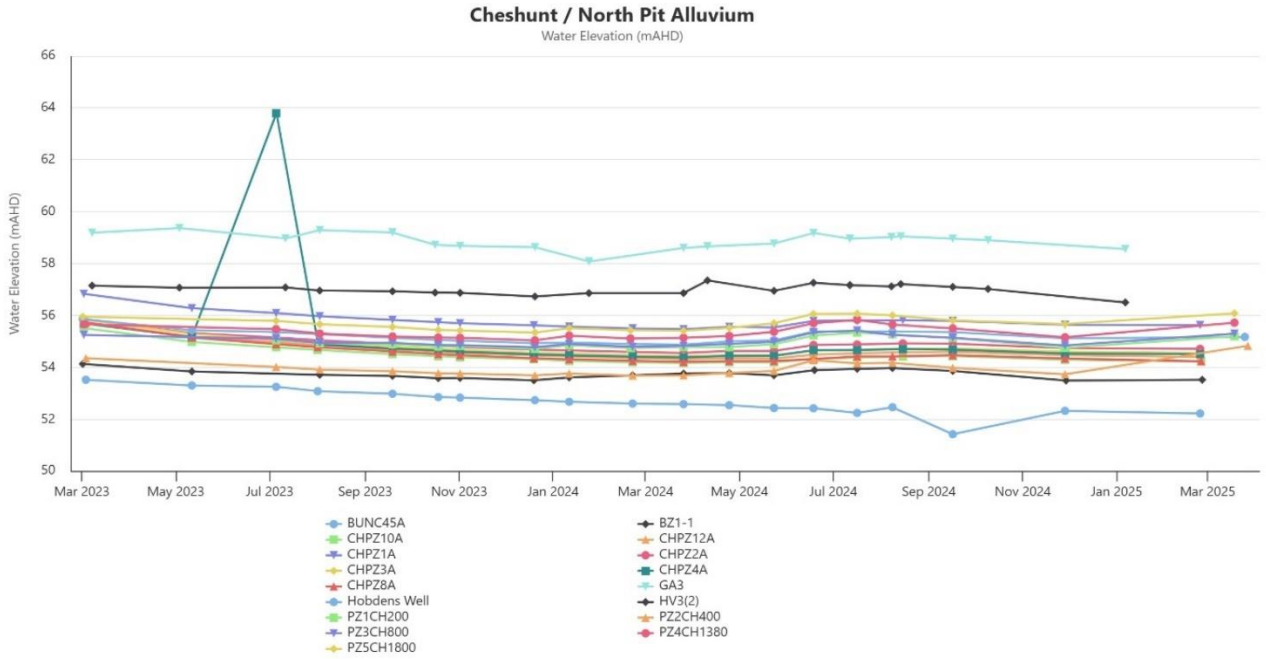

Figure 41 - Cheshunt North Pit Alluvium Water Elevation Trend - Q1 2025

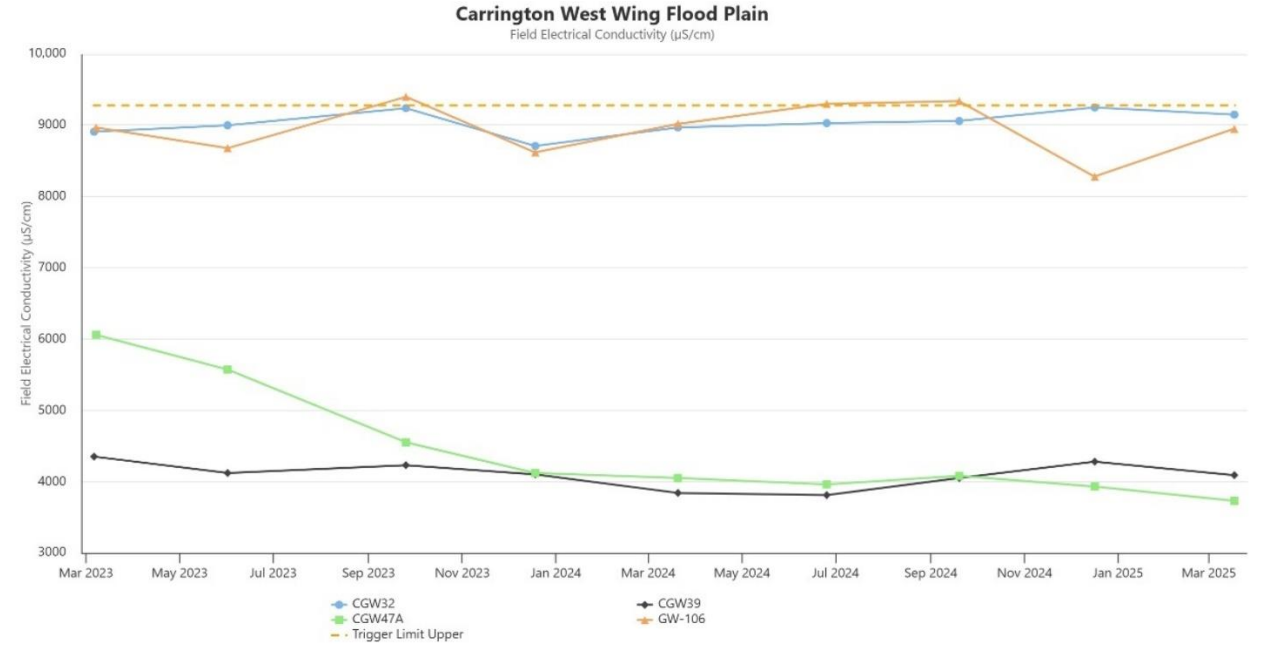

Figure 42 - Carrington West Wing Flood Plain Electrical Conductivity Trend - Q1 2025

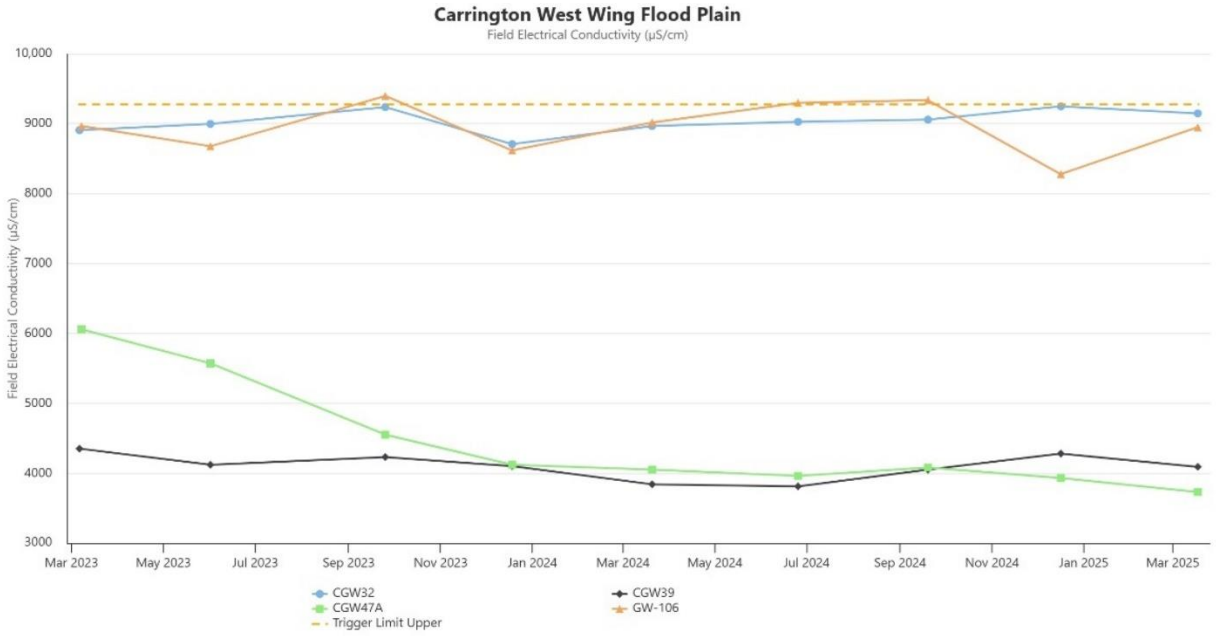

Figure 43 - Carrington West Wing Flood Plain pH Trend - Q1 2025

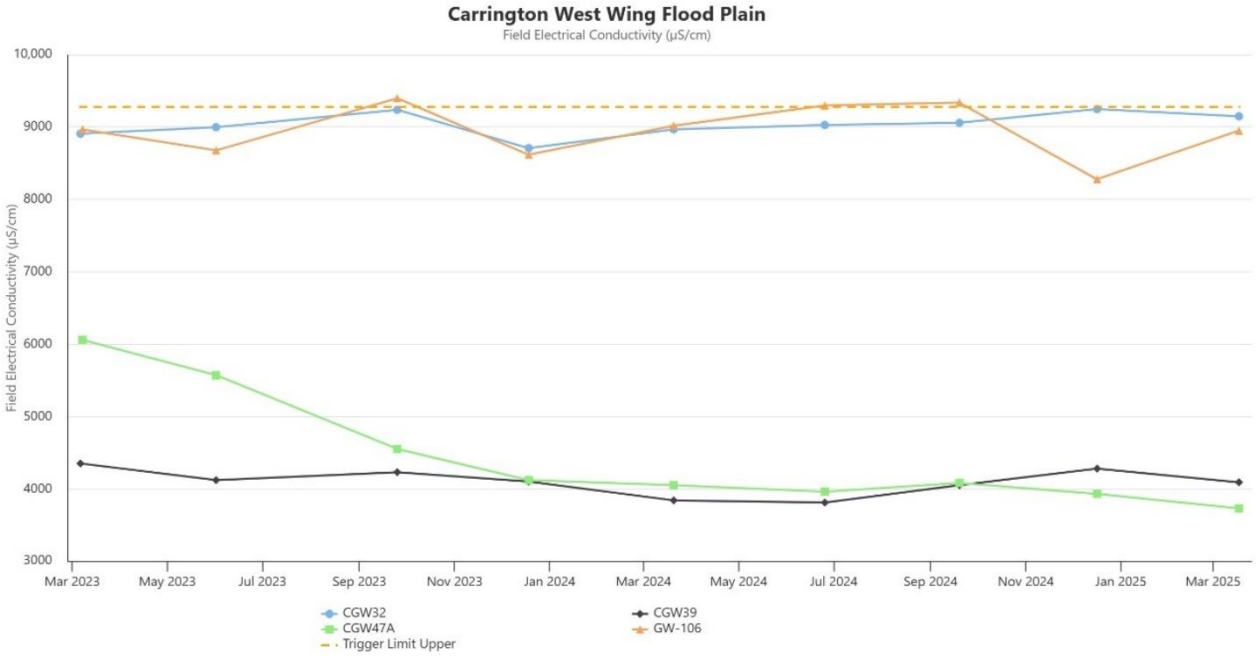

Figure 44 - Carrington West Wing Flood Plain Water Elevation Trend - Q1 2025

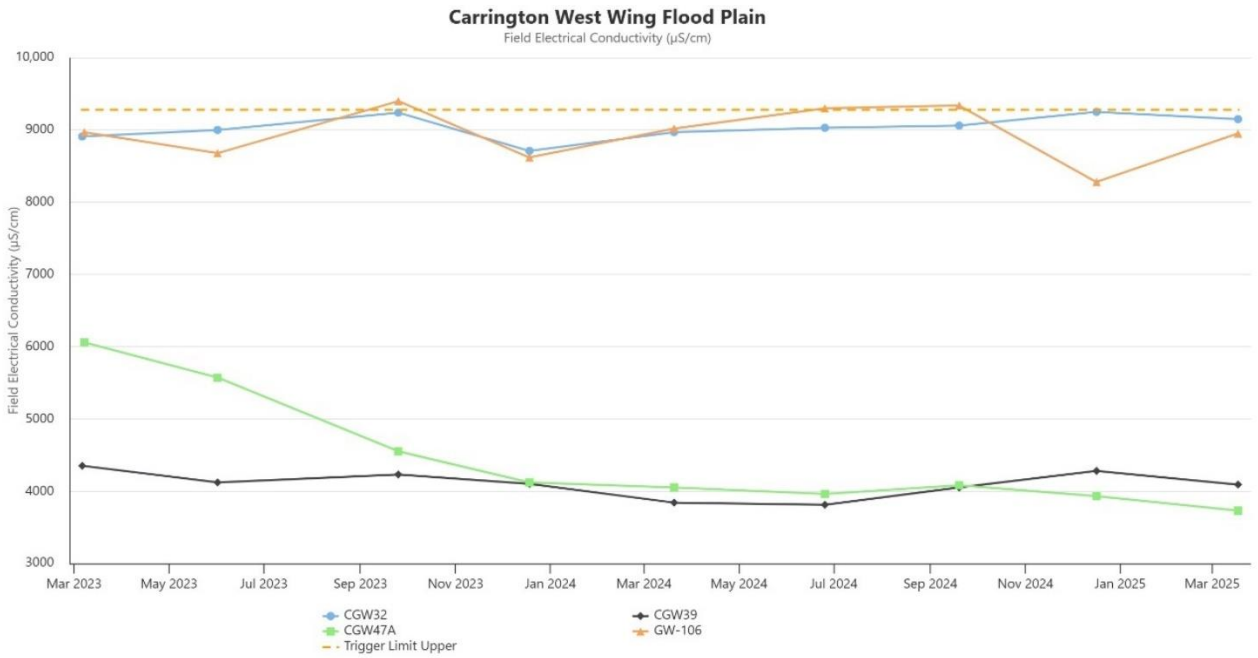

Figure 45 - Lemington South Alluvium Electrical Conductivity Trend - Q1 2025

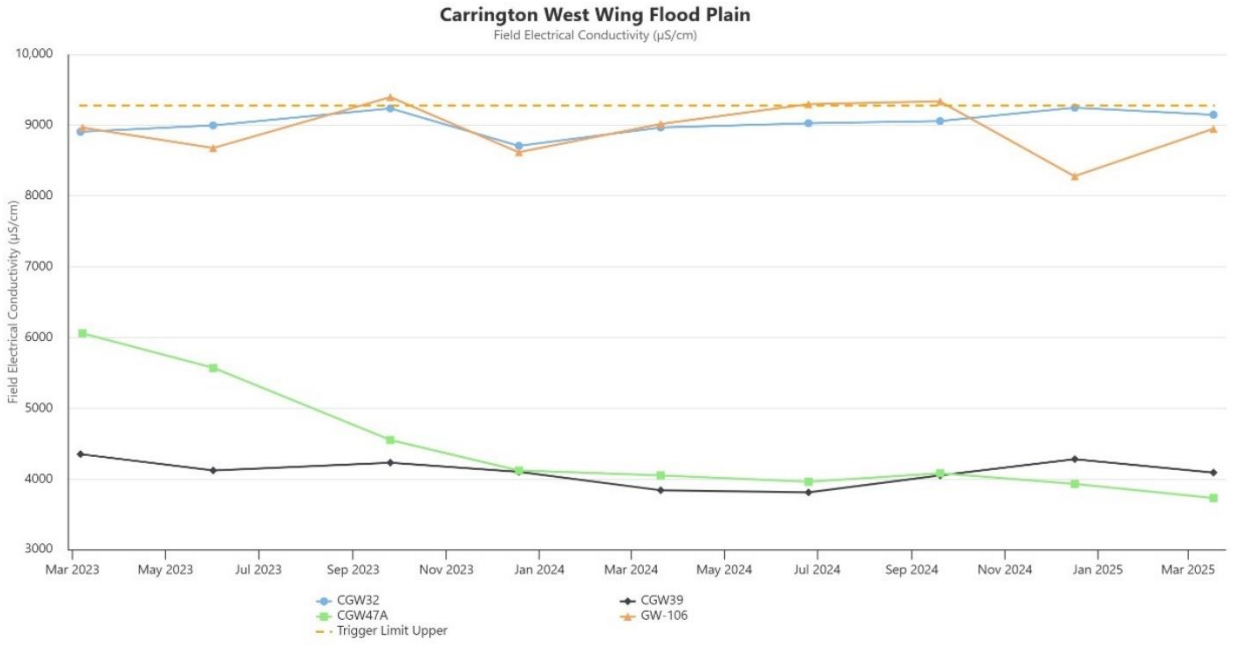

Figure 46 - Lemington South Alluvium Field pH Trend - Q1 2025

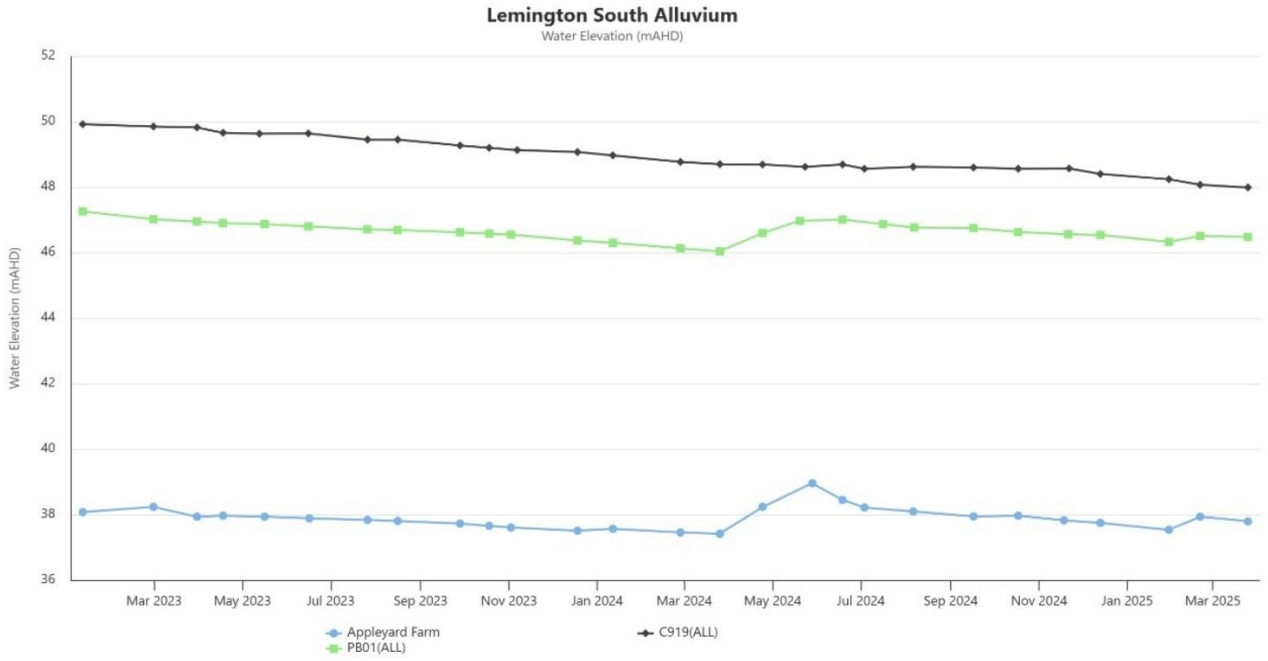

Figure 47 - Lemington South Alluvium Water Elevation Trend - Q1 2025

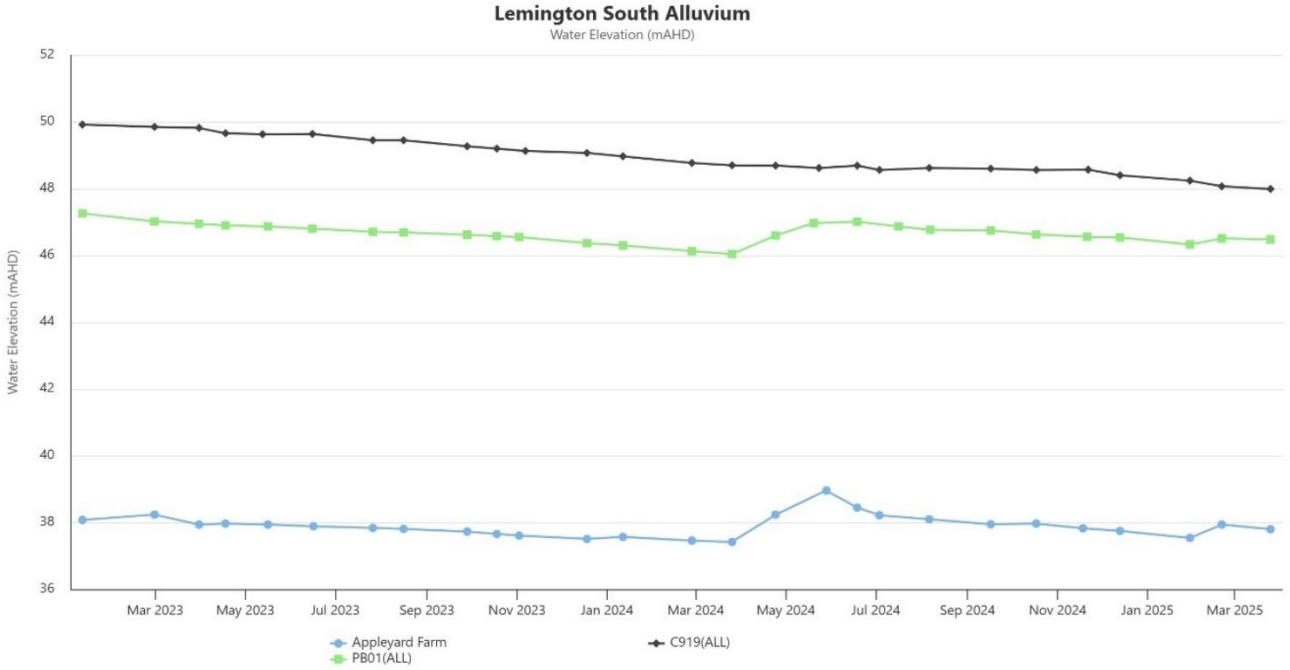

Figure 48 - Lemington South Arrowfield Electrical Conductivity Trend - Q1 2025

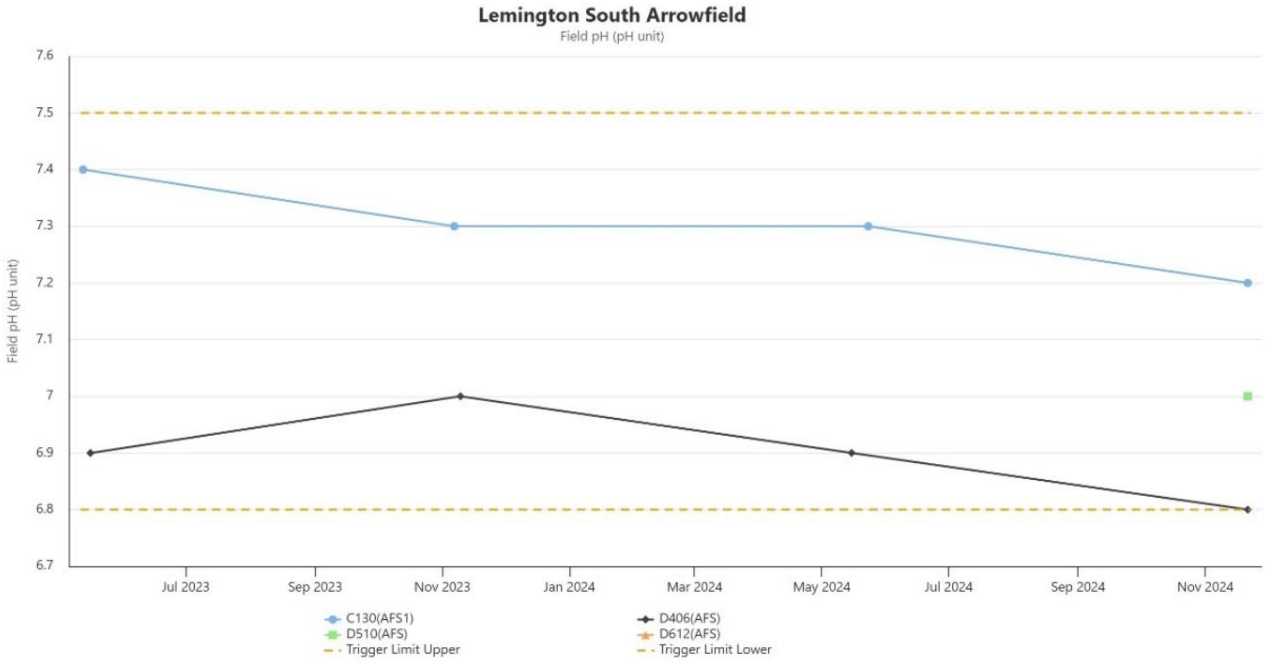

Figure 49 - Lemington South Arrowfield Field pH Trend - Q1 2025

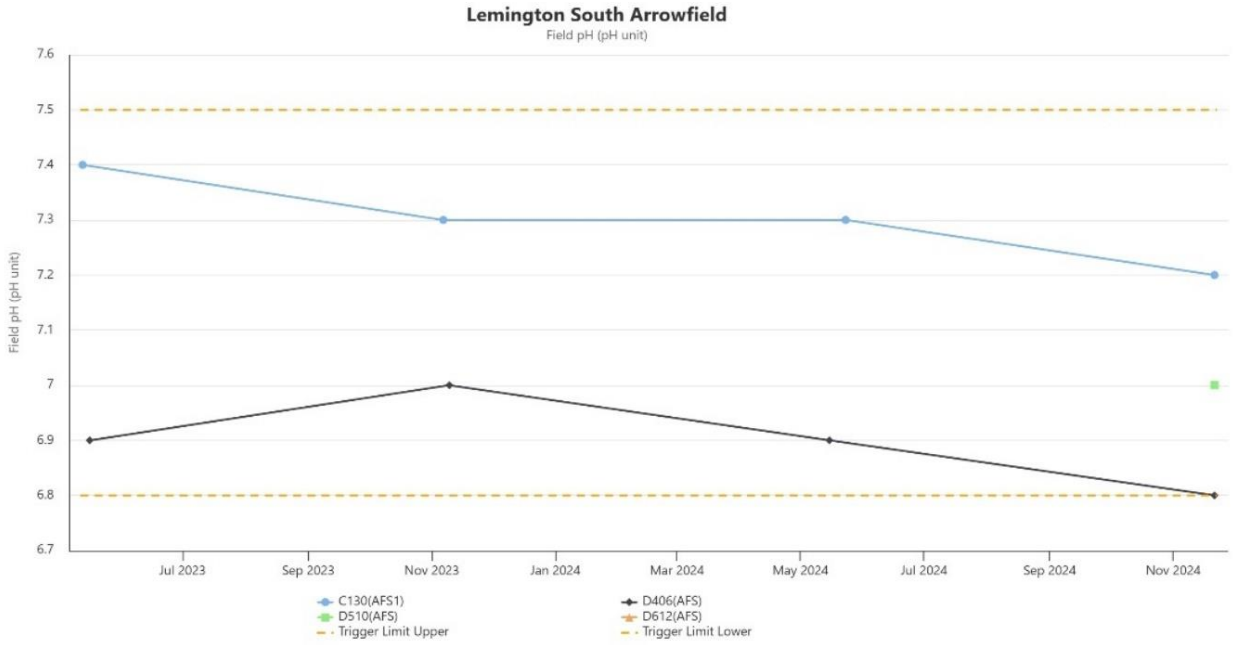

Figure 50 – Lemington South Arrowfield Water Elevation Trend – Q1 2025

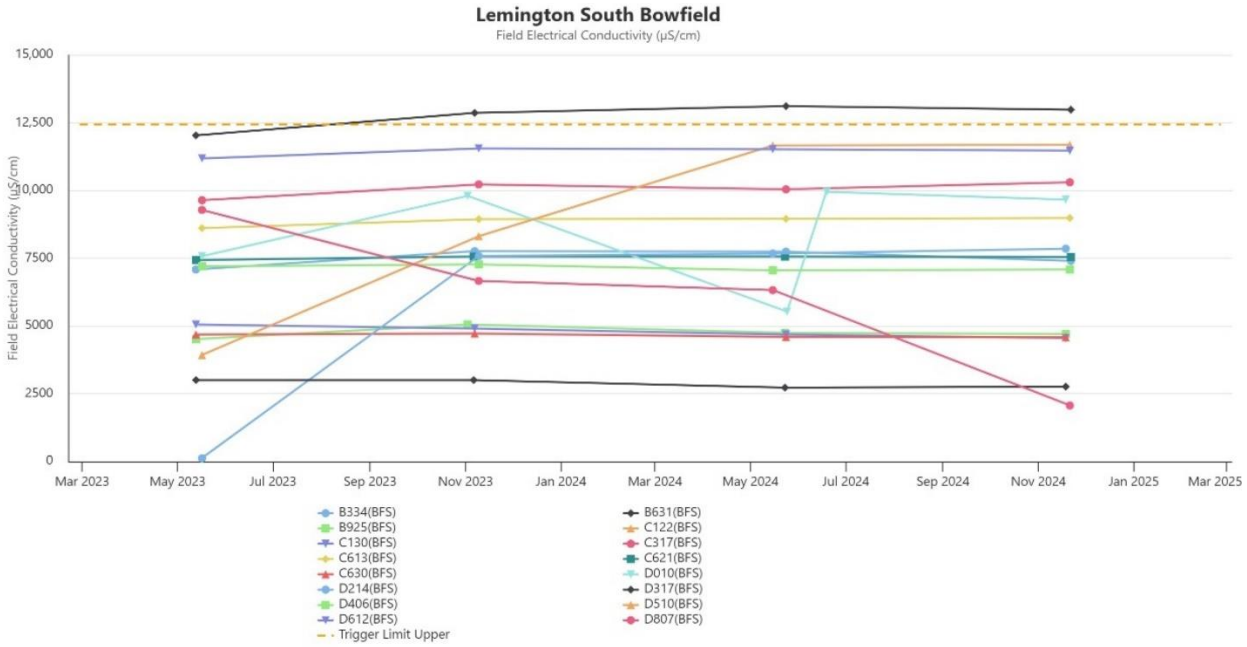

Figure 51 - Lemington South Bowfield Electrical Conductivity Trend - Q1 2025

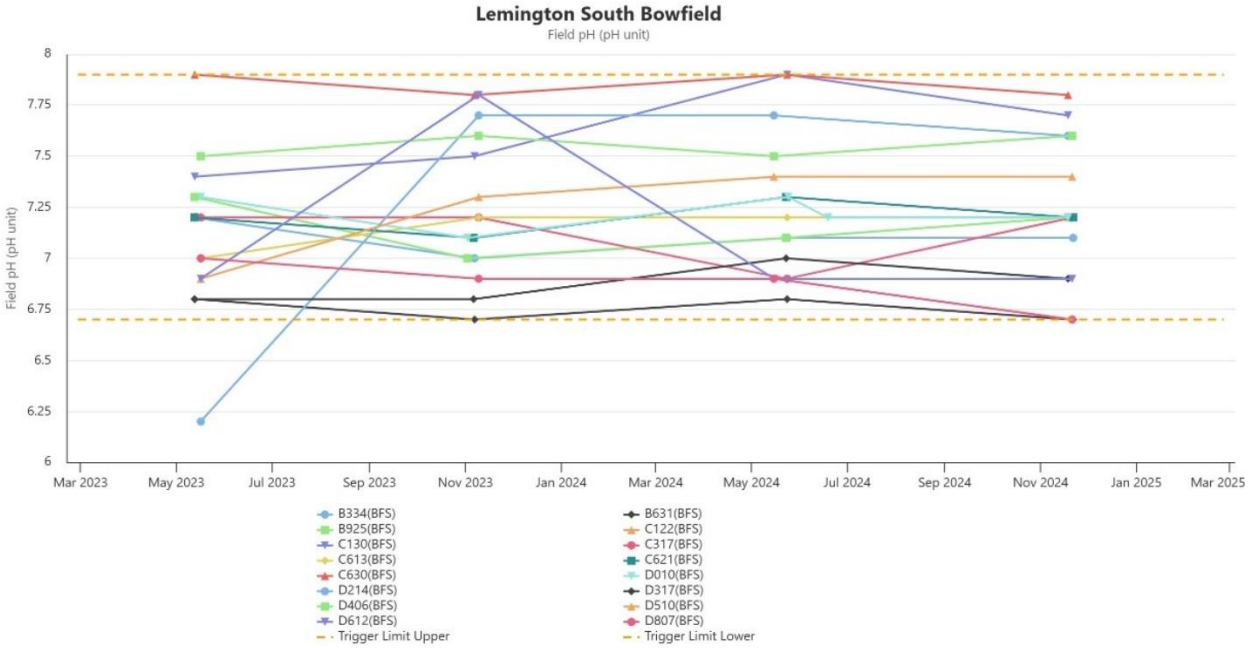

Figure 52 - Lemington South Bowfield pH Trend - Q1 2025

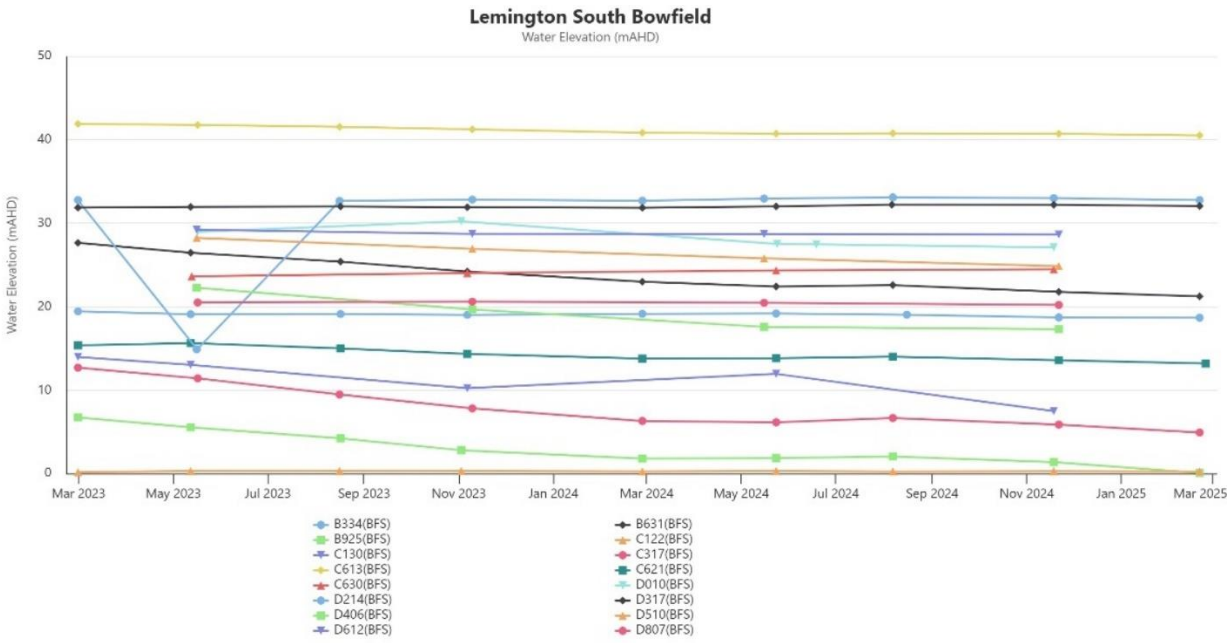

Figure 53 - Lemington South Bowfield Water Elevation Trend - Q1 2025

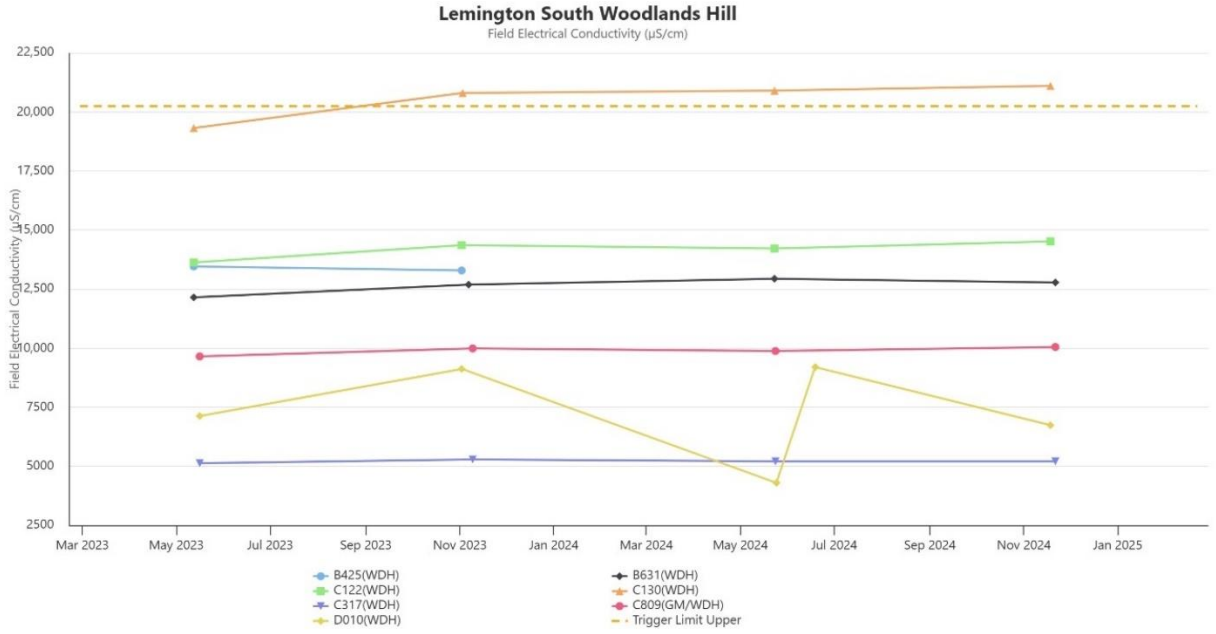

Figure 54 - Lemington South Woodlands Hill Electrical Conductivity Trend - Q1 2025

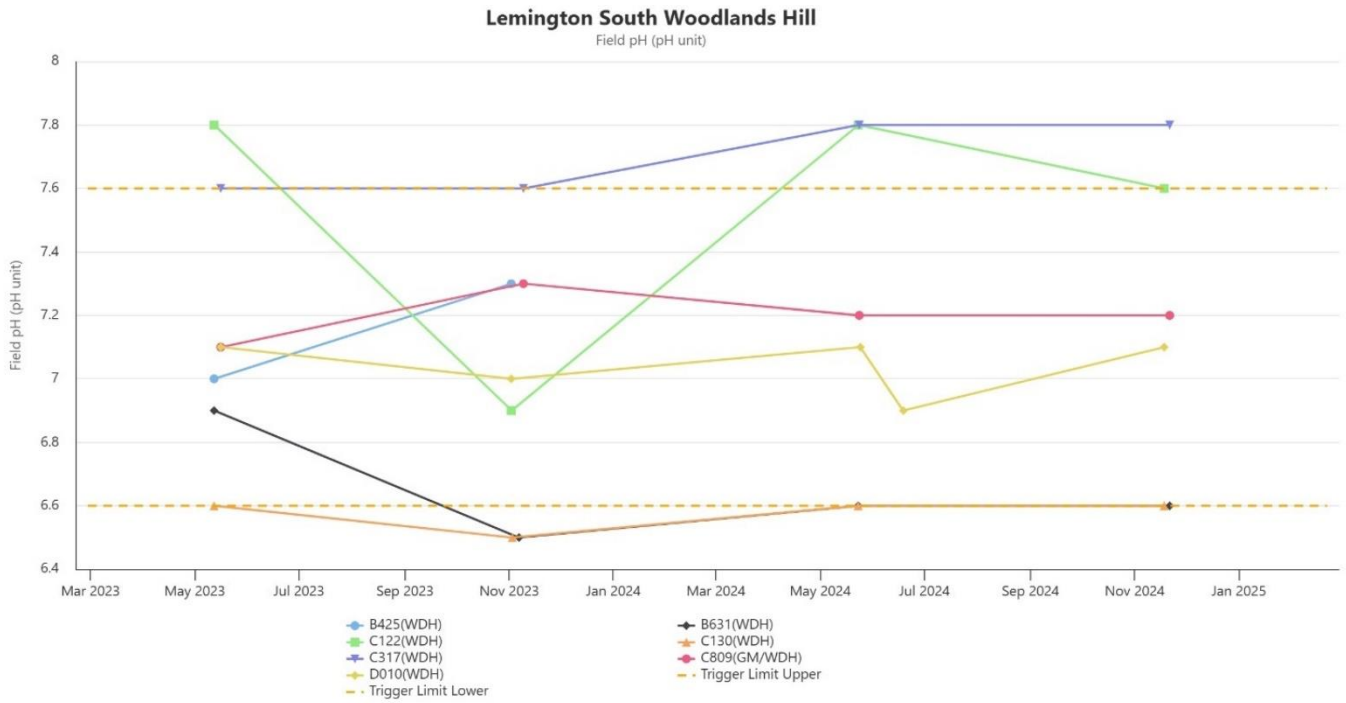

Figure 55 - Lemington South Woodlands Hill Field pH Trend - Q1 2025

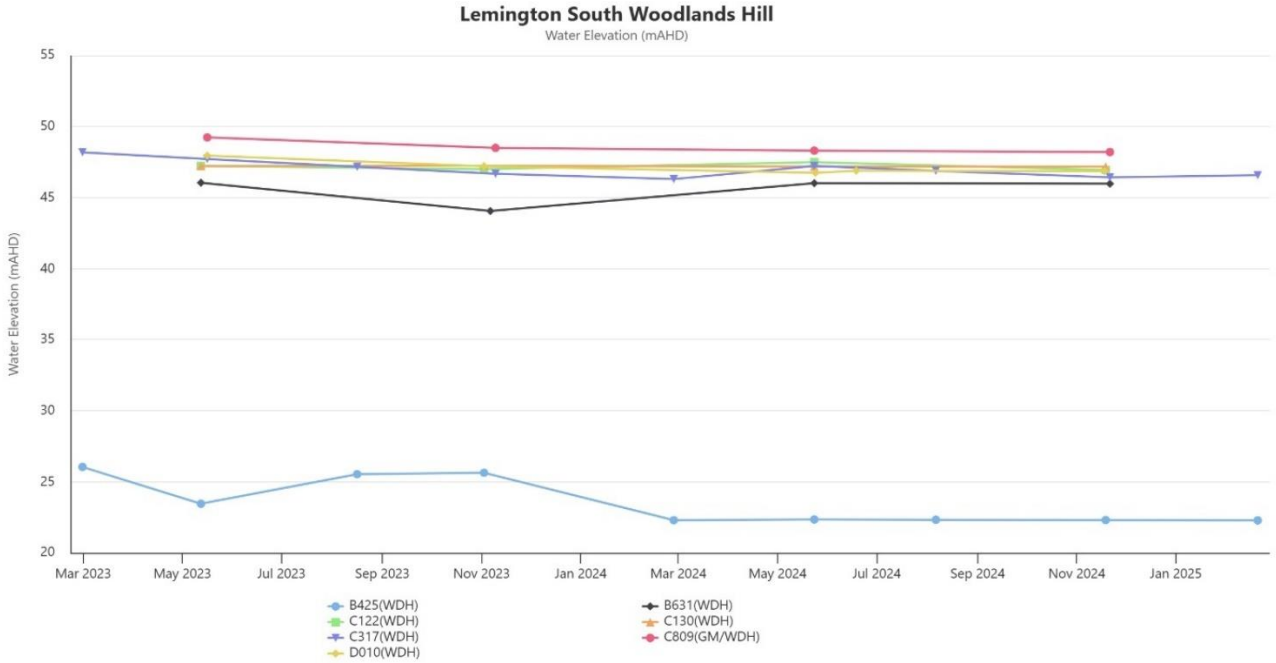

Figure 56 - Lemington South Woodlands Hill Water Elevation Trend - Q1 2025

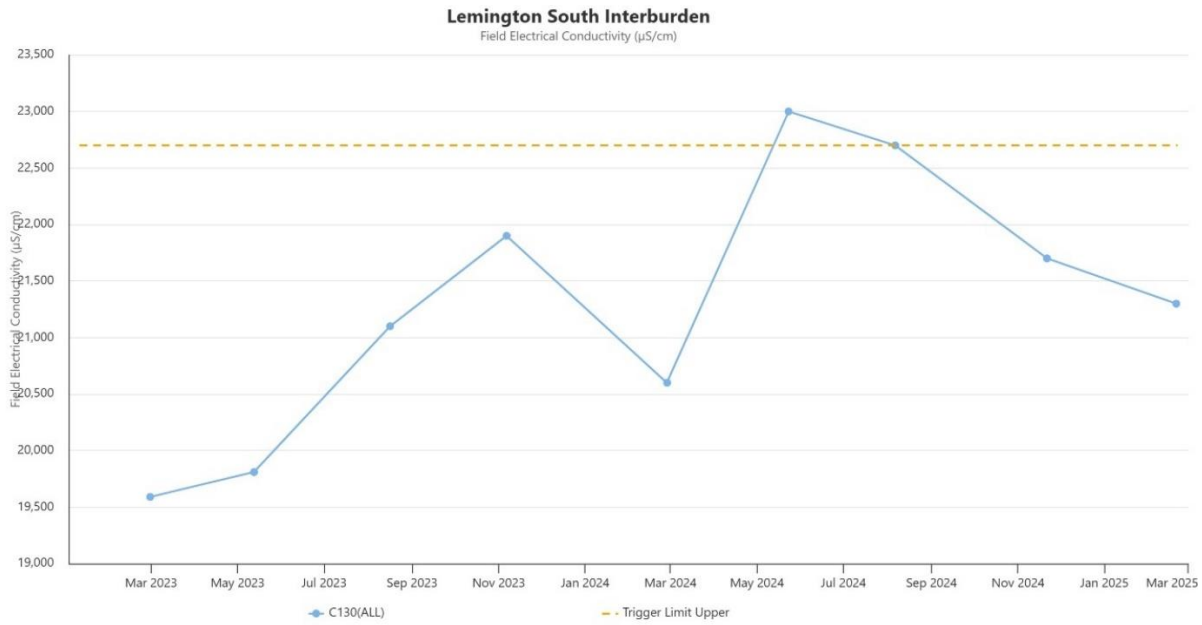

Figure 57 - Lemington South Interburden Electrical Conductivity Trend - Q1 2025

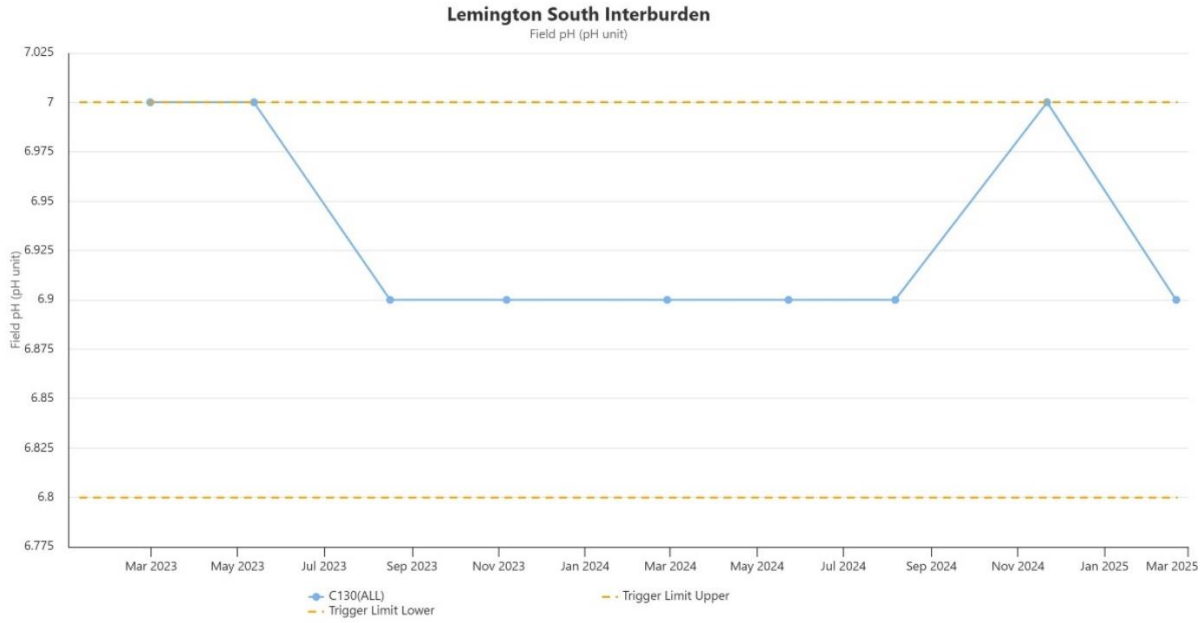

Figure 58 - Lemington South Interburden Field pH Trend - Q1 2025

Figure 59 - Lemington South Interburden Water Elevation Trend - Q1 2025

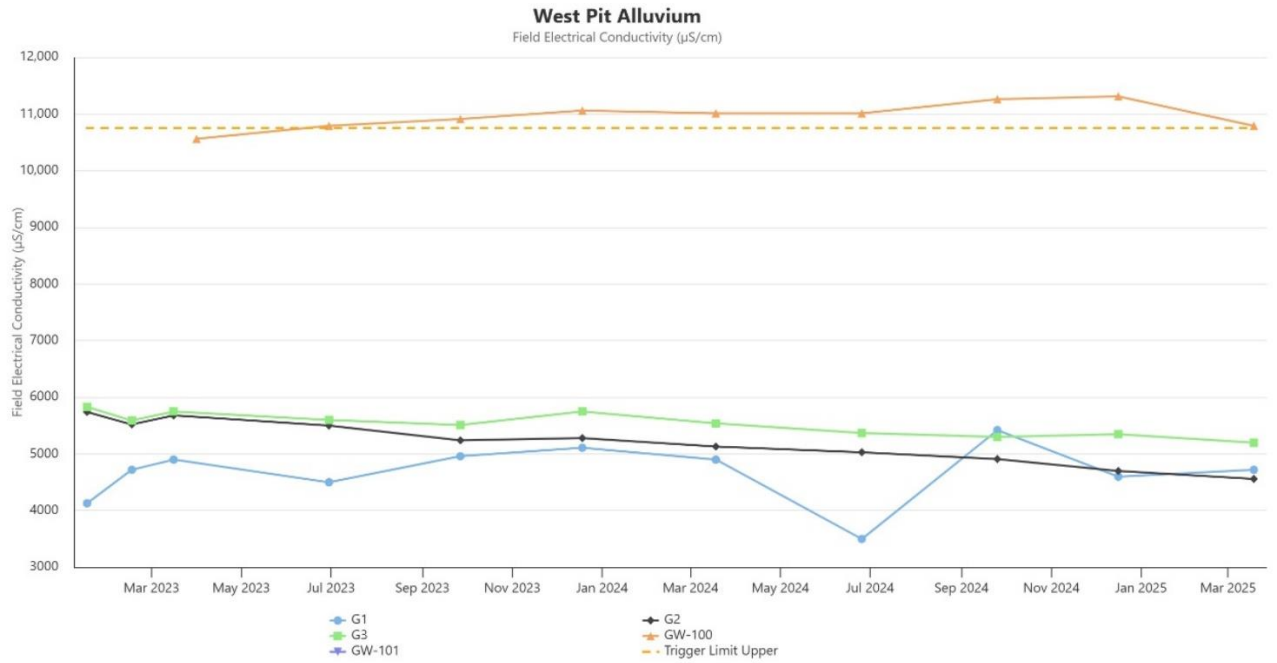

Figure 60 - West Pit Alluvium Electrical Conductivity Trend - Q1 2025

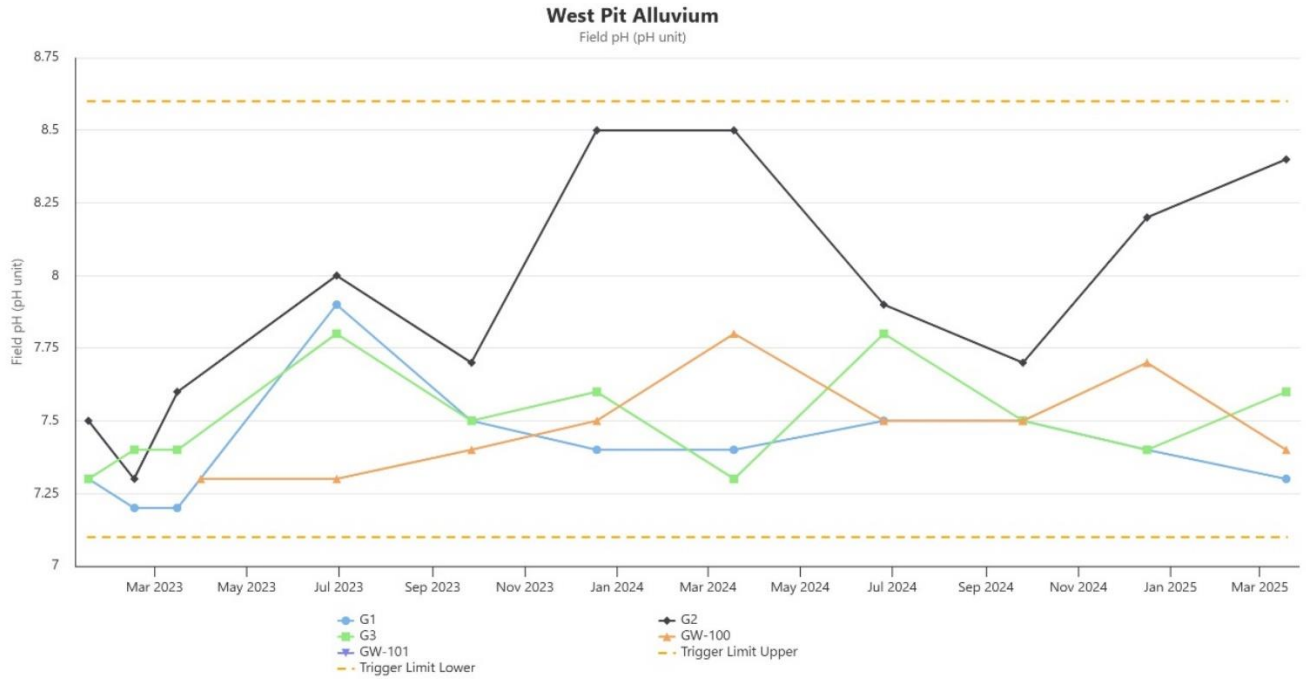

Figure 61 - West Pit Alluvium pH Trend - Q1 2025

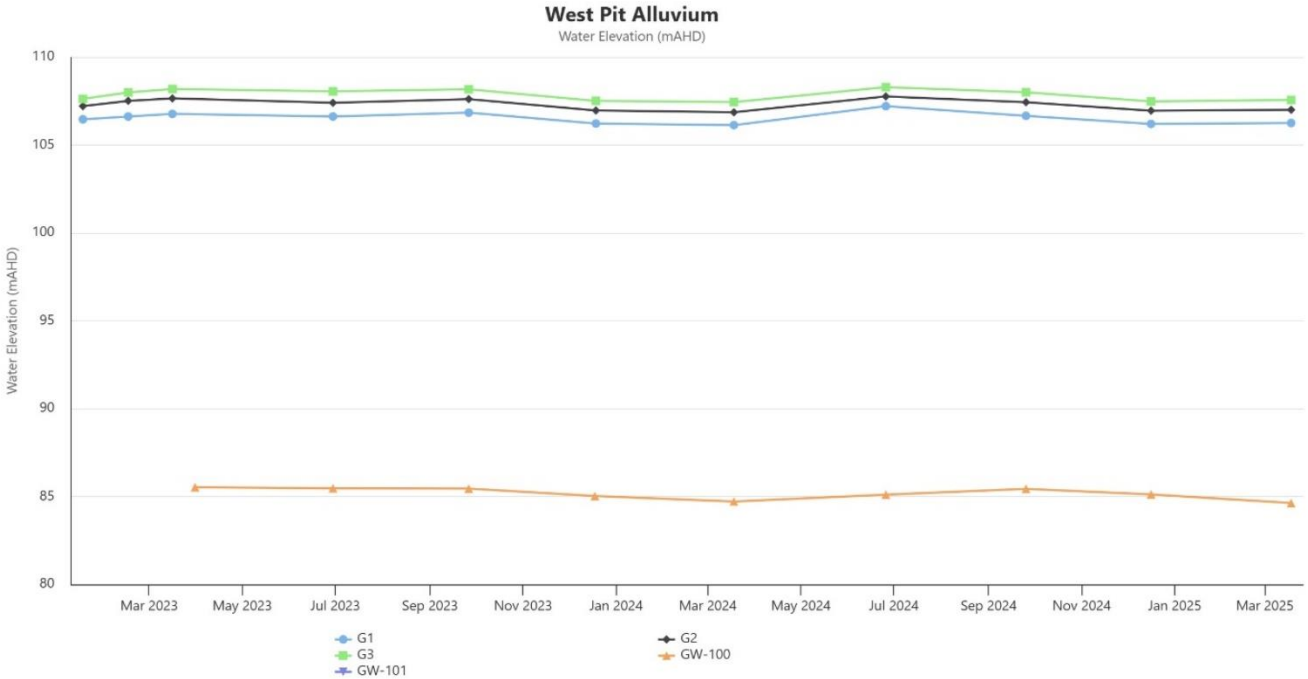

Figure 62 - West Pit Alluvium Water Elevation Trend - Q1 2025

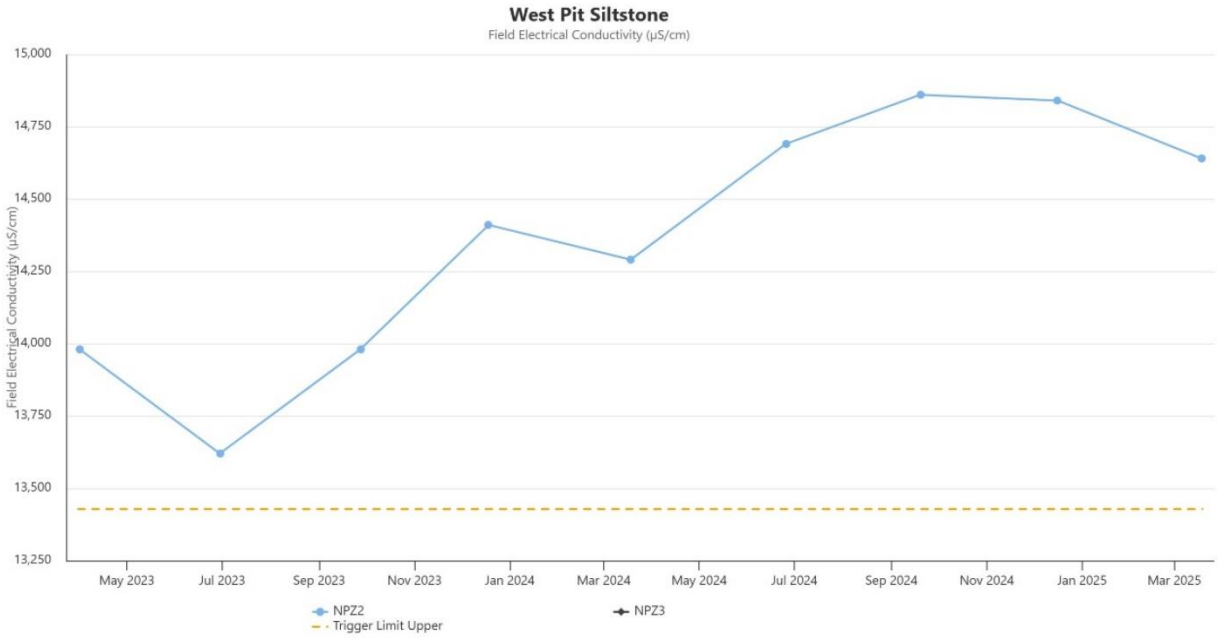

Figure 63 - West Pit Siltstone Electrical Conductivity Trend - Q1 2025

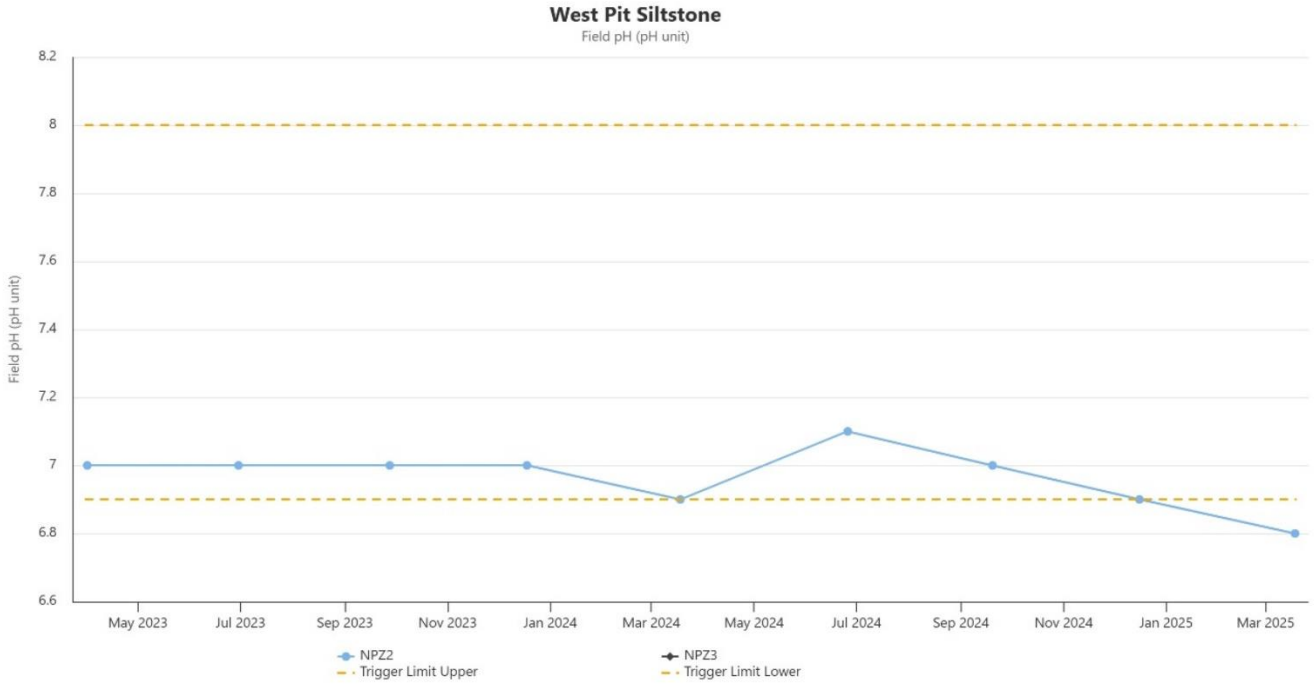

Figure 64 - West Pit Siltstone Field pH Trend - Q1 2025

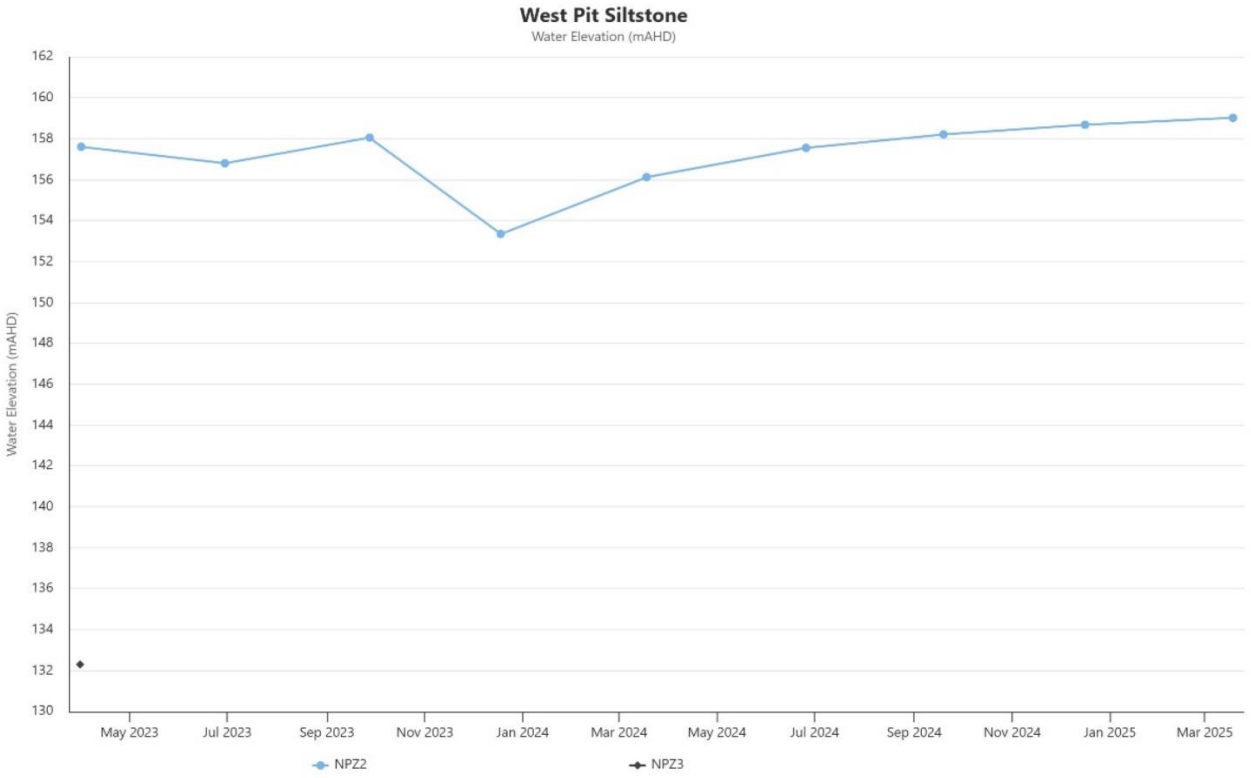

Figure 65 - West Pit Siltstone Water Elevation Trend- Q1 2025

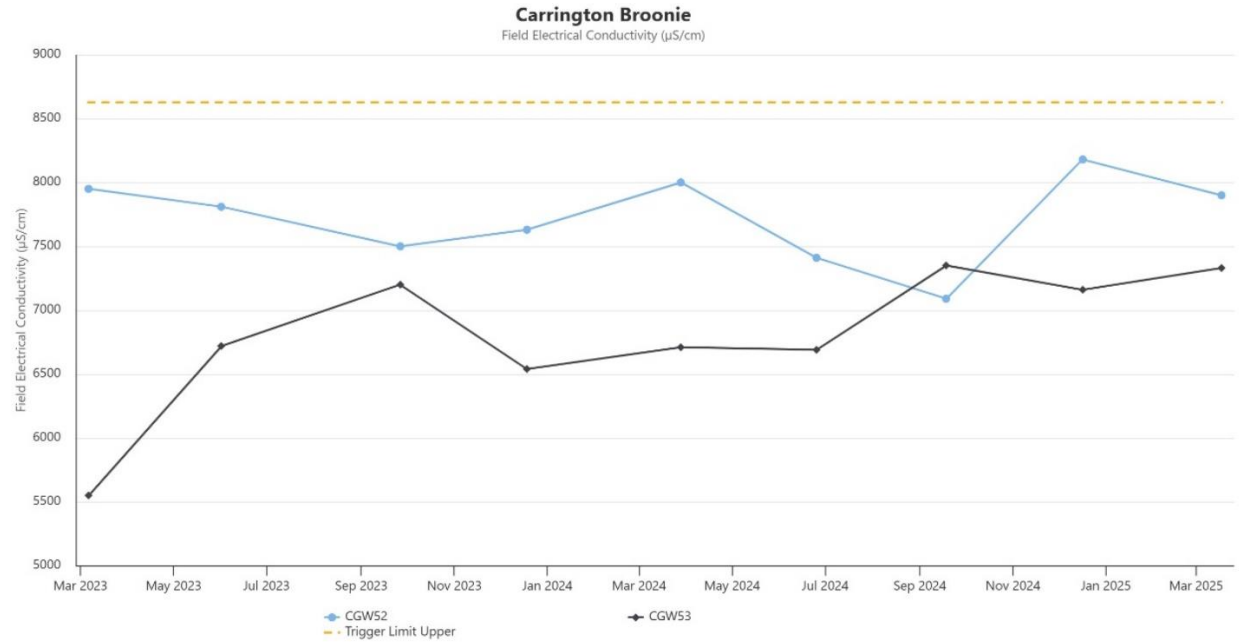

Figure 66 - Carrington Broonie Electrical Conductivity Trend - Q1 2025

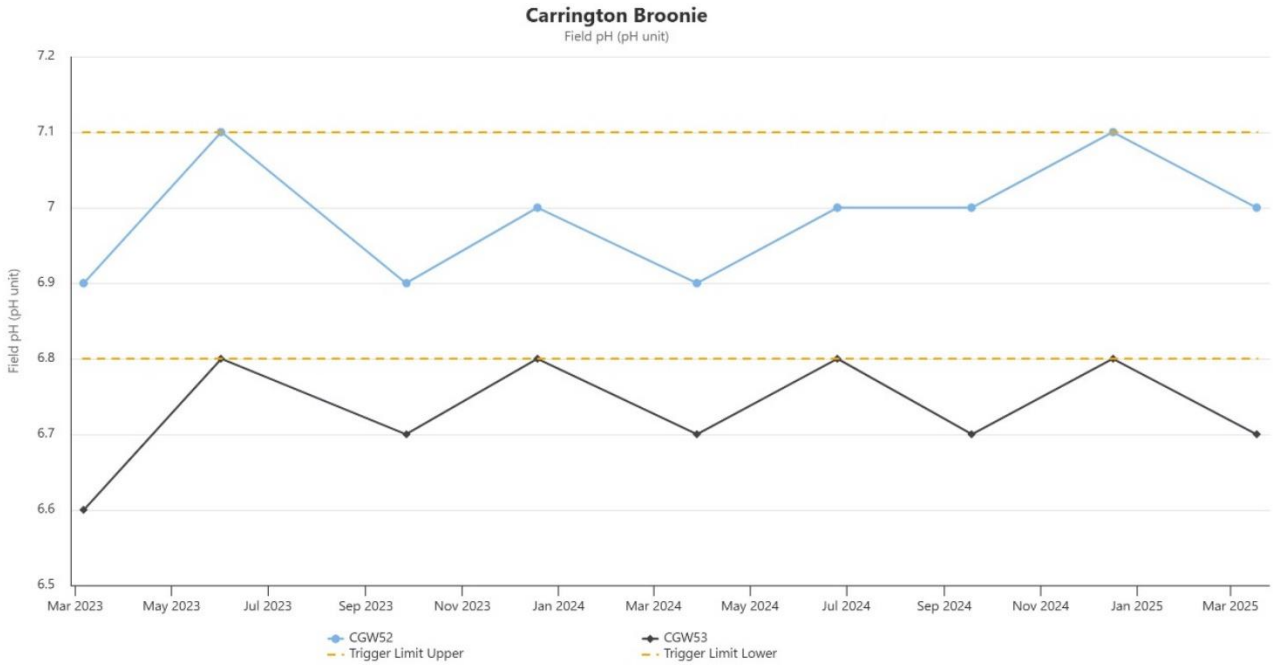

Figure 67 - Carrington Broonie Field pH Trend - Q1 2025

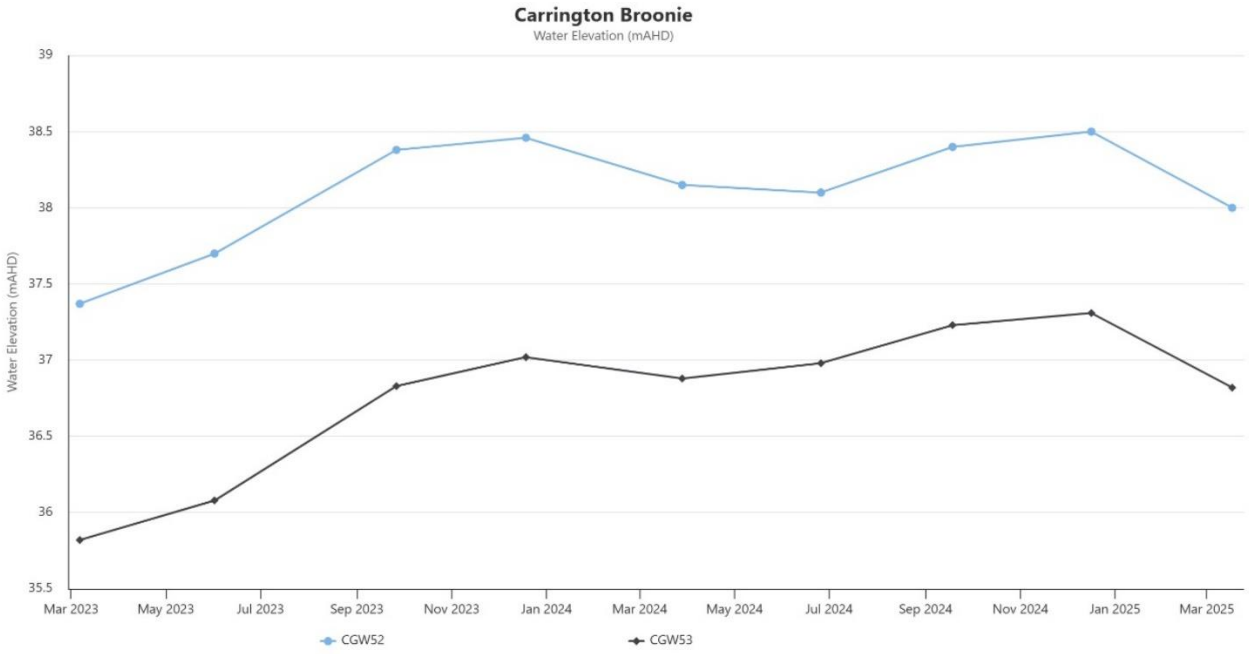

Figure 68 - Carrington Broonie Water Elevation Trend - Q1 2025

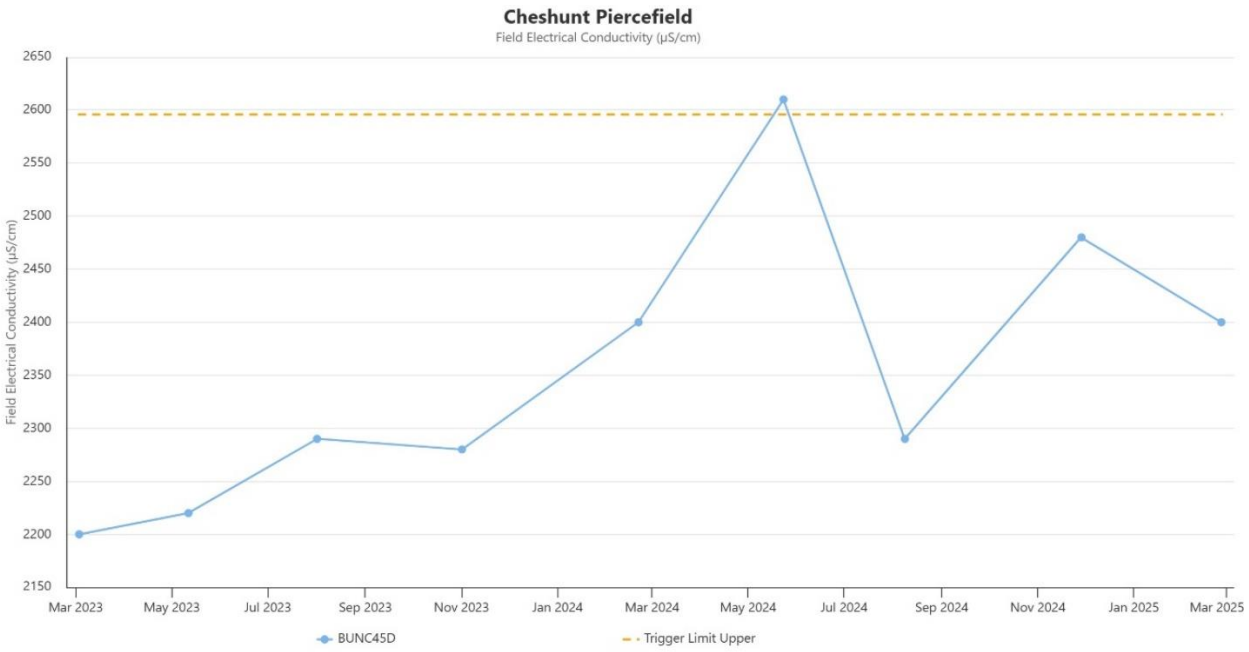

Figure 69 - Cheshunt Piercefield Electrical Conductivity Trend - Q1 2025

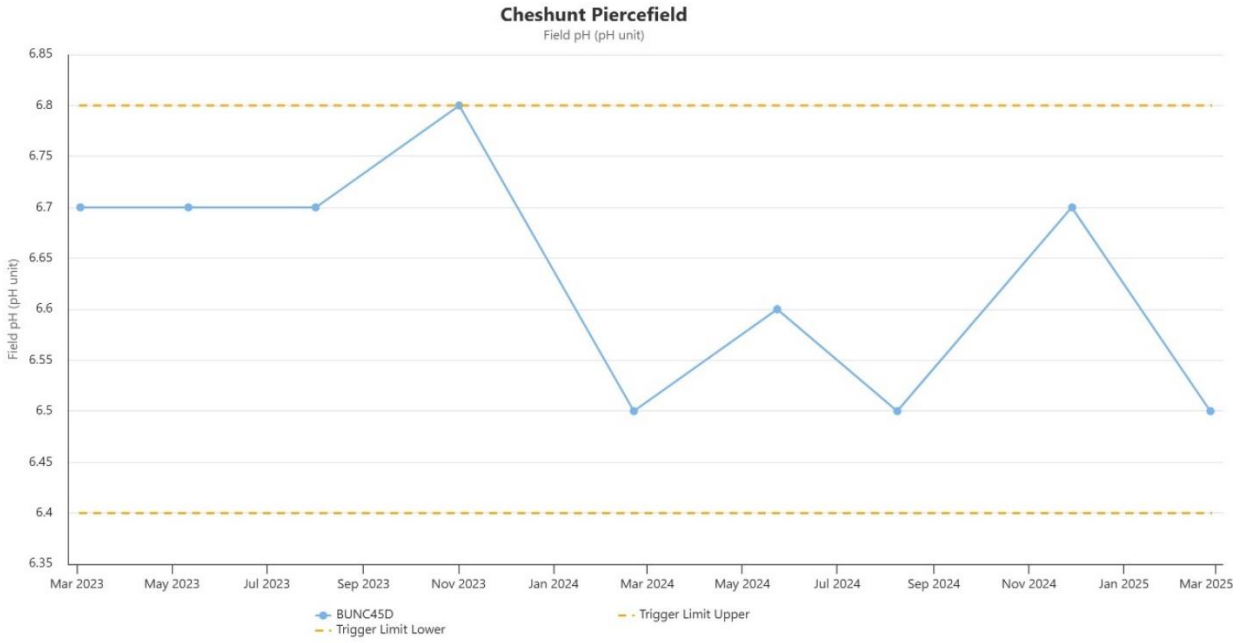

Figure 70 – Cheshunt Piercefield Field pH Trend – Q1 2025

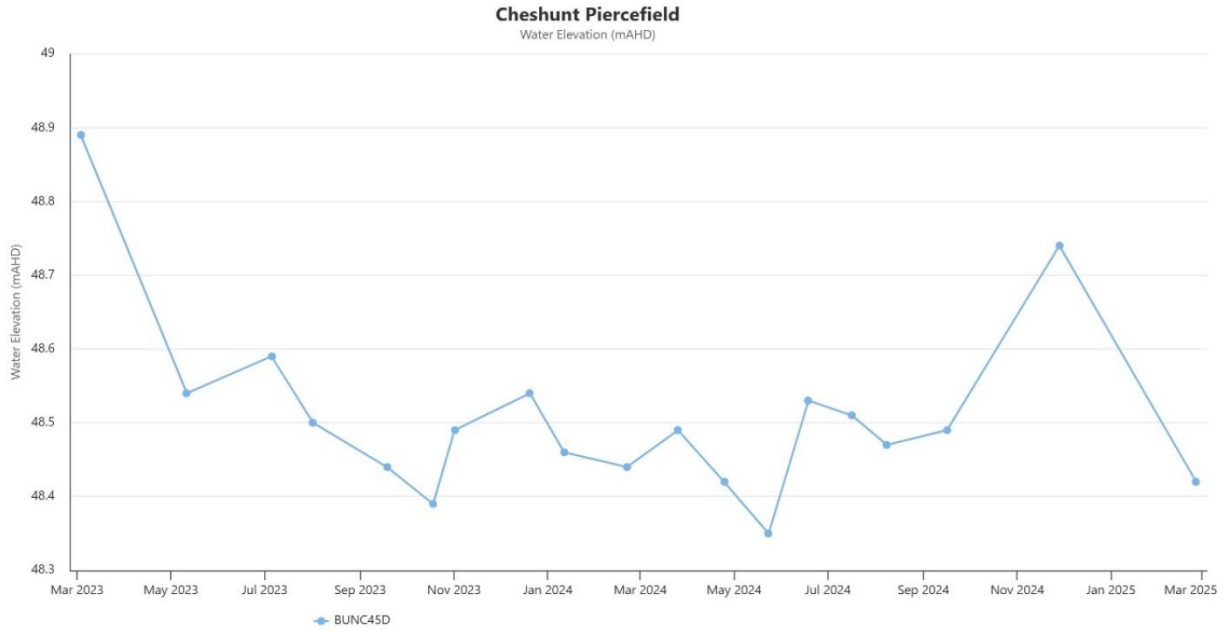

Figure 71 - Cheshunt Piercefield Water Elevation Trend - Q1 2025

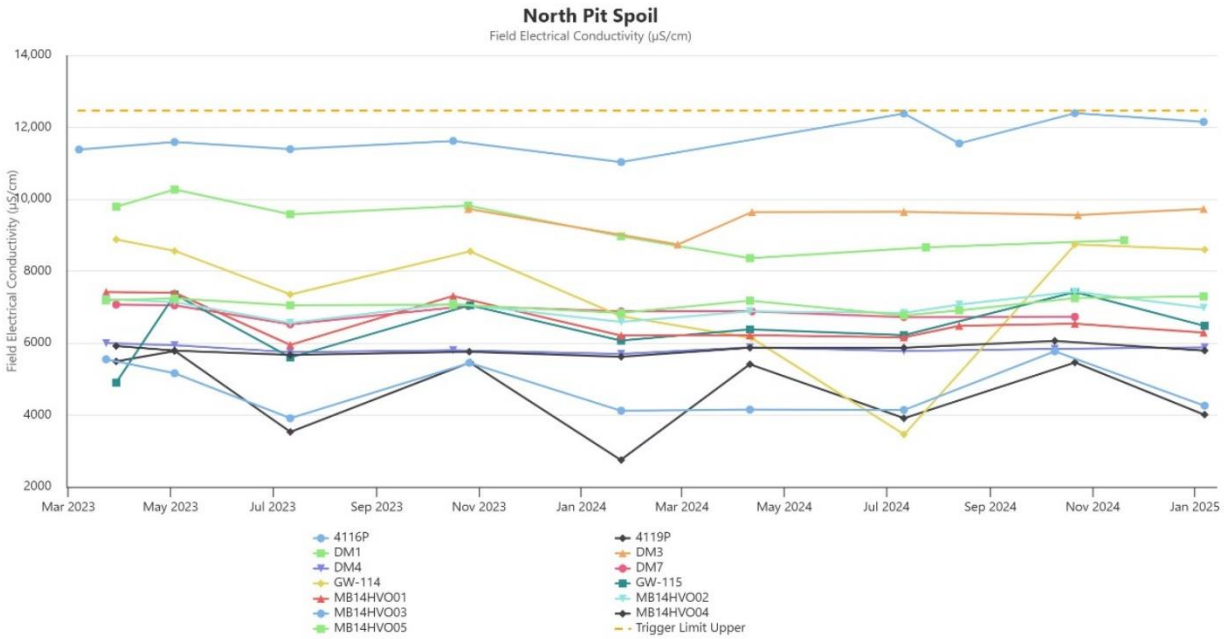

Figure 72 - North Pit Spoil Electrical Conductivity Trend - Q1 2025

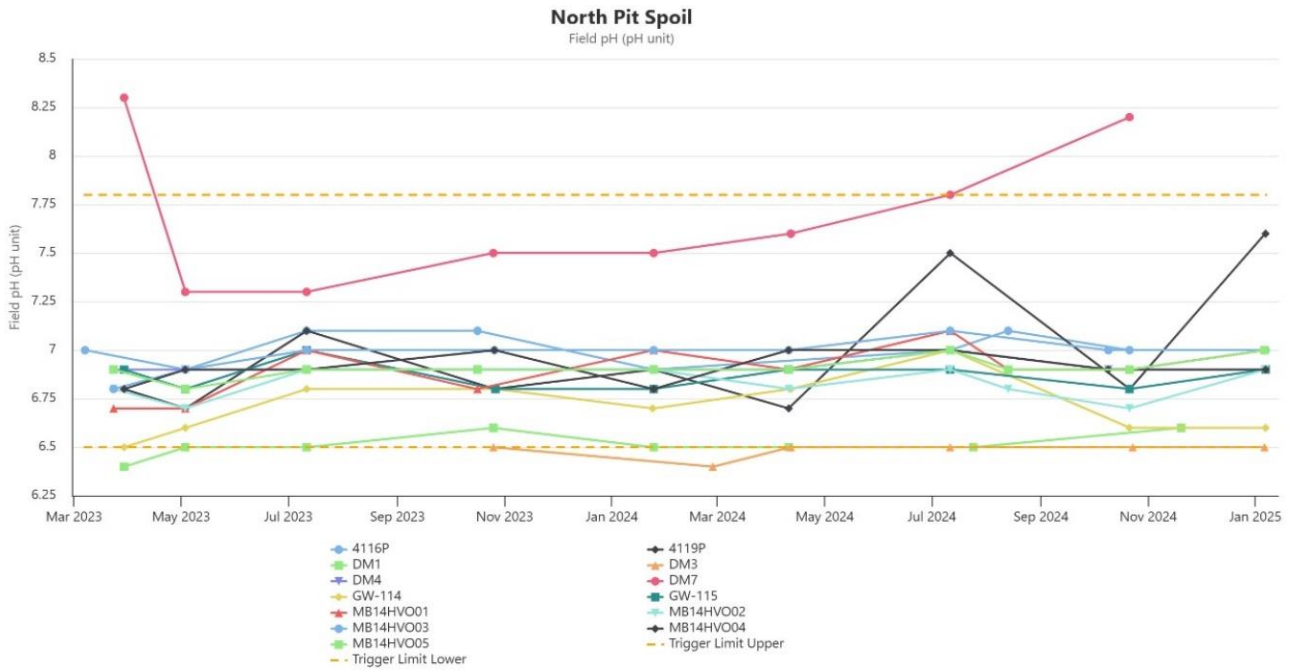

Figure 73 - North Pit Spoil Field pH Trend - Q1 2025

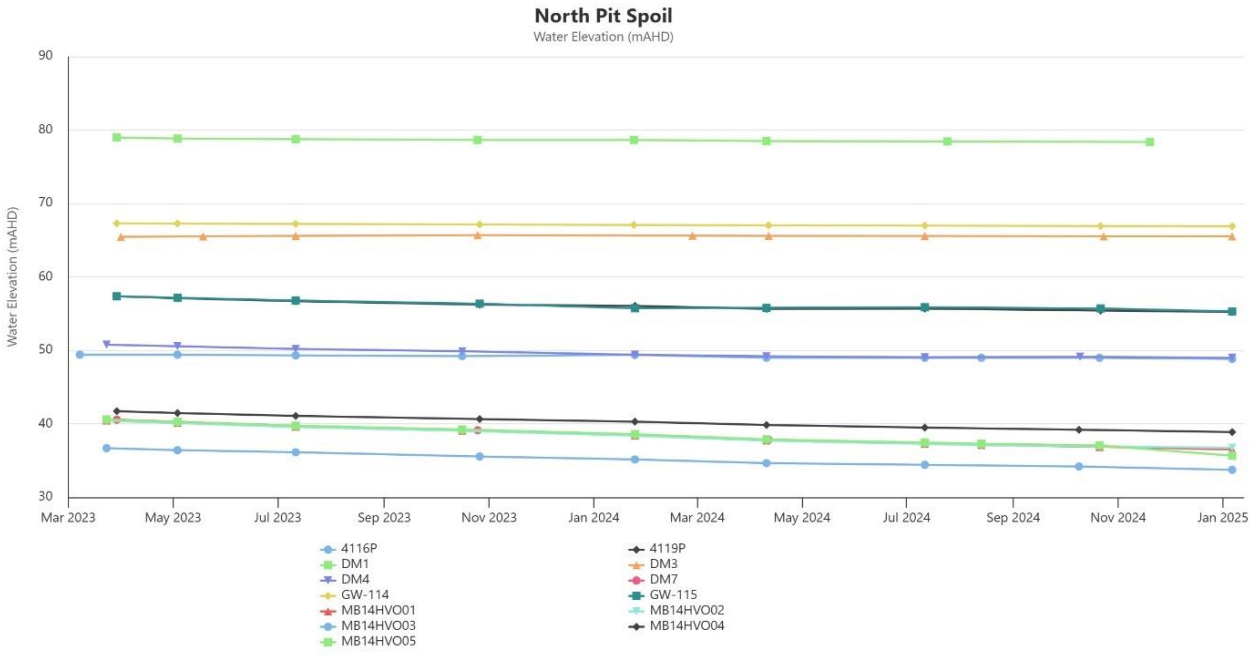

Figure 74 - North Pit Spoil Water Elevation Trend - Q1 2025

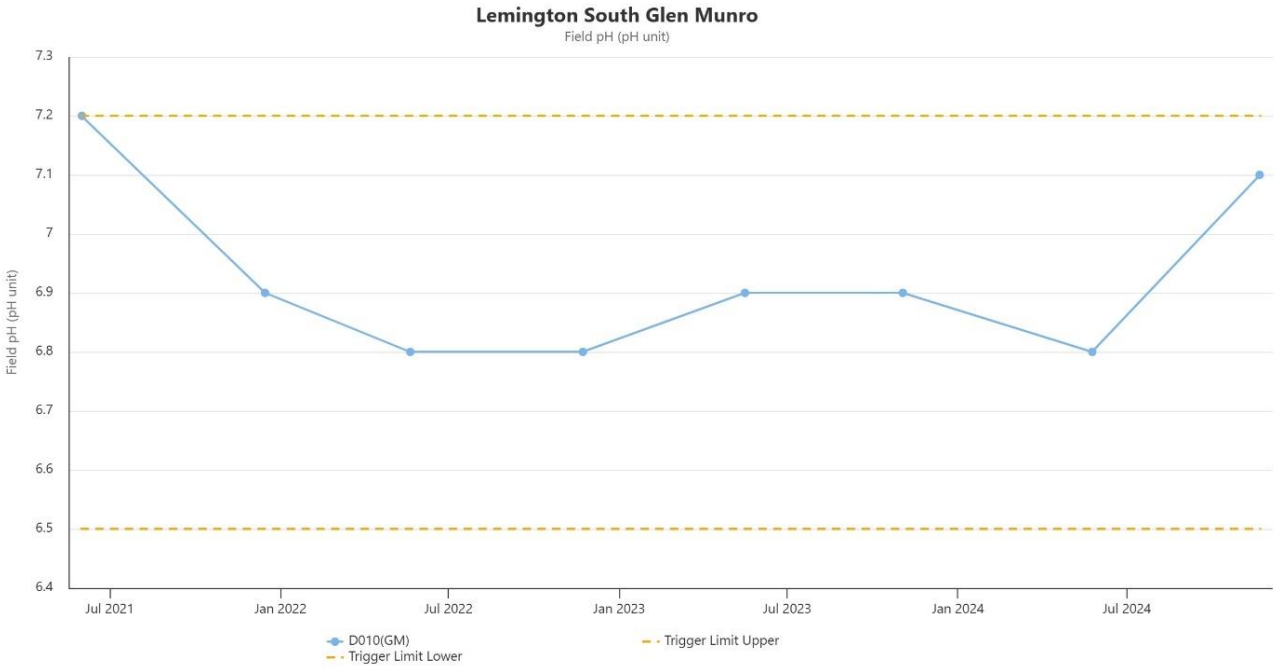

Figure 75 - Lemington South Glen Munro Electrical Conductivity Trend - Q1 2025

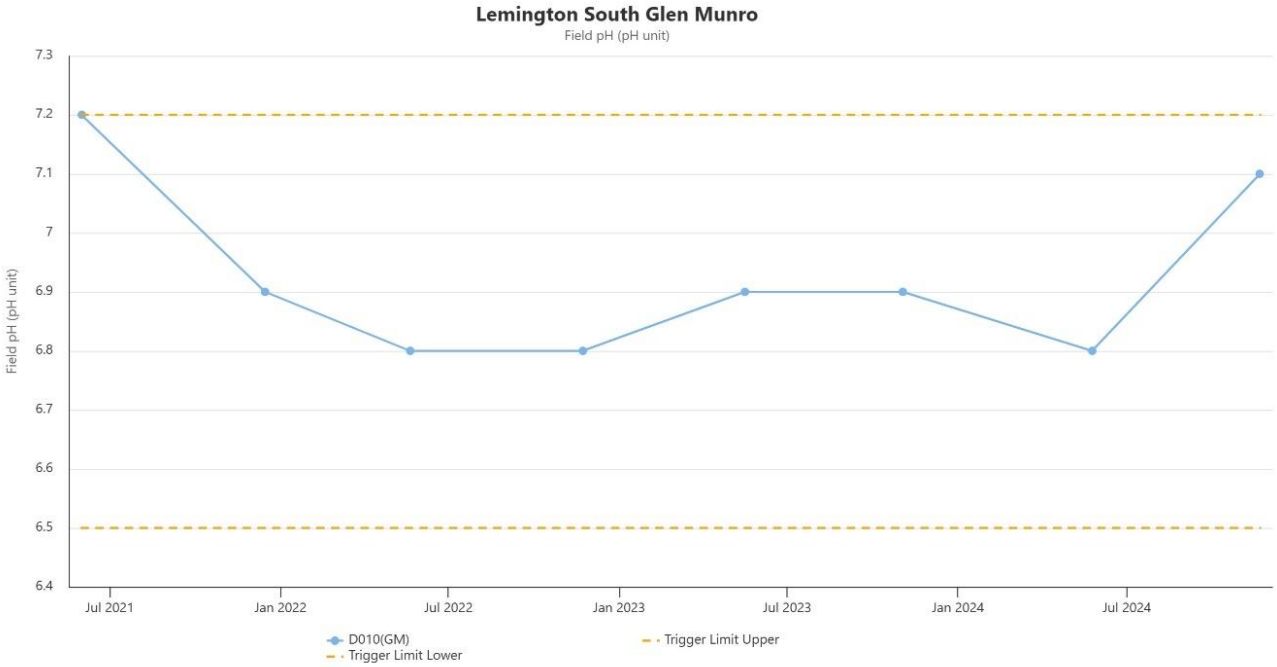

Figure 76 - Lemington South Glen Munro Field pH Trend - Q1 2025

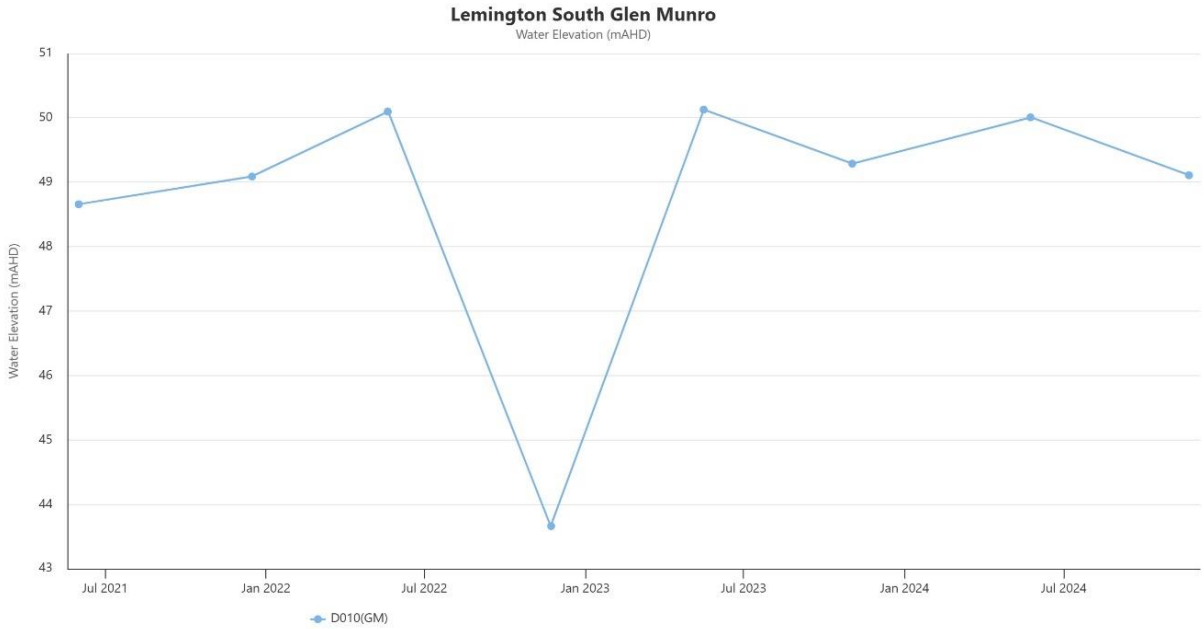

Figure 77 - Lemington South Glen Munro Water Elevation Trend - Q1 2025

3.4.1 | 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 is outlined in the HVO Water Management Plan.

Groundwater trigger tracking results are summarised below in Table 3.

Table 3 - Groundwater Trigger Tracking Q1 2025

Site	Date	Trigger Limit Breached	Response Action
BZ3-3	25/05/2025	pH	Nineteen consecutive readings below the lower pH trigger level of 6.5 since November 2019. Comprehensive water quality analysis was undertaken in August 2022. The results indicated the declining pH trend is not due to connectivity to spoil water via the nearby fault. It is noted that the bore has already been removed from the compliance monitoring network in version 3.4 of the revised WMP which is currently with DPHI for approval.
CGW51a	17/03/2025	pH	Eleven consecutive readings above the trigger level of 7.4 since September 2022. The 2019 Annual Review (SLR, 2019) noted the bore is screened within alluvium and weathered coal measures. It was recommended the bore be decommissioned and replaced with a new bore as the current bore does not provide representative results from one groundwater unit. It is noted that the bore has already been removed from the compliance monitoring network in version 3.4 of the revised WMP which is currently with DPHI for approval.
GW-100	18/03/2025	EC	Eight consecutive water level readings above the upper EC trigger level of 10,751 µS/cm since January 2023. Historic EC readings range from 9,570 µS/cm in September 2019 to 11,510 µS/cm in December 2017. EC levels declined during the reporting period to 10,790 µS/cm within the historical range. The EC exceedances are due to declining groundwater levels. Trends should continue to be monitored to determine if they are related to mining activities.
NPz2	18/03/2025	EC	Eleven consecutive water level readings above the upper EC trigger level of 10,751 µS/cm since January 2023.

Site	Date	Trigger Limit Breached	Response Action
			EC levels have remained relatively stable since March 2013. The Q1 reading of 14,640 µS/cm is consistent with historical concentrations. It is noted that the bore has already been removed from the compliance monitoring network in the updated draft WMP which currently with DPHI for approval.

4 | BLASTING

HVO maintains a network of blast monitoring units located at nearby privately owned residences and function as regulatory compliance monitors. The location of these monitors can be found in Figure 15. Blasting criteria for HVO are summarised in Table 4.

Table 4 - Blasting Criteria

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

4.1 | BLAST MONITORING RESULTS

Twenty-two (22) blasts were initiated at HVO during the reporting period. Blast monitoring results for the period are shown in Table 5 and Table 6.

Table 5 – Overpressure Blast Monitoring Results for the reporting period

Date and Time	Moses Crossing (dBL)	Jerrys Plains Village (dBL)	Maison Dieu (dBL)	Warkworth (dBL)	Knodlers Lane (dBL)
1/03/2025 13:13	87.46	84.34	92.87	95.94	88.38
3/03/2025 13:35	101.86	101.78	109.63	101.05	99.13
3/03/2025 13:37	95.00	99.03	103.48	94.13	93.47
4/03/2025 13:38	104.71	111.4	107.52	92.83	103.54
4/03/2025 15:09	105.75	98.19	108.64	87.79	104.65
7/03/2025 12:27	102.84	103.29	109.66	103.52	95.60
8/03/2025 12:48	101.92	102.31	107.67	91.94	101.26
10/03/2025 14:15	91.81	85.8	91.47	87.54	81.2
10/03/2025 14:17	96.54	100.79	95.96	99.72	91.57
11/03/2025 16:16	93.17	93.41	96.65	90.52	92.92
12/03/2025 16:47	100.44	98.14	97.28	90.09	88.72
14/03/2025 13:27	98.67	87.11	94.8	89.61	80.06
15/03/2025 13:23	92.52	98.18	96.50	83.50	92.26
17/03/2025 13:30	100.68	105.80	103.63	105.07	100.12
20/03/2025 12:11	93.08	93.85	90.37	98.87	90.18
20/03/2025 13:30	96.99	80.89	89.39	89.62	98.51
21/03/2025 16:21	88.71	83.87	97.78	105.69	93.22
22/03/2025 12:48	84.97	82.18	82.72	87.12	82.01
25/03/2025 15:21	100.71	101.96	101.78	93.46	96.79
26/03/2025 16:35	100.06	96.55	103.07	103.11	96.87
27/03/2025 13:25	90.62	101.98	100.91	93.91	81.52
28/03/2025 14:03	103.09	108.26	101.28	85.86	88.88

Table 6 – Ground Vibration Blast Monitoring Results for the reporting period

Date and Time	Moses Crossing (mm/s)	Jerrys Plains Village (mm/s)	Maison Dieu (mm/s)	Warkworth (mm/s)	Knodlers Lane (mm/s)
1/03/2025 13:13	0.29	0.24	0.26	0.17	0.11
3/03/2025 13:35	0.21	0.11	0.61	1.12	0.68
3/03/2025 13:37	0.07	0.07	0.11	0.38	0.08
4/03/2025 13:38	0.1	0.08	0.08	0.18	0.06
4/03/2025 15:09	0.04	0.09	0.04	0.07	0.03
7/03/2025 12:27	0.14	0.13	0.31	0.91	0.2
8/03/2025 12:48	0.13	0.43	0.06	0.11	0.04
10/03/2025 14:15	0.02	0.05	0.03	0.08	0.02
10/03/2025 14:17	0.08	0.07	0.08	0.18	0.06
11/03/2025 16:16	0.18	0.14	0.33	1.01	0.26
12/03/2025 16:47	0.08	0.09	0.06	0.12	0.03
14/03/2025 13:27	0.26	0.12	0.11	0.22	0.07
15/03/2025 13:23	0.17	0.15	0.16	0.11	0.06
17/03/2025 13:30	0.11	0.1	0.17	0.64	0.17
20/03/2025 12:11	0.09	0.18	0.07	0.05	0.04
20/03/2025 13:30	0.07	0.1	0.11	0.38	0.03
21/03/2025 16:21	0.03	0.03	0.08	0.37	0.04
22/03/2025 12:48	0.16	0.08	0.1	0.24	0.05
25/03/2025 15:21	0.19	0.09	0.14	0.26	0.1
26/03/2025 16:35	0.11	0.09	0.18	0.47	0.18
27/03/2025 13:25	0.04	0.05	0.07	0.35	0.04
28/03/2025 14:03	0.11	0.09	0.09	0.11	0.04

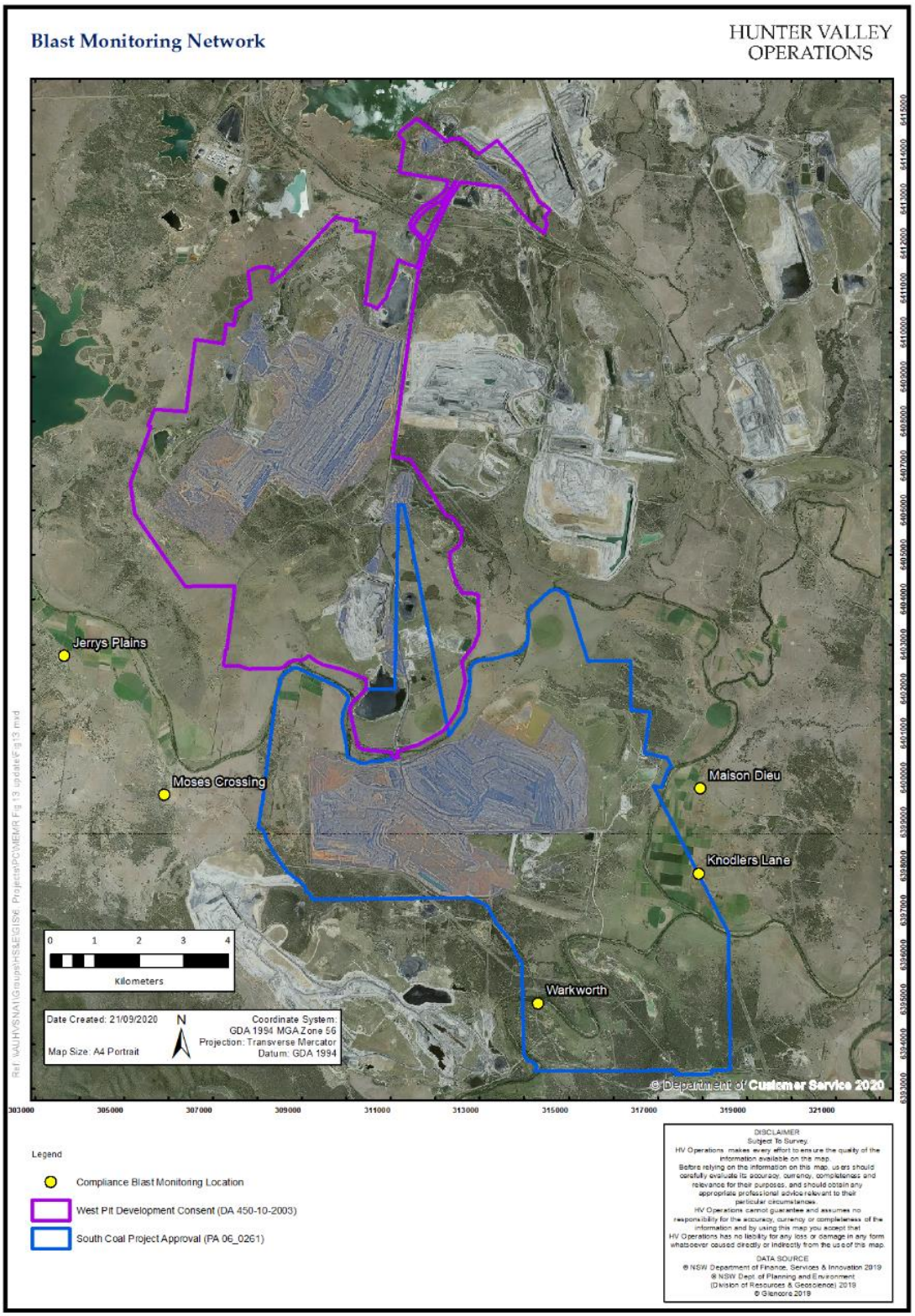

Figure 78 - Blast Monitoring Location Plan

5 | NOISE

Routine attended noise monitoring occurs at defined locations around HVO, as described in the HVO Noise Monitoring Programme. The noise monitoring aims to quantify and describe the acoustic environment around the site and compare results with specified limits. The attended noise monitoring locations are displayed in Figure 16.

5.1 | ATTENDED NOISE MONITORING RESULTS

Attended monitoring was conducted at receiver locations around HVO during the night period of the 19 March 2025.

Compliance with the HVO noise impact limits ensures compliance with the land acquisition criteria. Therefore, since no noise impact exceedances occurred for the reporting period the land acquisition assessment has not been presented. These will only be reported in instances of noise impact exceedances.

Monitoring results are detailed in Table 7and Table 8.

Table 7 - LAeq,15minute and 1minute HVO North Against Impact Assessment Criteria for the Reporting Period

Location	Start date and time	Wind		Stability class	Very enhancing? [1]	HVO North limits, dB [1]		HVO North levels, dB		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	$L_{A1,1min}$	$L_{Aeq,15minute}$ [2]	$L_{A1,1min}$	$L_{Aeq,15minute}$	$L_{A1,1min}$
Shearers Lane	19/03/2025 21:02	3.2	125	D	Yes	46	51	IA	IA	Nil	Nil
Knodlers Lane	19/03/2025 21:48	3.3	141	E	Yes	45	51	IA	IA	Nil	Nil
Maison Dieu	19/03/2025 21:25	3.0	144	E	No	39	46	IA	IA	Nil	Nil
Long Point (Dights Crossing)	19/03/2025 22:50	3.1	139	E	Yes	42	51	IA	IA	Nil	Nil
Moses Crossing	19/03/2025 23:09	2.6	142	E	No	39	46	28	32	Nil	Nil
Jerrys Plains East	19/03/2025 22:48	3.1	139	E	Yes	44	51	<20	<20	Nil	Nil
Jerrys Plains Village	19/03/2025 21:20	3.0	136	D	No	40	46	29	32	Nil	Nil
Jerrys Plains West	19/03/2025 21:00	3.2	125	D	Yes	45	51	IA	IA	Nil	Nil

1. Noise limits are adjusted by +5 dB during 'very noise-enhancing meteorological conditions' in accordance with the NPfI.
2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Table 8 - LAeq,15minute and 1minute HVO South Against Impact Assessment Criteria for the Reporting Period

Location	Start date and time	Wind		Stability class	Limits apply? [1]	HVO South limits, dB [1]		HVO South levels, dB		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	$L_{A1,1min}$	$L_{Aeq,15minute}$ [2]	$L_{A1,1min}$	$L_{Aeq,15minute}$	$L_{A1,1min}$
Shearers Lane	19/03/2025 21:02	3.2	125	D	No	41	45	IA	IA	N/A	N/A
Knodlers Lane	19/03/2025 21:48	3.3	141	E	No	40	45	IA	IA	N/A	N/A
Maison Dieu	19/03/2025 21:25	3.0	144	E	Yes	39	45	IA	IA	Nil	Nil
Long Point (Dights Crossing)	19/03/2025 22:50	3.1	139	E	No	37	45	IA	IA	N/A	N/A
Moses Crossing	19/03/2025 23:09	2.6	142	E	Yes	39	45	<20	<20	Nil	Nil
Jerrys Plains East	19/03/2025 22:48	3.1	139	E	No	38	45	<20	<20	N/A	N/A
Jerrys Plains Village	19/03/2025 21:20	3.0	136	D	Yes	35	45	IA	IA	Nil	Nil
Jerrys Plains West	19/03/2025 21:00	3.2	125	D	No	35	45	IA	IA	N/A	N/A
HVGC	19/03/2025 23:35	3.0	144	E	Yes	55	-	IA	IA	Nil	-

1. Noise limits are adjusted by +5 dB during 'very noise-enhancing meteorological conditions' in accordance with the NPfI.
2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

5.2 | 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. No penalties were applied for monitoring undertaken through the reporting period. The assessments for the low frequency noise are shown in Table 9 and Table 10.

Table 9 - Modifying Factor Assessment HVO North for the Reporting Period

Location	Start date and time	Measured HVO South L_{Aeq} dB	Very enhancing? [1]	Intermittency modifying factor?	Tonality modifying factor?	Frequency of tonality	Low-frequency modifying factor? [1,2]	Exceedance of reference spectrum [2,3]	Total penalty dB [2,3]
Shearers Lane	19/03/2025 21:02	IA	Yes	No	No	N/A	No	N/A	Nil
Knodlers Lane	19/03/2025 21:48	IA	Yes	No	No	N/A	No	N/A	Nil
Maison Dieu	19/03/2025 21:25	IA	Yes	No	No	N/A	No	N/A	Nil
Long Point (Dights Crossing)	19/03/2025 22:50	IA	Yes	No	No	N/A	No	N/A	Nil
Moses Crossing	19/03/2025 23:09	28	Yes	No	No	N/A	No	N/A	Nil
Jerrys Plains East	19/03/2025 22:48	IA	Yes	No	No	N/A	No	N/A	Nil
Jerrys Plains Village	19/03/2025 21:20	29	Yes	No	No	N/A	No	N/A	Nil
Jerrys Plains West	19/03/2025 21:00	<25	Yes	No	No	N/A	No	N/A	Nil

1. Low-frequency modifying factors are not applicable during 'very noise-enhancing meteorological conditions' in accordance with the NPfI.

2. NA denotes 'not applicable'.

3. Bold results indicate that application of NPfI modifying factor(s) is required.

Table 10 - Modifying Factor Assessment HVO South for the Reporting Period

Location	Start date and time	Measured HVO South LAeq dB	Very enhancing? [1]	Intermittency modifying factor?	Tonality modifying factor?	Frequency of tonality	Low-frequency modifying factor? 1,2	Exceedance of reference spectrum 2,3	Total penalty dB 2,3
Shearers Lane	19/03/2025 21:02	IA	No	N/A	N/A	N/A	N/A	N/A	N/A
Knodlers Lane	19/03/2025 21:48	IA	No	N/A	N/A	N/A	N/A	N/A	N/A
Maison Dieu	19/03/2025 21:25	IA	Yes	No	No	N/A	No	N/A	Nil
Long Point (Dights Crossing)	19/03/2025 22:50	IA	No	N/A	N/A	N/A	N/A	N/A	N/A
Moses Crossing	19/03/2025 23:09	<20	Yes	No	No	N/A	No	N/A	Nil
Jerrys Plains East	19/03/2025 22:48	<20	No	N/A	N/A	N/A	N/A	N/A	N/A
Jerrys Plains Village	19/03/2025 21:20	IA	Yes	No	No	N/A	No	N/A	Nil
Jerrys Plains West	19/03/2025 21:00	IA	No	N/A	N/A	N/A	N/A	N/A	N/A
HVGC	19/03/2025 23:35	IA	Yes	No	No	N/A	No	N/A	Nil

1. NA denotes 'not applicable'

2. NM denotes 'not measurable'

3. Bold results indicate that application of NPfI modifying factor/s 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, shown in Figure 16. 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 that require investigation.

HVO investigates and responds to noise alarms with appropriate modification to operations. Changes in response to a noise alarm can include replacing equipment with alternative units, changing or relocating tasks, or shutting down equipment. It should be noted that this assessment does not compliment or conflict with attended noise monitoring detailed in Section 5.1. Real time monitoring data includes non-mine noise sources such as animals, road traffic and weather.

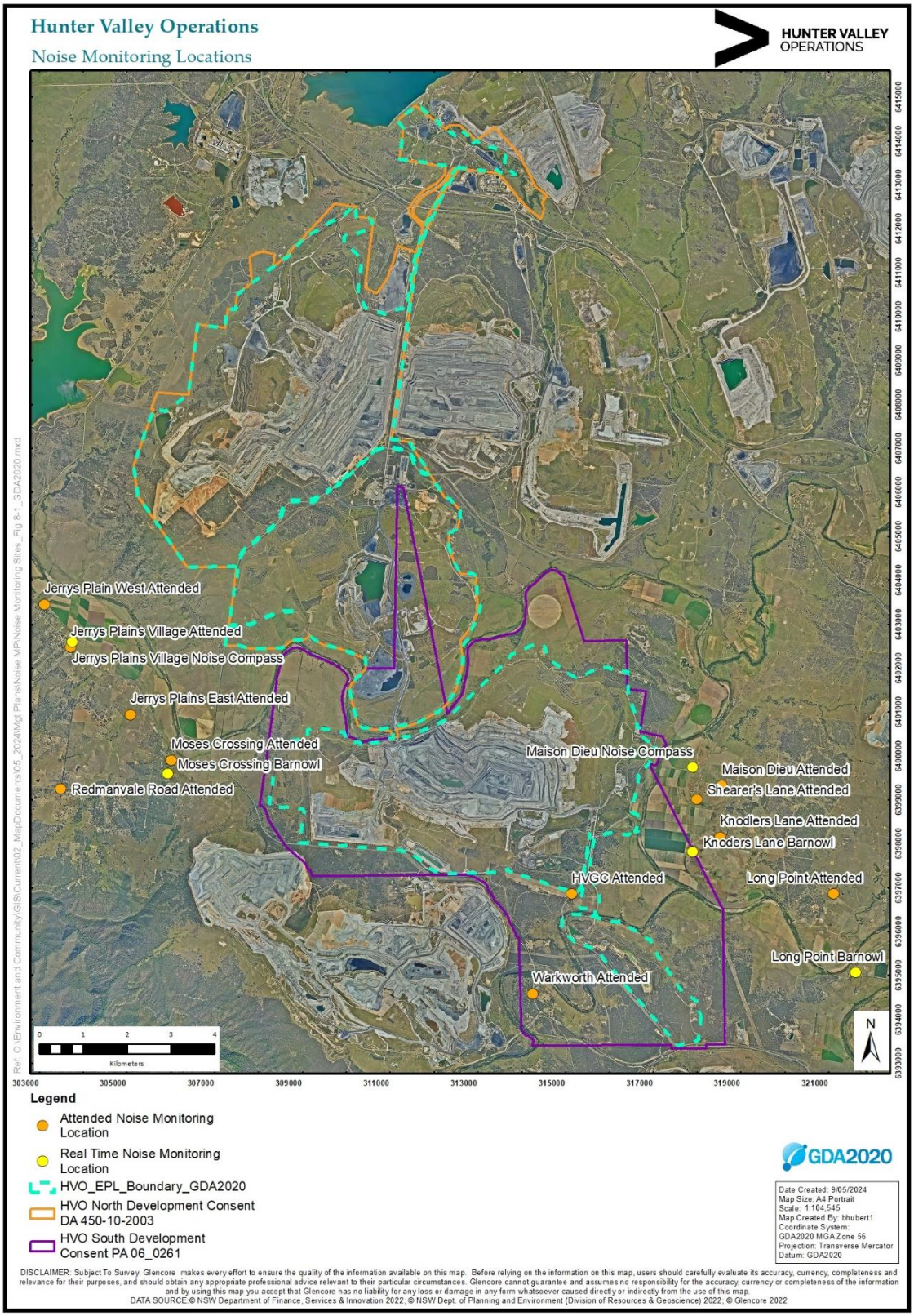

Figure 79 - Noise Monitoring Location Plan

6 | OPERATIONAL DOWNTIME

Real time monitoring and inspections for environmental factors recorded the following hours of equipment downtime during the reporting period:

- Thirteen point four (13.4) hours for dust, and
- Zero (0) hours for noise.

Operational downtime by equipment type is show in Figure 80. Note that these delays are instances where operations were completely stopped and does not include occasions where operations were changed/modified but not stopped (e.g. changed from exposed dump to in-pit dump).

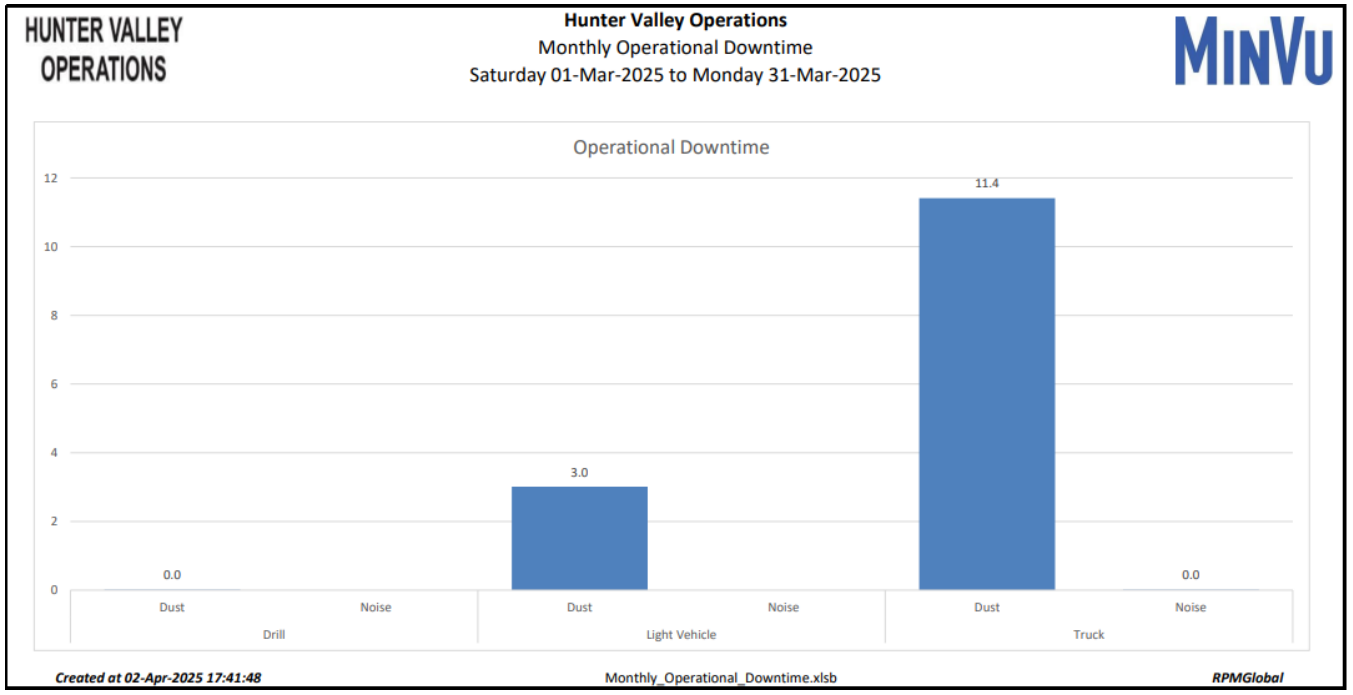

Figure 80: Operational Downtime by Equipment Type for the Reporting Period

7 | REHABILITATION

The following activities related to rehabilitation were completed during the reporting period:

- 0.00ha of land was released (became available for the application of topsoil);
- 9.16ha of land was reshaped;
- 0.00ha of land was topsoiled; and
- 0.31ha of land was rehabilitated.

Year to date progress is shown in Figure 81.

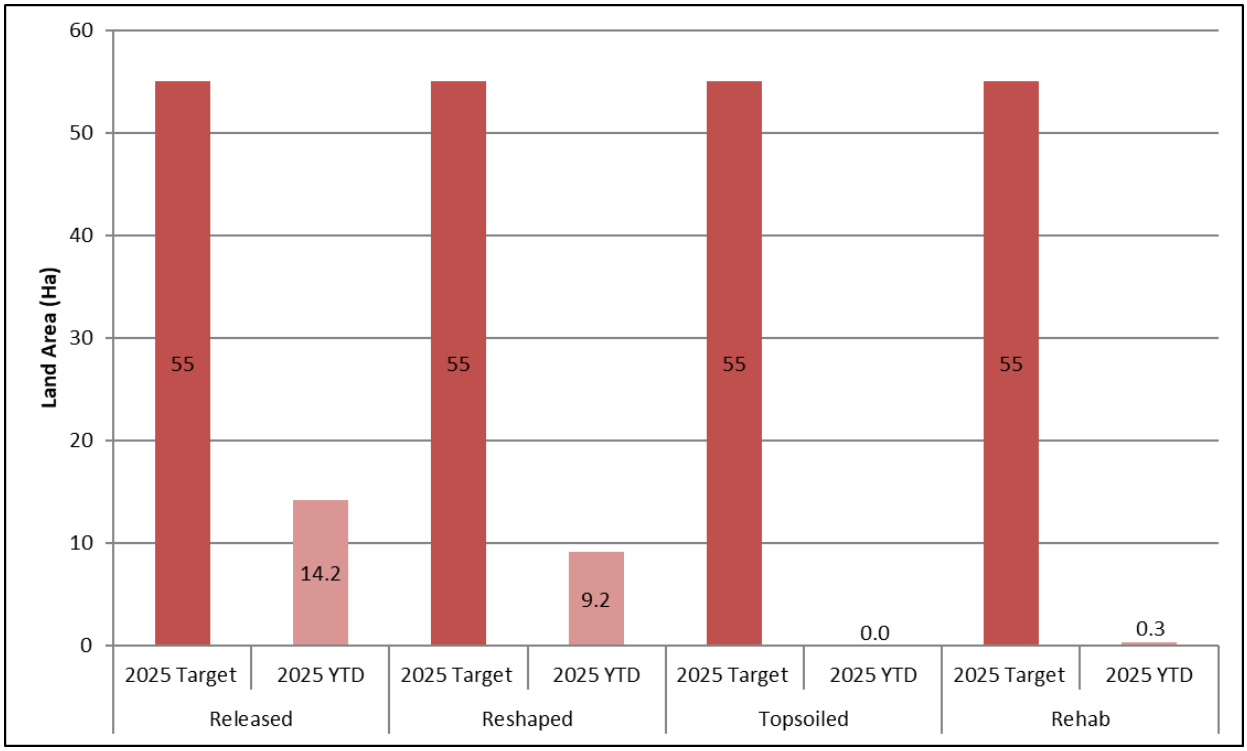

Figure 81 – Rehabilitation YTD March 2025

8 | COMPLAINTS

One (1) blast complaint was received during the reporting period. Details of complaints received during 2025 are shown in Table 11.

Table 11 – Complaints Summary 2025

Complaint Number	Date	Time	Complainant ID	Nature of Complaint	Mode of Complaint	Brief Description and Response
No community complaints were received during January						
No community complaints were received during February						
1	25 March	3:40pm	1	Blast	Community Hotline	• A resident of Jerrys Plains called the Community Complaints Hotline at 3:40 pm commenting that blast fume was observable whilst driving from Jerrys Plains to Singleton along the Golden Highway. The complainant was concerned about potential health impacts for themselves and their livestock. • A member of the HVO Environment and Community Team contacted the resident at 4:04pm to discuss the blast that initiated at 3:21pm generating post-blast fume in the HVO Cheshunt Pit. The team member provided feedback and information regarding the blast, confirming the fume did not leave the site boundaries. • The pre-blast risk assessment indicated a fume risk of likely, with the blast plume model forecasting the plume would travel in a northwest direction towards Carrington Pit area and dissipate onsite. Wind speed and direction at the time of firing were consistent with blasting permissions with in-field observations confirming that the blast fume dispersed slowly over HVO land once exiting the pit.

9 | ENVIRONMENTAL INCIDENTS

One (1) reportable environmental incident occurred during the reporting period. A summary of the incident is provided below:

01/03/2025 – Kilburnie South HVAS PM_{10} Exceedance

Monitoring results indicate that on 1 March 2025, the Kilburnie South PM_{10} High Volume Air Sampler (HVAS) recorded a total result of 50.8µg/m^3 for the 24-hour averaging period, exceeding the relevant criteria of 50ug/m^3. No complaints were received on this day. Todoroski Air Sciences were engaged to investigate the result and determined HVO's maximum potential contribution to be 9.7ug/m^3 (HVO South) and 0.0ug/m^3 (HVO North). HVO implemented operational controls on 1 March to comply with the HVO Air Quality and Greenhouse Gas Management Plan. The DPHI were advised of this exceedance on 17 March and an incident report was submitted on 24 March. No further follow up has been requested from DPHI at this time.

APPENDIX A: METEOROLOGICAL DATA (HVO CORPORATE)

Date	Air Temp Max (°C)	Air Temp Min (°C)	Relative Humidity (Max %)	Relative Humidity (Min %)	Solar Radiation Maximum (W/Sq. M)	Average Wind Direction (°)	Average Wind Speed (m/sec)	Rainfall (mm)
1/03/2024	26.70	14.86	95.60	41.78	977	113.30	1.67	0.00
2/03/2024	34.06	19.76	86.60	36.56	968	105.70	2.49	0.60
3/03/2024	35.41	19.44	90.60	31.40	1110	129.50	2.40	0.00
4/03/2024	26.03	19.53	80.00	55.85	1204	123.40	4.07	0.80
5/03/2024	25.92	17.35	92.70	46.86	1341	121.90	4.19	8.00
6/03/2024	26.88	17.39	95.20	49.25	1398	127.70	4.45	2.20
7/03/2024	23.76	18.21	94.10	64.65	1280	114.70	4.83	2.00
8/03/2024	22.25	17.39	93.10	65.57	1072	124.10	4.27	6.80
9/03/2024	24.79	16.73	95.30	65.94	1546	119.80	4.38	0.00
10/03/2024	27.41	19.03	88.70	55.40	1413	114.10	4.37	0.60
11/03/2024	21.81	18.36	94.60	77.16	414.3	122.70	2.30	0.00
12/03/2024	25.23	18.51	94.90	68.66	1080	119.60	2.75	0.20
13/03/2024	26.16	18.21	93.50	58.03	1122	121.20	2.86	0.00
14/03/2024	30.33	18.53	93.70	43.62	1222	140.20	1.57	0.00
15/03/2024	34.60	18.14	94.00	27.14	920	179.60	1.45	0.00
16/03/2024	36.40	17.99	82.10	21.75	896	219.00	1.72	0.00
17/03/2024	35.84	24.57	48.82	25.35	972	292.40	4.45	0.00
18/03/2024	28.87	14.21	78.32	35.41	1045	138.60	4.50	0.00
19/03/2024	24.69	12.68	75.40	46.10	1230	112.80	3.18	0.00
20/03/2024	29.94	15.58	85.40	40.55	1034	115.50	1.62	0.00
21/03/2024	33.81	17.09	88.20	27.78	1117	168.30	1.49	13.80
22/03/2024	24.08	18.74	95.40	58.05	1061	230.60	1.79	0.00
23/03/2024	27.89	19.20	90.40	50.37	1237	123.90	1.82	0.00
24/03/2024	24.41	18.82	92.80	65.96	1154	120.60	3.08	0.20
25/03/2024	26.43	18.90	94.20	59.85	1073	117.40	3.04	14.00
26/03/2024	26.24	19.11	92.20	60.75	1287	121.00	3.09	0.00
27/03/2024	24.55	17.48	93.10	49.34	1269	109.50	2.89	0.00
28/03/2024	24.91	17.75	92.50	49.71	565.8	111.30	3.42	6.40
29/03/2024	23.59	16.84	94.70	53.77	793.3	112.80	3.60	52.80
30/03/2024	20.30	16.72	96.60	84.90	586.5	156.60	1.38	0.00
31/03/2024	25.30	17.47	94.90	55.76	1323	206.40	2.38	0.00