



Monitoring Report for WDL254 Darwin Ship Lift Project

Reporting period: 30 August 2024 – 19 December 2024

Prepared for: Clough BMD Joint Venture



DOCUMENT CONTROL RECORD

Job	EZ25007
Document ID	248792-17
Author(s)	Gabriel Emblard, Anuska Roy, Michael Quinane

DOCUMENT HISTORY

Rev	Reviewed by	Approved by	Issued to	Date
A	Jack Dymalla	Jack Dymalla	CBJV	9/4/2025
B	Jack Dymalla	Jack Dymalla	CBJV	26/6/2025
C	Michael Quinane	Adele Faraone	CBJV	09/07/2025
D	Jack Dymalla	Jack Dymalla	CBJV	26/9/2025
E	Paula Martinez	Jack Dymalla	CBJV	09/10/2025

Certification details:

I Matthew Boynes have reviewed this report and I confirm that to the best of my knowledge and ability all the information provided in the report is true and accurate.

Signature	<i>Matthew Boynes</i>
Date	10-Oct-25

Recipients are responsible for eliminating all superseded documents in their possession.

EcOz Pty Ltd.
ABN: 81 143 989 039
Level 1, 70 Cavenagh Street
DARWIN NT 0800
GPO Box 381, Darwin NT 0800

Telephone: +61 8 8981 1100
Email: eco@eco.com.au
Internet: www.ecoz.com.au



RELIANCE, USES and LIMITATIONS

This report is copyright and is to be used only for its intended purpose by the intended recipient, and is not to be copied or used in any other way. The report may be relied upon for its intended purpose within the limits of the following disclaimer.

This study, report and analyses have been based on the information available to EcOz Environmental Consultants at the time of preparation. EcOz Environmental Consultants accepts responsibility for the report and its conclusions to the extent that the information was sufficient and accurate at the time of preparation. EcOz Environmental Consultants does not take responsibility for errors and omissions due to incorrect information or information not available to EcOz Environmental Consultants at the time of preparation of the study, report or analyses.

TABLE OF CONTENTS

ACRONYMS	IV
1 INTRODUCTION	1
1.1 Purpose	1
1.2 Legislative compliance for monitoring and reporting	1
2 SHIP LIFT PROJECT BACKGROUND	3
2.1 Project overview	3
2.2 Project location and description	3
3 ENVIRONMENTAL SETTING	8
3.1 Climate	8
3.1.1 Rainfall during the reporting period	8
3.2 Tidal behaviour	9
3.3 Marine water quality – Darwin Harbour	9
4 MONITORING PROGRAM	11
4.1 Objectives of the Monitoring Program	11
4.2 Monitoring sites, frequency and trigger values	12
4.3 Sampling methodology	14
4.4 Discharge Conditions	15
4.5 Monitoring undertaken	16
5 RESULTS AND DISCUSSION	20
5.1 Data Presentation Standards	20
5.2 Data Overview	20
5.3 Water Quality Results	21
5.3.1 Exceedances at compliance point Pond E (South) (authorised discharge point)	21
5.3.2 Pond E (North)	22
5.3.3 Pond K	22
5.4 Total Exceedances	23
5.5 Exceedance Investigation Summary	24
5.6 Environmental impact assessment	25
5.7 Contaminant Load Estimates	25
6 COMPLIANCE AND NON-COMPLIANCE	27
6.1 Compliance Summary	27
7 CONCLUSION	31
REFERENCES	32

Tables

Table 3-1. Average rainfall at Darwin Airport (taken from BoM Station No. 014015)	8
Table 3-2. Darwin Harbour tidal planes	9
Table 3-3. Summary water quality statistics for East Arm Wet and Dry Seasons (URS, 2011), taken from DDSPMP	10
Table 4-1. Monitoring sites	12
Table 4-2. Summary of WDL254 environmental monitoring requirements for EAW Settling Ponds (from Section 7.5 (Table 9) DDSPMP).....	14
Table 4-3: Relevant toxicants and their corresponding trigger values.....	16
Table 4-4. Compliance table for monitoring methodology (WDL254 conditions 27-36)	17
Table 5-1: Total Toxicant Exceedances in EAW Settling Ponds	23
Table 5-2. Turbidity exceedances at EAW settling ponds (Pond K).....	24
Table 5-3. Summary of exceedance investigations at Pond E (South)	24
Table 5-4. Annual contaminant load estimates in Pond K (for reporting period).	26
Table 5-5. Monthly contaminant load estimates in Pond K.	26
Table 6-1. WDL254 compliance summary table.....	27

Figures

Figure 2-1. Darwin Ship Lift Project Location and Settlement Ponds.....	6
Figure 2-2. Location for the proposed Action	7
Figure 3-1. Graph of rainfall between August 2024 to December 2024 compared to average rainfall for the region.....	8
Figure 4-1. Monitoring locations	13
Figure 5-1: Water toxicant exceedances (copper) at compliance point Pond E (South) – Monitoring Site 1 ..	21

Appendices

Appendix A	[Water] Field Data Raw
Appendix B	[Water] Field Data Graphs
Appendix C	[Water] Lab Data Raw
Appendix D	[Water] Lab Data Graphs
Appendix E	Annual Contaminant Load Estimate
Appendix F	Monthly Contaminant Load Estimate
Appendix G	Toxicant Exceedance Notification

ACRONYMS

ABF	Australian Border Force
ADF	Australian Defence Force
ANZG	Australian and New Zealand Governments
BHD	Backhoe Dredger
CBD	Central Business District
CBJV	Clough Projects Australia Pty Ltd and BMD Constructions Pty Ltd Joint Venture
CSD	Cutter Suction Dredge
DCMC	Department of the Chief Minister and Cabinet
DDSPMP	Dredge and Dredge Spoil Placement Management Plan
DGV	Default guideline values
DIPL	Department of Infrastructure, Planning and Logistics
EAW	East Arm Wharf
EMF	Environmental Management Framework
LAT	Lowest Astronomical Tide
MSB	Marine Supply Base
NT	Northern Territory
SSC	Suspended Sediment Concentration(s)
TPWC Act	Territory Parks and Wildlife Conservation Act (Northern Territory)
WDL	Waste Discharge Licence

EXECUTIVE SUMMARY

This monitoring report, prepared by EcOz Environmental Consultants for Clough and BMD Joint Venture (CBJV), assesses environmental compliance with Waste Discharge Licence (**WDL254**) for the Darwin Ship Lift Project (the Project). Near full compliance for the reporting period was met for **WDL254** licence conditions.

The monitoring program evaluated water quality across each settlement pond to protect the beneficial uses of Darwin Harbour, including aquaculture, environment, and cultural values, as per **WDL254 Item 1**. Three monitoring sites were selected to be representative of conditions in each of the three East Arm Wharf (EAW) settling ponds, and two sites selected to determine if any contaminants were present in stormwater entering the ponds as per **Section 7.2.2** of the **Dredge and Dredge Spoil Management Plan (DDSPMP)**. However, when monitoring was undertaken there was no stormwater to sample. All sampling methods were undertaken in accordance with **WDL254 Conditions 28-31**, **DDSPMP section 7.2.3**, and **AS/NZS 5667:1998**.

Discharged water began flowing from Pond K Weir into Pond E (North) from 30 August 2024, and subsequently to Pond E (South) on 1 November 2024 and tailwater discharge through to 19 December 2024. Monitoring was undertaken over a 15-week period through analysis of water samples for the presence of toxicants between 2 September and 16 December 2024 and daily in-situ field parameter readings (pH and turbidity) from 30 August to 19 December 2024. In-situ field data was collected daily both visually and by using a water quality meter. No erosion, floating debris or any of the indicators of ecological harm or prohibited substances under **WDL 254 Condition 23** were observed during any of the in-situ sampling instances.

Three non-compliances were recorded:

- two were non-compliance exceedances under **Condition 21.2**, which requires discharges from the authorised discharge point to not exceed the trigger value limits specified in **Item 7**. Sampling events on 16 September 2024 and 30 September 2024 returned results above trigger values for Copper (Cu). An investigation into these non-compliances conducted by CBJV, described in **Table 5-3**, in compliance with **Condition 24**, indicates that external factors other than project activities may have contributed to the elevated results. The exceedances were also recorded before tailwater was released from Pond E (North) to Pond E (South). Therefore, the exceedances are not directly attributable to the Project and no corrective actions were necessary. These exceedances did not trigger mandatory reporting to the EPA under **WDL254 Conditions 25 and 26 (Item 10)**.
- One non-compliance was also recorded with respect to **Condition 40.3** as the authorised discharge at Pond E (South) is a permeable bund, there was no opportunity to capture flow volumes via a flow meter. Contaminant load estimates were calculated for Pond K as the next best option. Estimates for this location are likely to be greater than contaminant loads moving through the discharge point due to retention time and treatment through the ponds. Results are shown in **Table 5-4**.

Pond K recorded multiple exceedances (Copper (Cu), Zinc (Zn), Lead (Pb), and turbidity) throughout the reporting period. Pond K is not a compliance point and so investigations were not required under **WDL254 Condition 24**, and these exceedances were non-notifiable to the EPA. CBJV did conduct investigations into these trigger value exceedances, given there were triggers exceeded from **DDSPMP Table 9 (Item 7)** as an early warning mechanism to inform if any corrective actions were required. It was determined no corrective actions were necessary. No exceedances were recorded at Pond E (North).

The discharge from Pond E (South) complied with all **WDL254** conditions except for the minor non-compliances under **Condition 21.2** and **Condition 40.3** described above, with no significant environmental

impacts observed beyond the project's approved extent. The monitoring program was completed in accordance with **WDL254 Item 11**. This report complies with **WDL254 Conditions 22, 39, and 40**, providing transparent data for regulatory and stakeholder review.

1 INTRODUCTION

Clough BMD Joint Venture (CBJV) are contracted to construct the Darwin Ship Lift Project. Conditions placed on the Environmental Approval **EP2023/028-001** include a number of environmental objectives which must be satisfied to mitigate environmental harm and impacts to the beneficial uses of Darwin Harbour as a result of the project's activities. A Waste Discharge Licence (**WDL254**) has been granted pursuant to section 74 of the **Water Act 1992** to carry out an action that would otherwise be an offence against this Act. The licenced action is the controlled discharge of wastewater from East Arm Pond E (North) to Pond E (South) into Darwin Harbour via the authorised discharge point and subject to the conditions of this licence.

The declared beneficial uses of Darwin Harbour, as per **WDL254 Item 1** are aquaculture, environment, and cultural. The **WDL254** licence aims to safeguard these beneficial uses by assessing water/sediment quality in water that is discharged into Darwin Harbour, to detect and prevent degradation, enforcing trigger values via mandatory reporting, prohibiting harmful discharge that could affect organisms, ecosystems, or human health/enjoyment, and ensuring transparent reporting to maintain accountability.

1.1 Purpose

The purpose of this monitoring report is to verify that CBJV maintains environmental and legislative compliance in accordance with **WDL254** licence conditions to ensure the protection of local environments/ecosystems, and the continuity of adequate water/soil quality within the project location (Darwin Harbour, Site of Conservation Significance number 6).

1.2 Legislative compliance for monitoring and reporting

This report is due for submission on 28 April 2025 as per **WDL254 13**. This report adheres to **WDL254 Conditions 39 & 40**, in addition to the **EPA Guideline for Reporting on Environmental Monitoring**, and the legislation found in the Dredge and Dredge Spoil Placement Management Plan (**DDSPMP**) Document No.: 41213-HSE-PL-D-0001, Revision G, as per **WDL Item 4 (a)**.

The relevant **WDL254** Conditions associated with these reporting requirements are provided below:

39. *The Licensee must complete and provide to the Administering Agency a report of data and information obtained through the implementation and performance of the Monitoring Program (the Monitoring Report), as prescribed by this licence, on the dates specified in Item 13.*

40. *The Licensee must ensure that each Monitoring Report:*

40.1. *is prepared in accordance with the requirements of the Administering Agency 'Guideline for Reporting on Environmental Monitoring' (or any other guideline as adopted by the Administering Agency from time to time);*

40.2. *includes a tabulation, in Microsoft ® Excel ® format or another format requested by the Administering Agency, of all monitoring data required to be collected in accordance with this licence for the preceding 12 month period;*

40.3. *includes a tabulation of monthly and annual contaminant loads discharged from the authorised discharge point specified in Item 5 for the preceding 12 month period. Contaminant loads must be calculated for metals, metalloids and other parameters (excluding field parameters) listed in the monitoring program specified in Item 11. The calculations must be based on the daily discharge volume and the concentration of contaminant present in the discharge on that day. On the days when a sample was not taken then the concentration of the contaminant must be estimated using Linear Interpolation methodology.*

- 40.4. includes long term trend analysis of monitoring data to demonstrate any environmental impact associated with the Licensed Action over a minimum period of three years (of part thereof);*
- 40.5. includes a summary of any investigations undertaken by the Licensee in accordance with this licence for the preceding 12 month period;* and*
- 40.6. includes an assessment of environmental impact from the Licensed Action.*

** No investigations were required as scheduled weekly monitoring found that exceedances had not repeated.*

2 SHIP LIFT PROJECT BACKGROUND

2.1 Project overview

The Northern Territory Government (NTG) is delivering the Darwin Ship Lift Project (the Project) which comprises construction and operation of a ship lift facility and an adjacent maintenance facility at East Arm. The early stages of the Project have been managed by the Department of the Chief Minister and Cabinet (DCMC), which is responsible for economic development and supporting business growth and sustainability in the Northern Territory (NT). The Project is being managed through the construction and operational phases by the Department of Infrastructure, Planning and Logistics (DIPL).

The Project will enable maintenance and servicing of a broad range of industries, including the Australian Defence Force (ADF) and Australian Border Force (ABF) vessels, as well as commercial and private vessels, including those servicing the oil, gas, pearling, fishing and other marine industries. It will be northern Australia's largest common user ship lift and will provide marine infrastructure that will deliver key services to northern Australia, acting as an enabler for the continued economic growth of Darwin as the logistics and marine services hub of the NT and northern Australia.

The Clough Projects Australia Pty Ltd (Clough) and BMD Constructions Pty Ltd (BMD) have established an unincorporated and fully integrated joint venture (Clough BMD Joint Venture / CBJV) for the execution of the Darwin Ship Lift Project to the Northern Territory of Australia (also referred to as the 'Territory') under a Collaborative Construction Contract (DDSPMP 2024).

The Clough BMD joint venture will construct the facility to meet the needs of the general fishing and maritime sector and the current and long-term needs of the Department of Defence and the ABF, while making a positive impact through business opportunities, jobs and community initiatives in the Territory (CloughGroup 2025).

2.2 Project location and description

The Project site is situated approximately 6.5 km south-east of the Darwin Central Business District (CBD), on the East Arm Peninsula within Darwin Harbour, east of East Arm Wharf (EAW) and on the seaward side of Berrimah Road (**Figure 2-1**).

The facility is proposed to include:

- A shiplift and transfer system.
- A shiplift control room for shiplift, SPMT vessel transfer system, SPMT shed, administration building and gatehouse.
- A vessel wash-down bay, blast and paint structure and hardstand.
- A dry berth hardstand for vessel repair and maintenance.
- Trestles for vessel support (out of water), lifting and transfer.
- Quay structures for 6 berths.
- Reclamation and hardstand.
- Marine structures, bunds, revetments, shore protection, and lead-in dolphins.
- Berth fixtures, including fenders, bollards, mooring systems, ladders, and operational safety infrastructure (eye wash stations, buoyancy rings and spill kits).

- Dredged berth pockets, manoeuvring basins, and adjustments to connect to existing shipping channel.
- Services including electrical, communication, potable water, sewerage, waste management, fire water, lighting, access control system and CCTV.
- Security fencing, gates, boom gates.
- An access road, intersection upgrade and internal infrastructure.

The shiplift will have the capacity to lift vessels such as Cape Class Patrol Boat (Australian Border Force) and SEA 1180 Luerssen Arufura Class OPV (Navy), OSV/PSV MMA Plover, Brewster and Responder, and OSV/PSV Pacific Harrier, Hawk, Herron, Hornbill and Navy Frigate ANZAC Class.

The facility will be delineated into two discrete areas, one of which will be privately operated, and the other will be designated as a Common User Facility, which will enable vessel owners to choose and manage their own service and maintenance providers. This will also enable multiple providers to operate concurrently at the facility (DDSPMP 2024).

Development of the Project will require dredging of a manoeuvring basin, berth areas and ship lift zone to provide safe navigable water depths for the proposed vessel sizes and access to the deeper waters within East Arm. Therefore, the project involves dredging and dredge spoil management to support the construction of the facility.

Settling ponds have been constructed on site to manage the flow of sediment and toxicants entering Darwin Harbour. Pond K receives dredge spoil from a fixed shore dredge spoil pipeline. Tailwater is released into Pond E (North) and then into Pond E (South) before being released through an authorised discharge point. The permeable bund at Pond E (South) between is the 'authorised discharge point', as per **WDL254 Item 5** (see **Table 4-1**).

Figure 2-1 shows the location of the Darwin Ship Lift facility, and the location of the settlement ponds used during dredging.

The discharged waste consists only of tailwater from dredged materials mixed with existing pond water, as per **WDL254 Item 6**. Dredging-related concerns such as sediment plumes and water quality are managed through daily on-site monitoring (including aerial imagery using drones) as per **DDSPMP Section 7.1.3**.

The areas to be dredged will comprise:

- ship lift at declared dredge depth -7.5m lowest astronomical tide (LAT) (Declared dredge level – 7.2m LAT)
- wet berths at -6.8m LAT (Declared dredge level – 6.5m LAT)
- manoeuvring basin areas at -3.3m LAT (Declared dredge level – 3.0m LAT).

There are two components to the dredging program:

Capital dredging (excluding maintenance dredging) shall not exceed 520,000m³ and shall occur within the approved extent, of which:

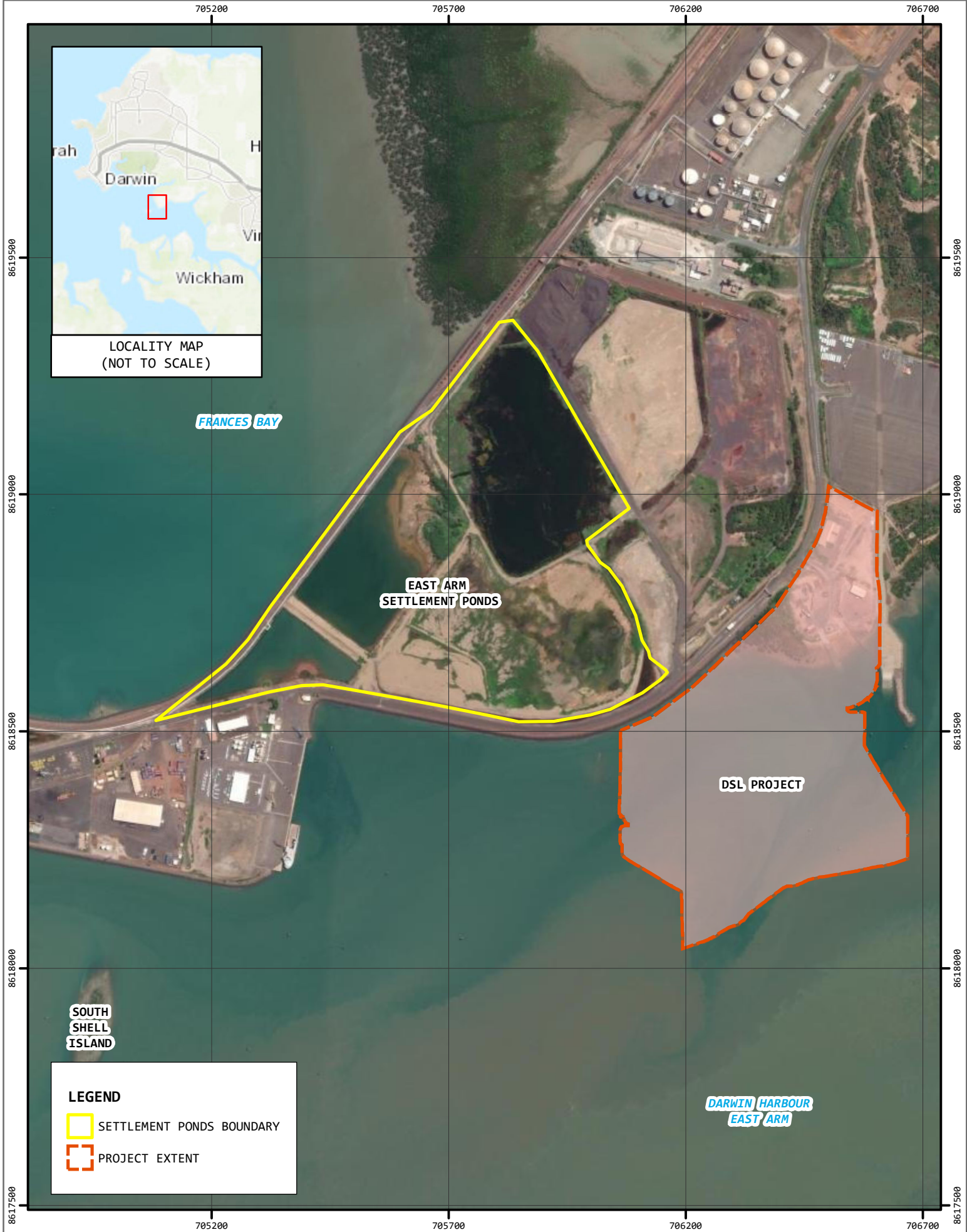
- 173,430m³ is Estuarine sediments (unconsolidated material) which are intended on being dredged with a Cutter Suction Dredge (CSD) and the balance of:
- 343,675m³ comprises material beneath the estuarine sediments including residual soil, weathered rock, bedrock (laterite, siltstone, sandstone, shale, conglomerate) and bedrock (quartzite) (consolidated materials) which is intended to be dredged using a large Backhoe Dredger (BHD) for incorporation into the reclamation.

The above dredging figures are based on detail design drawings **WGA230105-DR-CV-104110**, **WGA230105-DR-CV-104111**, **Amendment A** (CBJV 2024). The dredging quantities are subject to change

based on design layout, however, shall not exceed the approved quantity of 520,000m³ outlined in EP2023/028-001.

The approved extent as constrained by the EP Act Approval **EP2023/028-001** is provided in **Figure 2-2**. The proposed action area is represented by the brown shaded zone and Ponds K and E spoil disposal areas. (**DDSPMP** 2024)

Details of the proposed dredging and dredged material placement methodologies are presented in Section 4 of the **DDSPMP** (Cloud-BMD Joint Venture [CBJV] 2025).



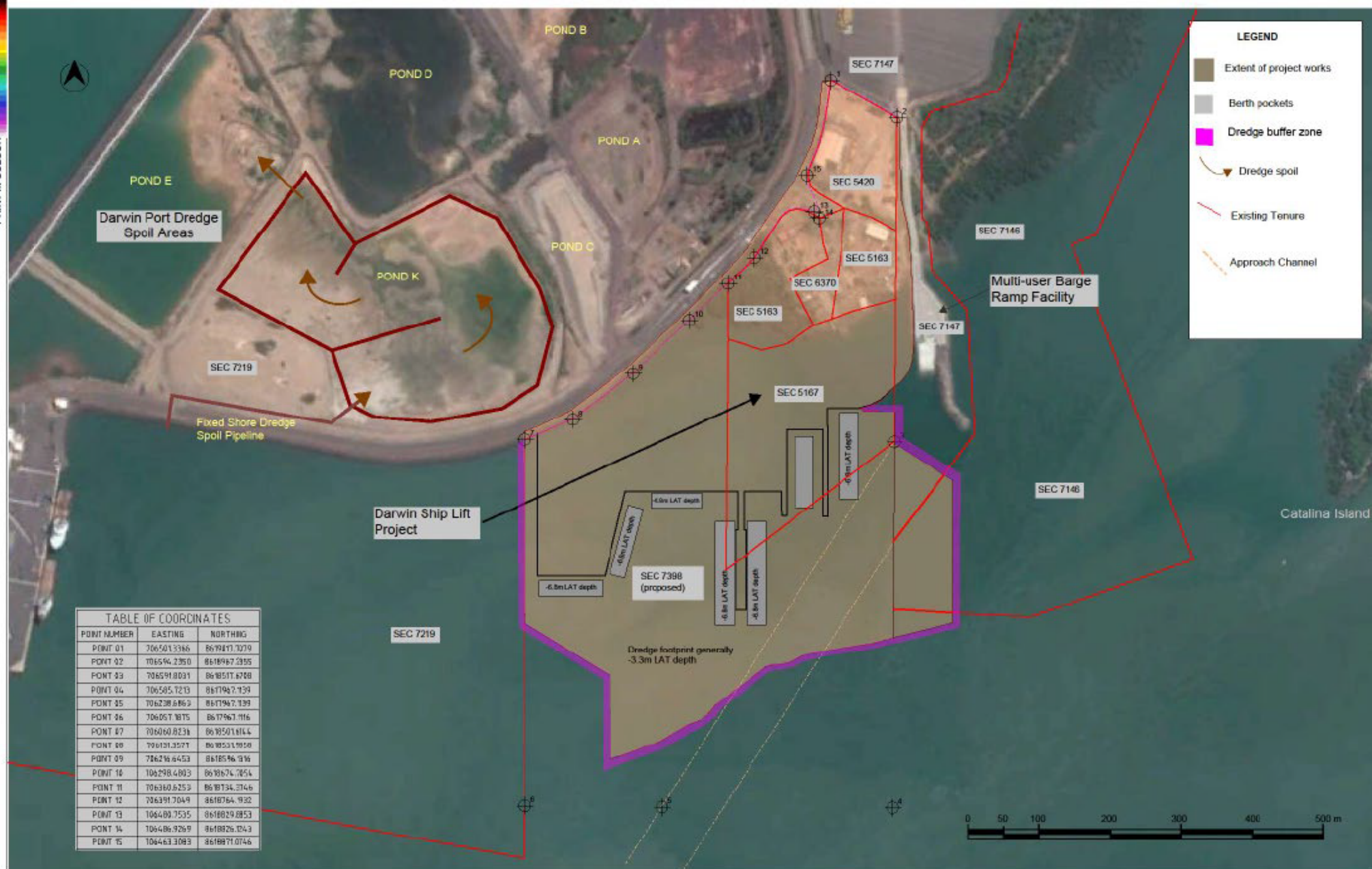
COORDINATE SYSTEM: GDA 1994 MGA ZONE 52
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
FALSE EASTING: 500,000.0000
FALSE NORTHING: 10,000,000.0000
CENTRAL MERIDIAN: 129.0000
SCALE FACTOR: 0.9996
LATITUDE OF ORIGIN: 0.0000
UNITS: METER



SCALE			
060120240360480 METERS			
DRAWN	E TAN	REVISION	A
CHECKED	C. MACKENZIE	DATE	12/12/2022



PROJECT TITLE
DARWIN SHIP LIFT
DRAWING TITLE
FIGURE 2.1 - PROJECT LOCATION



No.	AMENDMENT DESCRIPTION	DATE	INT.	DEPT/COMPANY
E	UPDATES DREDGE EXTENT	05.08.23	RS	AURECON
D	UPDATE LABELS	26.04.23	RS	AURECON
C	MAINTENANCE DREDGING	30.03.23	KRB	AURECON
B	UPDATE LABELS	13.12.22	RS	AURECON
A	ISSUED AS DELIVERABLE	08.12.22	RS	AURECON

Drawn R. SMITH Date: 08-02	Checked K. BLAKE Date: 05-02
Designed R. SMITH Date: 08-02	Checked K. BLAKE Date: 05-02
Design Project Leader K. BLAKE Date: 05-02	NTA Project Manager S. DAHLHEIM Date: 08-02

DARWIN EAST ARM DARWIN SHIFTLIFT - DESIGN DEVELOPMENT PHASE RECLAMATION AND DREDGING FOOTPRINT				
NTA Project No. VMD00259	NTA Asset No. N/A	Sheet Reference N/A	NTA Drawing No. DSL-AA-0022	Amendment E
				A1

Figure 2-2. Location for the proposed Action

3 ENVIRONMENTAL SETTING

3.1 Climate

The region of the project area experiences a tropical climate with a distinct dry season (May to October) and wet season (November to April). Average annual potential evaporation in the greater Darwin area is 2,340 mm, which exceeds average annual rainfall by 450 mm. The highest potential evaporation occurs between September and October, and lowest between February and March. Average monthly rainfall exceeds evaporation for only four months (December – March).

Climate data is sourced from the Bureau of Meteorology (BoM) weather monitoring station at East Arm (nearest station Darwin Airport number 014015).

Table 3-1. Average rainfall at Darwin Airport (taken from BoM Station No. 014015)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Rainfall (mm)	431.1	372.2	310.7	102.3	19.9	1.8	1.1	4.5	16.9	70.0	142.9	254.9	1735.9

3.1.1 Rainfall during the reporting period

Figure 3-2 shows the total rainfall in the region from August 2024 - December 2024 was 531.6 mm, higher than the long-term average of 489.2 mm for that time period. Rainfall was significantly above average in August and October and slightly above average in December, while September and November recorded slightly below average rainfall for the month.

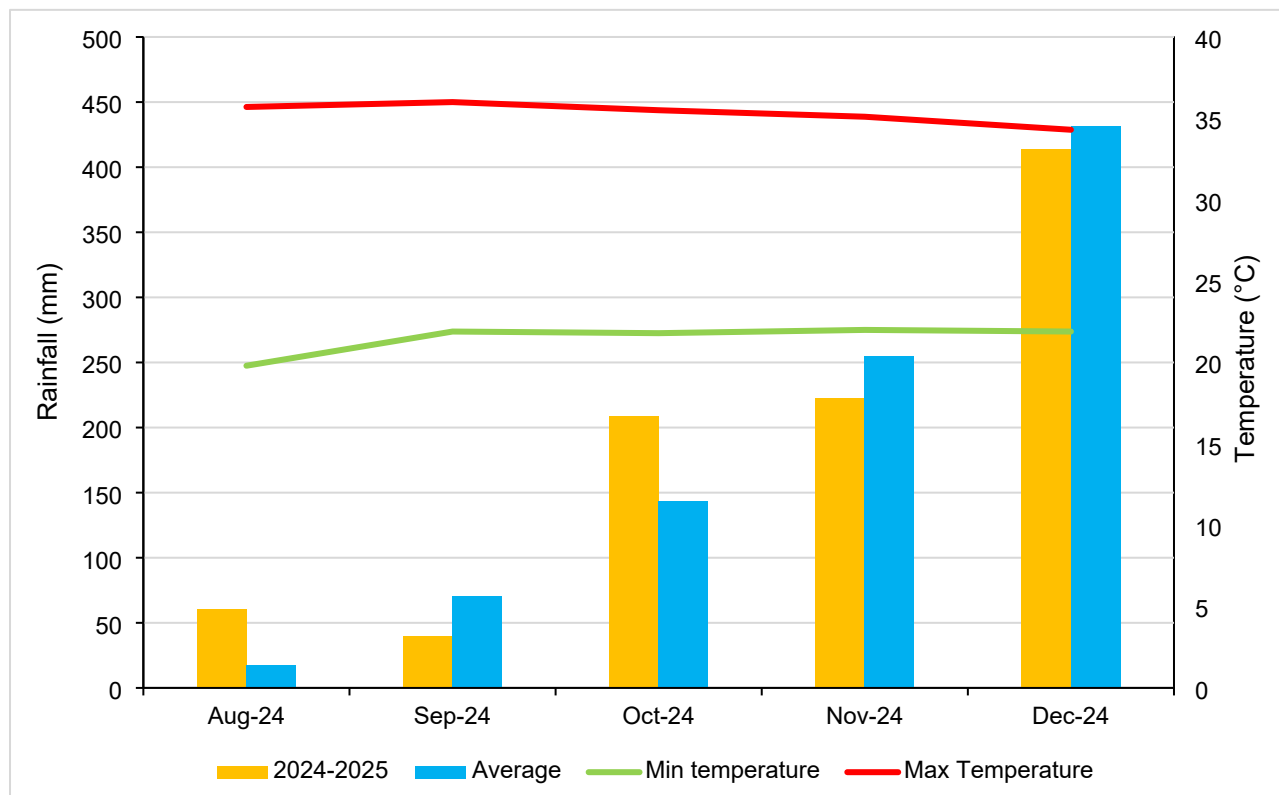


Figure 3-1. Graph of rainfall between August 2024 to December 2024 compared to average rainfall for the region.

3.2 Tidal behaviour

The Darwin Harbour region extends from Gunn Point in the east, to Charles Point in the west, covering an area of over 3200 km² comprising 65% terrestrial and 35% marine habitats (at high tide) (Fortune 2016). The region includes the catchments of the rivers and streams that flow into the harbour, including the Howard River, Elizabeth River and Blackmore River, as well as the large estuarine/marine water body that is Darwin Harbour. Within the harbour, shores are characterised by extensive intertidal mud flats and mangroves (CBJV 2024).

The tidal range in Darwin Harbour is between 0 m (i.e. LAT) and approximately 8.2 m above LAT (**Table 3-2**). The mean spring tide range is approximately 5.6m and the approximate mean neap tide range is 1.8m. Tides within Darwin Harbour are predominantly semidiurnal, with a slight inequality between the successive tides during a single day.

The wave climate in the region is dominated by locally generated waves, with little incident swell entering the harbour from the west, except under monsoonal cyclone or tropical low events. Between November and March, north-westerly winds blow over the uninterrupted fetch of the Timor Sea, increasing incident wave energy in Beagle Gulf and at the entrance to Darwin Harbour. Due to the alignment and narrow nature of the harbour entrance and the presence of the Tiwi Islands to the north, the interior of the harbour is sheltered from long period swell, and any swell that does enter the harbour is quickly dissipated by the generally shallow bathymetry and indented nature of the harbour shoreline.

The daily harbour inflow and outflow is approximately 216 million m³ on a spring tide and 71 million m³ on a neap tide. These flows represent 69% and 29% of water flows in Darwin Harbour respectively (Williams et al 2006). Tidal flows are strongest in the narrowest sections of the harbour, including sections of the East Arm channel.

Table 3-2. Darwin Harbour tidal planes

Tidal Plane	Description	LAT (m)
HAT	Highest Astronomical Tide	8.2
MHWS	Mean High Water Springs	7.0
MHWN	Mean High Water Neaps	5.1
MSL	Mean Sea Level	4.24
AHD	Australian Height Datum	4.105
MLWN	Mean Low Water Neaps	3.3
MLWS	Mean Low Water Springs	1.4
LAT	Lowest Astronomical Tide	0.0

3.3 Marine water quality – Darwin Harbour

Water quality in Darwin Harbour is typically described as generally high, although naturally turbid most of the time. Water quality parameters vary greatly with the tide phase (spring versus neap; flood versus ebb), location (inner versus outer harbour), and with the season (Wet season versus Dry season).

Seasonal aspects, rather than spatial or tidal aspects, were found to be the most important determinant of water quality within the harbour in general, with rainfall considered to have the greatest impact on water quality (Duggan, 2006).

Tidal movement can play an important role in re-suspending material from the harbour floor into the water column and water quality in the dredging areas is predominantly impacted by suspended sediments resulting from fast moving currents.

Water quality is typically higher in outer harbour waters than within the inner harbour, though turbidity at the harbour mouth can be elevated in shallow areas due to re-suspension of sediments from intertidal flats, especially during spring tides. A typical Darwin Wet season extends from November to April and is characterised by warm air temperatures, convective storms and monsoonal weather which brings heavy rain and strong north-westerly winds and, in some years, cyclonic weather. These Wet season conditions affect harbour water quality due to high surface runoff from the land.

There is no evidence of widespread water or sediment pollution in the Harbour, although there some localised pollution has been identified in the past. Anthropogenic influences on Harbour water quality include the EAW port operations, historic industrial activities at Darwin Waterfront, Sadgroves Creek and wastewater outfalls. However, there has been no evidence of widespread or persistent hydrocarbon or pesticide pollution in the harbour.

The harbour may be subject to occasional pollution events such as hydrocarbon spills, from potential sources such as:

- seasonal stormwater inflow from Darwin and Palmerston stormwater drainage networks
- creeks with industrial developments in their catchments (e.g. Hudson Creek, Sadgroves Creek)
- bulk hydrocarbon storage (e.g. at East Arm Peninsula, Darwin LNG plant and Channel Island Power Station)
- inventories in recreational vessels and commercial ships
- refuelling locations (e.g. HMAS Coonawarra, Cullen Bay, Fisherman's Wharf).

Darwin Harbour water quality has been monitored against a series of Water Quality Objectives (WQOs) and reported by DENR (now DEPWS) in annual report cards since 2009. The annual report cards provide a score based on the following parameters:

- dissolved oxygen (DO)
- Total Suspended Solids (TSS) (by way of a TSS – turbidity relationship)
- chlorophyll a (as an indicator of algae)
- Nutrients (nitrogen and phosphorus)
- temperature, pH and salinity are also measured but not included in the determination of the report card score.

In 2020, water quality in East Arm was monitored at 23 sites through this process. The East Arm region has consistently met water quality objectives over the period since the program began in 2009.

Table 3-3. Summary water quality statistics for East Arm Wet and Dry Seasons (URS, 2011), taken from DDSPMP

	Dry season			Wet season		
	Mean	Min	Max	Mean	Min	Max
Temperature	28.1	25.3	32.1	30.4	28.1	32.0
Conductivity (mS/cm)	48.7	40.2	52.9	46.2	36.7	49.8
Depth (m)	6.3	2.4	11.0	6.7	2.5	11.3
pH	8.0	7.7	8.5	8.0	7.6	8.2
DO (%)	93.5	73.4	121.1	88.5	67.3	106.4
Turbidity (NTU)	4.4	0.1	46.4	8.3	0.2	68.0

4 MONITORING PROGRAM

4.1 Objectives of the Monitoring Program

The overarching objectives of the monitoring program are as per **Section 1.5** of the **DDSPMP**. Namely, that project construction activities must be carried out to achieve the environmental objectives included in **Environmental Approval (EP2023/028-001)**, including the following:

- Protect the quality and productivity of water, sediment and biota so that environmental values are maintained within Darwin Harbour beyond the approved extent of the project.
- No material environmental harm to the environmental values and declared beneficial uses of Darwin Harbour beyond the approved extent, including but not limited to the quality or productivity of water, sediment and biota (**Condition 2-1[1]** of the **EP2023/028-001**).
- Minimise risks of physical injury, mortality, behavioural changes and health impacts on marine megafauna (**Condition 2-1[3]** of the **EP2023/028-001**).
- Dredging and land reclamation must not cause any adverse impact on water quality, or the condition or distribution of benthic communities or marine megafauna outside of the footprint and immediate surrounds, as indicated by monitoring required by **Condition 2-4(3)** of the **EP2023/028-001**.
- To implement measures for avoidance and minimisation of impacts on marine megafauna, as indicated by **Condition 2-4(7)** of the **EP2023/028-001**.

The objectives pertaining to the **WDL254** licence conditions include those listed in **Section 7.2.1** of the **DDSPMP**. That is, the objectives of monitoring water quality within the EAW settling ponds are to:

- Detect trends in tailwater pH that may indicate the generation of acid from dredged potential acid sulfate soils (PASS) material pumped into the ponds.
- Detect trends in toxicant concentrations within the ponds that may indicate the mobilisation of toxicants from the dredged sediments, or from material placed in the ponds during past dredging programs (EAW development, Darwin City Waterfront Redevelopment, etc.).
- Confirm the physio-chemical properties (pH, toxicants and Suspended Sediment Concentration [SSC]) of the tailwater are suitable for discharge from the ponds to the harbour waters.
- Comply with the Waste Discharge Licence conditions. (DDSPMP, 2024)

4.2 Monitoring sites, frequency and trigger values

The water quality monitoring locations for the EAW Settling Ponds are presented in **Table 4-1** and shown in Figure 4-1. The pH, turbidity and toxicant concentrations are monitored at the tailwater release point in each pond where tailwater is flowing, and within Pond E (South) prior to discharge through the authorised discharge point, a permeable bund wall on the north-east side of Pond E (South) between ADP(A) and ADP(B) as per **WDL254 Item 5**. The Compliance point is at ADP(A) as per **WDL254 Item 8** and this location is shown as Monitoring Site 1 in **Table 4-1** and **Figure 4-1** (refer **Section 7.2.2 DDSPMP**, 2024).

For the purposes of compliance with **WDL254** licence conditions, Monitoring Site 1 as the authorised discharge point, is the compliance point specified in **WDL254 Item 8 (Condition 21)**. Any exceedance of a trigger value limit at the site requires CBJV to investigate, record and (if required), take corrective action. The trigger values for the compliance point are described in **Table 4-2** and are taken from **Section 7.5 (Table 9)** of the **DDSPMP**.

Monitoring Sites 4 and 5 were included to assess stormwater quality were entering the ponds. When monitoring was undertaken there was no stormwater to sample.

Table 4-1. Monitoring sites

Site	Coordinates	Description	Purpose
1	ADP(A) Latitude: -12.489046° Longitude: 130.888507°	Authorised Discharge Point is a permeable bund at Pond E (South) between ADP(A) and ADP(B) as per WDL254 Item 5 .	Compliance point as per WDL254 Item 8 (Condition 21)
	ADP(B) Latitude: -12.489046° Longitude: 130.887967°	The Compliance point (Monitoring Site 1) is at ADP(A) as per WDL254 Item 8 (Condition 21)	
2	Latitude: -12.488591° Longitude: 130.891°	Settlement pond – Pond E (North)	Monitoring water quality at EAW Settling Ponds.
3	Latitude: -12.48652585° Longitude: 130.8931499°	Settlement Pond – Pond K (receive dredge spoil)	
4	Latitude: -12.48547552° Longitude: 130.8926716°	Stormwater – Pond D	Monitoring stormwater quality entering the ponds.
5	Latitude: -12.48887974° Longitude: 130.8913588°	Stormwater – Pond K road bund	

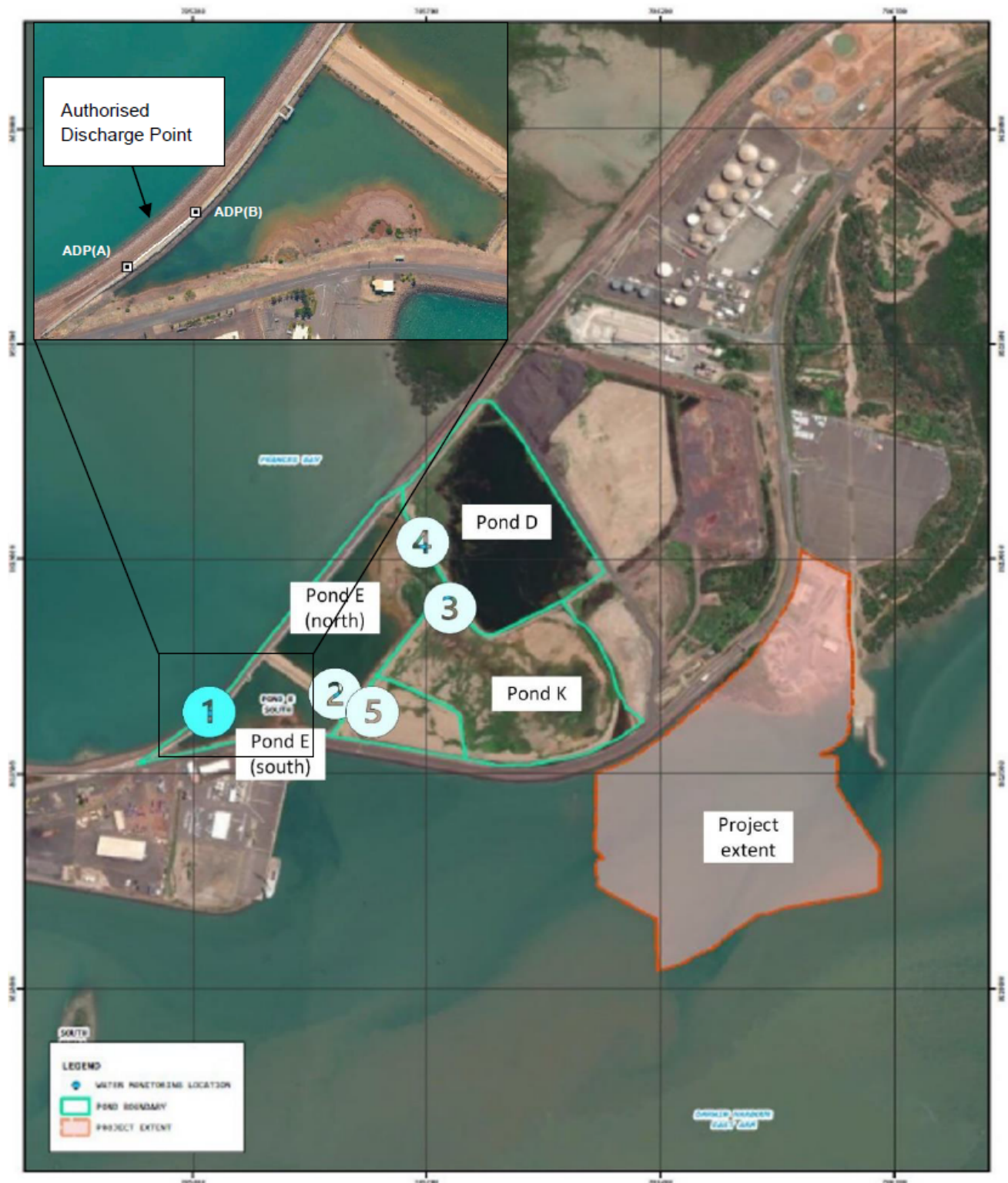


Figure 4-1. Monitoring locations

Table 4-2. Summary of WDL254 environmental monitoring requirements for EAW Settling Ponds (from Section 7.5 (Table 9) DDSPMP)

Locations	Parameter	Methods	Frequency	Triggers	Environmental Management Framework
East Arm Wharf Settling Ponds					
Section 7.2 DDSPMP	pH	Hand-held probe	Daily while tailwater is flowing, from commencement of dredging until cessation of tailwater discharge	pH <6.0	Water Quality Management – EAW Settling Ponds
Pond E (South) at the railway bund (authorised discharge point and compliance point) – Monitoring Site 1*	Turbidity	Hand-held probe		SSC >100 mg/L (measured as turbidity, 140 NTU)	
Pond E (North) at the weir prior to flow into Pond E (South) – Monitoring Site 2*	Toxicants (see Table 4-3)	Laboratory	Weekly from the commencement of dredging until cessation of tailwater discharge	Toxicant concentrations > ANZG DGVs for toxicants (refer Table 7 of DDSPMP).	
Pond K at the weir prior to flow into Pond E (North) – Monitoring Site 3*					
Stormwater					
Section 7.2 DDSPMP Stormwater Monitoring	pH	Hand-held probe	Weekly when stormwater enters Pond E (North) from Pond D.	pH <6.0	Water Quality Management – EAW Settling Ponds
Pond E (North) where stormwater enters from Pond D – Monitoring Site 4*	Turbidity	Hand-held probe		SSC >100 mg/L (measured as turbidity, 140 NTU)	
Pond E (North) where stormwater enters from Pond K road bund – Monitoring Site 5*	Toxicants (see Table 4-3)	Laboratory		Toxicant concentrations > ANZG DGVs for toxicants (refer Table 7 of DDSPMP).	

* Refer to Figure 4-1 for map of monitoring site locations

4.3 Sampling methodology

All sampling methods were undertaken in accordance with **WDL254 Conditions 27-36, DDSPMP section 7.2.3**, and the following standards and guidelines:

Australian/New Zealand Standard on Water Quality Sampling - Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples (AS/NZS 5667.1:1998), Standards Australia, New South Wales.

Australian Standard/New Zealand Standard on Water Quality Sampling - Part 4: Guidance on sampling from lakes, natural and manmade (AS/NZS 5667.4:1998), Standards Australia, New South Wales.

Australian/New Zealand Standard on Water Quality Sampling - Part 6: Guidance on sampling of rivers and streams (AS/NZS 5667.6:1998), Standards Australia, New South Wales.

Australian Standard/New Zealand Standard on Water Quality Sampling – Part 10: Guidance on sampling of waste waters (AN/NZS 5667.10:1998), Standards Australia, New South Wales.

ANZECC & AMRCANZ 2000, Australian and New Zealand Guidelines for Fresh and Marine Water Quality, National Water Quality Management Strategy Paper No 4, Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (AMRCANZ), Canberra.

ANZECC & AMRCANZ 2000, Australian Guidelines for Water Quality Monitoring and Reporting, National Water Quality Management Strategy Paper No 7, Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (AMRCANZ), Canberra.

4.4 Discharge Conditions

The discharge conditions used to confirm compliance are set out in **WDL254 Conditions 20-23**, as follows:

20. *The Licensee must only discharge waste to water from the authorised discharge points specified in Item 5.*
21. *Discharges from each authorised discharge point must:*
 - 21.1. *consist only of waste from the source(s) specified in Item 6;*
 - 21.2. *not exceed the trigger value limits specified in Item 7 at the compliance point specified in Item 8; and*
 - 21.3. *comply with the limitations specified in Item 9.*
22. *The Licensee must, for Settlement pond – Pond K (Site 3), measure and record for each discharge event to Pond E (North) as far as reasonably practicable:*
 - 22.1. *the time the discharge commenced and the duration of the discharge;*
 - 22.2. *the discharge rate of flow; and*
 - 22.3. *the discharge volume.*
23. *Discharges from each authorised discharge point must not:*
 - 23.1. *contain any floating debris, oil, grease, petroleum hydrocarbon sheen, scum, litter or other objectionable matter;*
 - 23.2. *cause or generate odours which would adversely affect the use and amenity of surrounding waters;*
 - 23.3. *cause algal blooms in the receiving water;*
 - 23.4. *pollute groundwater;*
 - 23.5. *cause visible change in the behaviour of fish or other aquatic organisms in the receiving water;*
 - 23.6. *cause mortality of fish or other aquatic organisms;*
 - 23.7. *cause erosion or degradation to the beds and banks of a watercourse; or*
 - 23.8. *cause adverse impacts on plants or animals.*

The approach to ensuring compliance with the **WDL254 Conditions 20-23** is set out in the **DDSPMP** in **Section 6.2.4 (Table 7)** which outlines the Water Quality Management Framework for the EAW settling ponds. Confirmation of compliance with the above licence conditions is characterised by the following targets:

1. No increase in tailwater acidity within Pond E (North) to the extent that it is unacceptable for discharge into Pond E (South) and receiving waters due to low pH (<6.0).
2. No exceedances of ANZG DGVs for toxicants (refer Table 6 of DDSPMP) in tailwater within Pond E (North) prior to the commencement of transfer into Pond E (South).
3. All tailwater discharging from Pond E (North) into Pond E (South) has
 - a. SSC less than 100 mg/L (measured as turbidity [140 NTU]), and
 - b. pH greater than 6.0
4. No occasions when tailwater discharging from Pond E (South):

- Contains floating oil or grease or petroleum hydrocarbon sheen or scum, or litter or other objectionable matter.
- Causes or generates odours which would adversely affect the use of surrounding waters
- Causes algal blooms
- Causes visible change in the behaviour of fish or other aquatic organisms
- Causes mortality of fish or other aquatic organism
- Causes adverse impacts on plants

Trigger values adopted for measuring compliance with **WDL254 Condition 21** at Monitoring Site 1 (Pond E (South), compliance point) are presented below in **Table 4-3 (Section 6.2.2 (Table 6) of the DDSPMP)**.

Table 4-3: Relevant toxicants and their corresponding trigger values

Toxicant	Trigger Level
Arsenic (AsIII)	24 µg/l (freshwater)
Arsenic (AsV)	13 µg/l (freshwater)
Cadmium	5.5 µg/l
Chromium (CrIII)	27.4 µg/l
Chromium (CrVI)	4.4 µg/l
Copper	1.3 µg/l
Lead	4.4 µg/l
Mercury (inorganic)	0.4 µg/l
Nickel	70 µg/l
Selenium (total)	5 µg/l (freshwater)
Zinc	15 µg/l

4.5 Monitoring undertaken

Water quality monitoring was undertaken by a qualified sampler at CBJV at three Monitoring Sites (Pond E (South) – compliance point, Pond E (North) and Pond K) from 30 August to 19 December (refer **Table 4-1**). Daily in-situ field parameter monitoring was undertaken as well as a weekly toxicant concentration sample at Monitoring Site 1 (Pond E (South), compliance point), Monitoring Site 2 (Pond E (North)), and Monitoring Site 3 (Pond K). In the reporting period, the Monitoring Sites 4 (Stormwater – Pond D) and 5 (Stormwater – Pond K road bund) were dry, and therefore, no stormwater samples were collected.

Discharge commenced from Pond K Weir into Pond E (North) from 30 August, and subsequently to Pond E (South) on 1 November 2024 where tailwater discharge continued, with pauses when dredge was not operational, through to the end of the reporting period 19 December 2024. Sampling occurred at Pond E (South) prior to tailwater release commencing on 1 November 2024. No erosion, floating debris or any of the indicators of ecological harm or prohibited substances under **WDL 254 Condition 23** were observed during any of the in-situ sampling instances. Monitoring for discharge compliance was conducted at the compliance point at Pond E (South) permeable bund (authorised discharge point), as per **WDL254 Item 5**. Discharge was composed of tailwater from dredged unconsolidated materials mixed with existing EAW pond water from Pond K through to Pond E (South), as per **WDL254 Item 6**.

All field data and laboratory documentation were organised by **CBJV** and distributed to **EcOz** for reporting purposes. Processing of the data adhered to the guidelines for data analysis found in **DDSPMP section 7.2.4**.

Monitoring of each discharge event was undertaken via a flow meter at Pond K (Site 3) to record the time of commencement and duration of each discharge event, as well as the rate of flow and the volume, as per

WDL254 Condition 22. The raw data table for this flow meter data is too large to include in this monitoring report and can be provided by CBJV upon request.

During monitoring, quality assurance and quality control (QA/QC) methods were implemented including ensuring equipment used is calibrated and water quality monitoring is undertaken in accordance with **AS/NZS 5667.1:1998 Water quality – Sampling**. It is worth noting that **WDL254 Condition 27** specifies that monitoring must be undertaken in accordance DDSPMP monitoring program which links to AS/NZS5667.1:1998 and lists field blanks as an example of QA/QC. The AS/NZS standard recommends blanks and duplicates as part of a QA/QC program but does not make them mandatory in every program.

Field blanks and duplicates were not collected each run for DDSPMP testing this program, the analytes are not at ultra-trace levels, where a false positive from a speck of dust or container rinse would meaningfully affect compliance decisions. Lab QA/QC covers blanks, spikes, and replicates and provides strong confidence in data reliability from the laboratory.

A detailed assessment of the monitoring conducted with respect to the **WDL254** conditions is presented in **Table 4-4**.

Table 4-4. Compliance table for monitoring methodology (WDL254 conditions 27-36)

Condition Number	Condition	Designation	Evidence / Comments
Condition 27	From the Commencement Date of this licence, the Licensee must implement and comply with the Monitoring Program specified in Item 11 .	Compliant	CBJV recorded daily in-situ pH and turbidity monitoring for all dates for the reporting period excluding one non-compliance on 8 December 2024 where no monitoring was undertaken. Tailwater pH was monitored in the field by extracting water samples daily from each monitoring location and testing the water with a hand-held pH meter. Turbidity was monitored daily in the field at each monitoring location using a hand-held probe. Readings taken on 7 and 9 December 2024 indicate no anomalies or observations of note for pH or turbidity and a toxicant sample taken on 9 December 2024 indicates no toxicant concentrations above trigger levels were recorded on this date. Weekly toxicant sampling was conducted throughout the reporting period as per the monitoring program in Section 7.5 (Table 9) of the DDSPMP except for week 12 (12 November 2024). Field notes for this day record that no sampling was taken due to no water flow as dredge was not operational.
Condition 28	The Licensee must to the extent practicable collect samples that are representative of discharge conditions that maximises the ability to detect potential impact from the Licenced Action, including collecting samples at sampling points.	Compliant	All sampling was conducted at designed monitoring locations described in Table 4-1. These monitoring locations, from Section 7.2.2 (Table 8) of the DDSPMP were determined to be representative of discharge conditions.
Condition 29	In implementing the Monitoring Program the Licensee must to the extent practicable that samples collected at the sampling points are collected: 29.1 on the same date as discharge event; and 29.2. from the part of the	Compliant	All samples were taken on dates when dredged material was discharged. Over the course of discharge of tailwater from the pond system: Tailwater pH was monitored in the field by extracting water samples daily from each monitoring location and testing the water with a hand-held pH meter.

Condition Number	Condition	Designation	Evidence / Comments
	waterway that provides representative (well mixed) samples.		Turbidity was monitored in the field daily at each monitoring location using a hand-held probe.
Condition 30	If a sample is missed or cannot be collected at a sampling point at a frequency set in the Monitoring Program for any reason, the Licensee must revisit the sampling point to collect a sample as soon as possible after the missed collection	Compliant	A sampling event was missed on Week 12 (12 November 2024). This was because there was no flow at the sampling locations as dredge was not operational. A subsequent sampling event was undertaken at week 13 (18 November 2024). Aside from this explicable non-compliance, all other weekly samples were taken.
Condition 31	The Licensee must ensure that all samples and field environmental data are collected in accordance with recognised Australian Standards and guidelines (such as AS/NZS 5667.1 1998, ANZG (2018), as updated from time to time).	Compliant	During monitoring, quality assurance and quality control (QA/QC) methods were implemented including ensuring equipment used was calibrated and water quality Monitoring was undertaken in accordance with AS/NZS 5667.1:1998 <i>Water quality – Sampling</i> as per the DDSMP. Multiple samples were required, as the analysis includes filtered metals, and total (and speciation, if required) arsenic and chromium. Dissolved metals were determined by analysing those metals in a filtered sample that passes through a 0.45 µm membrane filter. Containers were pre-prepared plastic with caps that have a Teflon liner.
Condition 32	For the parameters that require analysis at a laboratory, the Licensee must ensure that: 32.1. all samples are analysed at a laboratory with current NATA accreditation or equivalent; and 32.2. detection and reporting limits are appropriate to determine compliance with this licence.	Compliant	One water sample per week was collected from each of the monitoring locations and sent to ALS Darwin for analysis of toxicant concentrations. ALS is a National Association of Testing Authorities (NATA) accredited laboratory. A fast turnaround time for analysis was specified, to minimise the time that elapses before any required corrective actions are able to be implemented.
Condition 33	The Licensee must ensure any samples collected in accordance with the Monitoring Program or in connection with the Licensed Action or this licence, are obtained by, or under the supervision of a qualified sampler.	Compliant	All sampling events were undertaken by a suitably qualified person.
Condition 34	The Licensee must ensure any plant and equipment used by the Licensee in conducting the Monitoring Program: 34.1. is reasonably fit for the purpose and use to which it is put, including that it is properly calibrated; 34.2. is maintained and operational; and 34.3. is operated by a person trained to use the plant and equipment.	Compliant	All equipment used throughout the monitoring program was calibrated in accordance with AS/NZS 5667.1:1998 <i>Water quality – Sampling</i> , was operating as fit for purpose and operated by a suitably qualified person at CBJV.

Condition Number	Condition	Designation	Evidence / Comments
Condition 35	The Licensee must ensure that, for each sample collected in accordance with the Monitoring Program or the Licensed Action, the following information must be recorded and retained: 35.1. the date on which the sample was collected; 35.2. the time at which the sample was collected; 35.3. the location at which the sample was collected; 35.4. the name of the person who collected the sample; 35.5. the chain of custody forms relating to the sample; 35.6. the field measurements (if any) and analytical results (if any) relating to the sample; and 35.7. laboratory quality assurance and quality control documentation.	Compliant	A database was maintained by CBJV which included all the in-situ parameter field data and toxicant results, including tables and graphs. The field parameter meter ID was recorded in this database.
Condition 36	The Licensee must for all land-based monitoring points specified in the Monitoring Program: 36.1. install and maintain appropriate identification signage so that they are reasonably identifiable at all times; and 36.2. maintain safe access and egress, as is reasonably practicable.	Compliant	Safe access to monitoring points and appropriate signage were maintained.

5 RESULTS AND DISCUSSION

5.1 Data Presentation Standards

This report is formatted for public disclosure, as per **WDL254 Item 14**. This data supports future regulatory submissions and is presented with transparency for stakeholder review. The lab results were obtained from a NATA-accredited facility (ALS Darwin), with results reported in µg/L for dissolved metals as per **WDL254 Condition 32**. The data critical for confirming compliance with **WDL254** licence conditions focuses on the 'compliance point' (Pond E (South) – Monitoring Site 1) as per **WDL254 Item 8**.

5.2 Data Overview

The data presented in the results and discussion section is composed of water samples from three Monitoring Sites (**see Table 4-1**). This data has been tabulated and used to generate graphs to clearly illustrate the temporal extent of the data, the trends, and their relativity to their respective trigger values. The data is structured to support the Annual Return and Monitoring Report, as per **WDL254 Items 12 and 13**.

The types of data that are presented include recordings of in-situ measurements (pH, electrical conductivity, turbidity, dissolved oxygen, temperature), and laboratory analyses (alkalinity, dissolved metals, total metals). The results align with the surface water monitoring program outlined in **DDSPMP Sections 7.2 and 7.5**, as per **WDL254 Item 11**.

5.3 Water Quality Results

All results obtained in the reporting period are presented in **Appendix A** and **Appendix C**, where the concentrations were also assessed against the respective trigger values.

5.3.1 Exceedances at compliance point Pond E (South) (authorised discharge point)

Concentrations of Copper (Cu) (in blue in the graph below) exceeded the trigger value (1.3 µg/L) at the compliance point at Pond E (South) on two separate occasions, on 16 September 2024 and 30 September 2024.

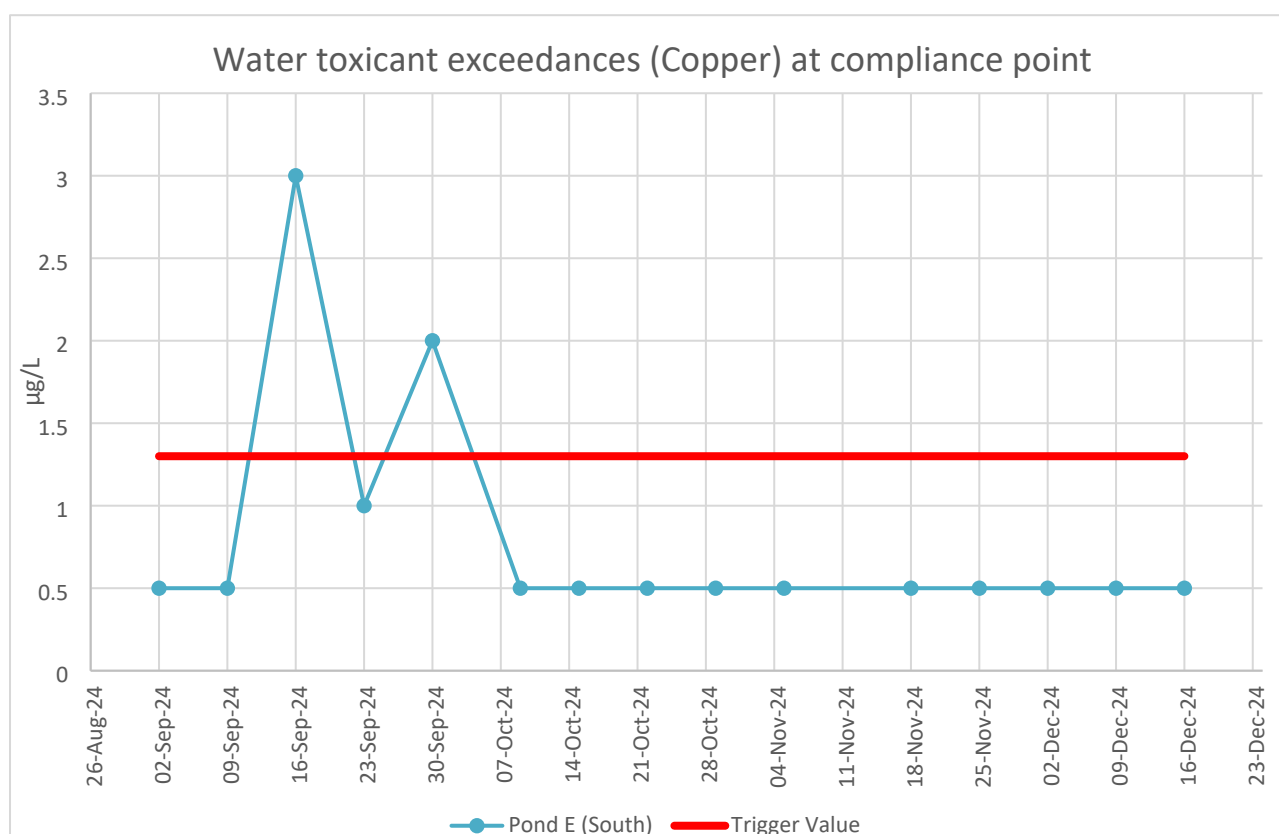


Figure 5-1: Water toxicant exceedances (copper) at compliance point Pond E (South) – Monitoring Site 1

WDL254 Condition 24 requires CBJV to investigate any exceedance of a trigger value specified in **Item 7** at the compliance point (see **Table 5-3** for summary of investigations and **Appendix G** for complete record of investigation outcomes). These exceedances were investigated, and the following points noted:

- The weir between Pond E (North) and Pond E (South) had remained closed at the time of the recorded exceedance on 16 Sept 2024.
- There had been no tailwater discharge into Pond E (South) since the commencement of dredging activities. Water commenced flowing through Pond K weir on 30 August 2024 but no tailwater was released from Pond E (North) into Pond E (South) until 1 November 2024. It is therefore unlikely that the toxicant level was caused by DSL dredging or associated activities.
- Sampling time coincided with first rains of the year. Darwin Airport Weather Station recorded rain on 16, 17 and 18 September 2024. EAW also had rain around this time including an early

shower, on or before 16 September 2024. This has the potential to mobilise sediment or contaminants from other sources not linked to the activities undertaken onsite.

- Pond E South is the pond most influenced by incoming tide. Sampling on 16 September 2024 occurred at the end of neap tides (~4m movement). It is possible that legal discharges of Copper (Cu) were discharged from other sources and the neap tides in the days prior caused it to be on the low end of mixing and dilution and then pushed into the pond.

As per **WDL254 Item 10 Conditions 25 and 26**, these exceedances were not notifiable to the EPA as the exceedances did not occur over three consecutive sampling occasions nor was the exceedance three or more times the trigger value (which would be 3.9 µg/L).

Other notable results from the sampling analysis across the reporting period include:

- Pond E (South) did not exceed any other trigger values for heavy metals across the 15-week period.
- Pond E (South) did not exceed any trigger values for the in-situ field data (pH and turbidity) across the 15-week period. The following parameters were monitored but did not have trigger values: Electrical Conductivity, TDS, Temperature, and Oil + Grease presence.
- There was one recorded instance of an abnormally high DO reading at Pond E (South) on 8 September 2024 of 39.82 (mg/L). A reading this high isn't possible in the conditions at Pond E (South) which typically fluctuate between 4-8 mg/L but may vary either side if disturbance of sediment or aeration occurs. However, 39.82 mg/L is well in exceedance of a typical range, and all other parameters (EC, pH, temp) were within expected values. As such this DO reading can be treated as an outlier and ignored for this dataset. Possible reasons for the false reading include:
 - Sampling error due to exposed probe (although unlikely if other parameters are within expected ranges)
 - Calibration error
 - Air bubbles trapped in the probe membrane from disturbance or aeration.
 - Sediment fouling
- All other DO readings for Pond E (South) were mostly within a typical range.

While there was a non-compliance with **WDL254 Condition 21.2** on two occasions, subsequent investigations as per **WDL254 Condition 24** resulted in a determination that Darwin Ship Lift dredging activities were unlikely to be the source of the exceedance for Copper (Cu) at Pond E (South), hence no corrective action was deemed necessary nor taken. Therefore, the discharge at the authorised discharge point (compliance point) was compliant with **WDL254 Conditions 24, 25 and 26**.

5.3.2 Pond E (North)

Pond E (North) is not a compliance point as per **WDL254** and did not exceed any trigger values for in-situ data or lab results.

5.3.3 Pond K

Compliance with **WDL254** at Pond K pertains to **WDL254 Condition 22**, with CBJV required to measure and record the commencement time and duration of the discharge event, the rate of flow and volume of discharge for each event. This was done using a flow meter placed at the Pond K weir box. Flow meter data is recorded in a large database which isn't practical to attach to this monitoring report and can be provided by CBJV.

Pond K recorded multiple non-notifiable exceedances (Copper (Cu), Zinc (Zn), Lead (Pb), and turbidity) throughout the reporting period. Pond K is not a compliance point and so investigations were not required under **WDL254 Condition 24**, and these exceedances were non-notifiable to the EPA. CBJV did conduct

investigations into these trigger value exceedances, given there were trigger value limits exceeded from **DDSPMP Table 9 (Item 7)**. These investigations can be seen in **Appendix G**. These trigger exceedances acted as an early warning mechanism to inform if any corrective actions were required at Pond K or Pond E (North) to prevent the flow of contaminants through to Pond E (South) and ultimately through the authorised discharge point. It was determined through these investigations that no corrective actions were necessary (see Appendix G for exceedance notifications).

5.4 Total Exceedances

Table 5-1 shows all water quality results across Pond E (South), Pond E (North) and Pond K that exceeded toxicant trigger values.

Table 5-1: Total Toxicant Exceedances in EAW Settling Ponds

Total Toxicant Exceedance(s)			
EAW Pond	Toxicant Metal	Result (µg/l)	Date
Pond K	Copper (1.3µg/l)	2	23-Sep-24
		2	30-Sep-24
		2	15-Oct-24
		3	29-Oct-24
	Zinc (15µg/l)	25	23-Sep-24
	Lead (4.4 µg/l)	5.4	29-Oct-24
	Zinc (15µg/l)	20	2-Dec-24
Pond E (South) (compliance point)	Copper (1.3µg/l)	3	16-Sep-24
		2	30-Sep-24

A total of nine exceedances were recorded across Pond K and Pond E (South), with six exceedances of Copper (Cu), two exceedances of Zinc (Zn) and one exceedance of Lead (Pb).

As per **WDL254 Condition 21.2**, only exceedances recorded at Pond E (South) are non-compliances as this is the designated compliance point. As per **WDL254 Item 10**, these exceedances were not reportable to the EPA as a notifiable incident as they did not occur over three consecutive sampling occasions nor was the exceedance three or more times the trigger value.

Table 5-2 shows exceedances recorded for turbidity at Pond K. Pond K received dredge spoil directly from the dredging activities so elevated turbidity levels were not unexpected while dredging activities were in progress. As Pond K is not a compliance point no investigations were made into these exceedances. There were no exceedances for pH recorded at any of the settling ponds.

Table 5-2. Turbidity exceedances at EAW settling ponds (Pond K)

Location	Site No	Date	Time	Turbidity (NTU)	Tidal Height at time of sampling (m)	Low Tide (m)	High Tide (m)	Type (Neap/Spring)	Rainfall in last 24 hours (mm)	Weather	Comments (turbidity plume, work activities)
Pond K	3	30-Aug-24	15:15	204					0		Water flowing through Pond K weir for the first time
Pond K	3	14-Sep-24	10:43	1000					0	Sunny, clear	Very turbid due to change in geomorphology of Pond K
Pond K	3	18-Sep-24	11:05	1000					0.2	Sunny, clear	DO calibrated; NTU above trigger; high amounts of fines being dredged on this day
Pond K	3	19-Sep-24	11:15	1000					0	Overcast	Visually very turbid, No odour, no film
Pond K	3	20-Sep-24	12:48	1000					0	Sunny, clear	NTU was above trigger. Large plume at weir flowing into Pond E North
Pond K	3	26-Sep-24	8:15	1000					0	Cloudy	No observations to note
Pond K	3	27-Sep-24	13:18	1000	4.3			Neap	0	Cloudy	Samples were taken for Lab analysis
Pond K	3	28-Sep-24	8:33	1000	3.8			Neap	3	Cloudy	Samples were taken for Lab analysis
Pond K	3	8-Oct-24	14:40	1000	1.5	1.5	6.3	Spring	0		No observations to note
Pond K	3	9-Oct-24	8:35	1000	6	1.9	6	Spring	0		Samples were taken for Lab analysis
Pond K	3	10-Oct-24	1:58	1000	3	2.3	5.5	Spring	0		NTU was above trigger
Pond K	3	11-Oct-24	2:34	192	3.3	5.1	2.8	Neap	0		Dredge not operational
Pond K	3	13-Oct-24	9:15	477	3.9	3.9	5.5	Neap	0		No observations to note
Pond K	3	15-Oct-24	9:15	1000	2.8	2.4	6.4	Spring	1.2	Overcast	Samples were taken for Lab analysis
Pond K	3	16-Oct-24	1:28	453	3.1	1.6	6.9	Spring	0.6	Overcast	Dredge not operational
Pond K	3	17-Oct-24	11:10	940	1.2	0.9	7.2	Spring	0	Overcast	Dredge not operational
Pond K	3	18-Oct-24	10:37	1000	2.3	0.3	7.9	Spring	0	Sunny, Clear	Dredge not operational
Pond K	3	20-Oct-24	11:27	1000	2.1	0.1	7.8	Spring	0	Sunny, partly cloudy	No observations to note
Pond K	3	21-Oct-24	12:42	1000	1.4	0.4	7.4	Spring	0	Sunny, partly cloudy	No observations to note
Pond K	3	22-Oct-24	8:18	1000	6.6	1	6.9	Spring	0	Sunny, partly cloudy	No observations to note
Pond K	3	23-Oct-24	10:25	1000	5.4	1.7	6.3	Spring	0	Sunny, partly cloudy	No observations to note
Pond K	3	24-Oct-24	9:11	235	5.3	2.5	5.7	Neap	0	Sunny, partly cloudy	Dredge not operational
Pond K	3	26-Oct-24	9:35	1000	3.8	3.8	5.4	Neap	5.4	Sunny	Dredging in operation
Pond K	3	29-Oct-24	7:18	1000	4.5	2.3	6.1	Spring	0	Partly cloudy, sunny	Samples were taken for Lab analysis
Pond K	3	30-Oct-24	1:45	1000	3.2	1.6	6.4	Spring	3.8	Overcast	No observations to note
Pond K	3	31-Oct-24	9:04	1000	2.4	1.6	6.4	Spring	23.6	Overcast	No observations to note
Pond K	3	1-Nov-24	2:27	168	2.9	1.3	6.6	Spring	0.2	Overcast	Water flow through weir
Pond K	3	2-Nov-24	11:36	1000	1.3	1	6.7	Spring	0	Clear	Water flow through weir
Pond K	3	3-Nov-24	9:07	172	4.7	0.9	6.7	Spring	19.4	Clear	Dredge not operational
Pond K	3	5-Nov-24	6:49	1000	6.5	1.1	6.5	Spring	0	Clear	Samples were taken for Lab analysis
Pond K	3	6-Nov-24	14:17	148	1.4	1.4	6.8	Spring	0	Partly cloudy, sunny	Dredge not operational, no flow through weir
Pond K	3	13-Nov-24	8:52	733	2.4	2	6.4	Spring	0	Partly cloudy, sunny	No sample taken due to no flow. Dredge not operational
Pond K	3	15-Nov-24	14:10	317	3.1	0.7	7.6	Spring	0	Partly cloudy, sunny	No observations to note
Pond K	3	16-Nov-24	10:00	1000	1.7	0.3	7.8	Spring	0	Partly cloudy, sunny	No observations to note
Pond K	3	17-Nov-24	9:28	1000	4.1	0.1	7	Spring	0	Partly cloudy, sunny	Small flow from Pond K weir
Pond K	3	18-Nov-24	10:42	1000	3.1	0.3	7.7	Spring	36.4	Cloudy	Small flow from Pond K weir
Pond K	3	20-Nov-24	6:40	543	6	1.2	6.3	Spring	8	Partly cloudy, sunny	No observations to note
Pond K	3	22-Nov-24	13:06	131067	3.7	2.5	5.3	Neap	32.8	Partly cloudy, sunny	No observations to note
Pond K	3	24-Nov-24	12:07	57481	4.6	3.5	4.6	Neap	0.6	Cloudy	Water flow through weir
Pond K	3	25-Nov-24	7:55	126932	3.3	3.3	4.9	Neap	0.6	Cloudy	Water flow through weir
Pond K	3	26-Nov-24	7:13	151357	3.4	2.9	5.3	Neap	4.4	Cloudy	Water flow through weir
Pond K	3	27-Nov-24	7:45	142852	3.1	2.4	5.8	Neap	0.6	Cloudy	Water flow through weir
Pond K	3	28-Nov-24	7:46	139893	3.3	2	5.8	Spring	0.8	Clear	Water flow through weir
Pond K	3	29-Nov-24	4:00	112725	6	1.7	6.7	Spring	27.6	Overcast	Water flow through weir
Pond K	3	30-Nov-24	8:54	14066	3.4	1.4	7	Spring	25.2	Partly cloudy, sunny	Water flow through weir
Pond K	3	1-Dec-24	10:58	70542	1.4	1.1	7.2	Spring	0	Partly cloudy, sunny	Water flow through weir
Pond K	3	2-Dec-24	8:52	45955	4.5	1	7.3	Spring	0		Water flow through weir
Pond K	3	3-Dec-24	12:19	34096	1.3	1	7.3	Spring	0		Water flow through weir
Pond K	3	5-Dec-24	1:51	156989	1.4	1.3	7	Spring	0		No observations to note
Pond K	3	7-Dec-24	8:29	2518	5.7	2	5.7	Neap	0.4	Cloudy	No observations to note
Pond K	3	9-Dec-24	6:59	2336	3.5	3.2	5.2	Neap	0	Clear	Samples were taken for Lab analysis
Pond K	3	12-Dec-24	9:16	2733	1.9	1.9	6.2	Neap	0	Clear	Water flow through weir
Pond K	3	13-Dec-24	7:46	2789	2.6	1.3	6.8	Spring	11	Overcast	Water flow through weir
Pond K	3	16-Dec-24	7:36	4726	5.6	0.6	6.5	Spring	0	Partly cloudy	Samples were taken for Lab analysis
Pond K	3	17-Dec-24	9:48	334	3.6	0.7	6.5	Spring	26	Partly cloudy	Small flow from Pond K weir
Pond K	3	19-Dec-24	8:35	1998	6.2	6.3	1.3	Spring	7.8	Clear	Water flow through weir

5.5 Exceedance Investigation Summary

As described above, **WDL254 Condition 24** requires CBJV to investigate any exceedance of a trigger value specified in **Item 7** at the compliance point. **Table 5-3** describes the outcomes of these investigations; the complete records can be found in **Appendix G**.

Table 5-3. Summary of exceedance investigations at Pond E (South)

Location	Date	Toxicant	Investigation	Corrective action taken
Pond (South)	16 Sept 2024	Copper (Cu) - 3µg/L	No trigger exceedances for copper at Pond K or Pond E North for copper during sampling event.	No corrective action required

Location	Date	Toxicant	Investigation	Corrective action taken
			Pond E South is influenced by incoming tide. Exceedance was recorded before tailwater was released from Pond E (North) to Pond E (South).	
Pond E (South)	30 Sept 2024	Copper (Cu) - 2µg/L	Exceedances for copper occurred in Pond K and Pond E South however, not in Pond E North. Exceedance was recorded before tailwater was released from Pond E (North) to Pond E (South).	No corrective action required

5.6 Environmental impact assessment

WDL254 Condition 40.6 requires the licensee to include an assessment of environmental impact from the Licensed Action in the Monitoring Report. As only two isolated exceedances were recorded at the authorised discharge point throughout the reporting period, both of which had other external factors aside from Project activities which may have contributed to the exceedance (as described in **Table 5-3**), it can reasonably be inferred that the environmental impact of the dredging activities and licenced discharge into Darwin Harbour as per **WDL254** licence conditions is negligible.

5.7 Contaminant Load Estimates

WDL254 Condition 40.3 requires:

“a tabulation of monthly and annual contaminant loads discharged from the authorised discharge point specified in Item 5 for the preceding 12 months period.”

There is a non-compliance to this licence condition as it was not possible to set up a flow meter at the authorised discharge point, as this is a permeable rock wall bund where the flow of water in and out of the bund is unable to be accurately measured. The water in Pond E (South) is also affected by incoming tides potentially bringing in contaminant loads that are not sourced directly from Project dredging activities. A flow meter was installed at the Pond K weir box to comply with **WDL254 Condition 22**, and this was deemed to be a more representative location to measure dredge volume flow. Therefore, contaminant loads have been estimated using the flow meter at Pond K. However, this will technically result in a non-compliance of **WDL254 Condition 40.3**.

The overall contaminant load at the authorised discharge point is likely to be significantly lower than the contaminant loads between Pond K and Pond E (North) due to retention time and treatment through the settling ponds. This is supported by the water quality results from the monitoring sites.

Annual contaminant load estimates were calculated using a formula to multiply contaminant concentration values derived from water quality sampling events by daily flow volume data. To account for periods between each discrete sampling event, concentration values were linearly interpolated between weekly sampling data points as per **Condition 40.3**. Daily contaminant loads were then derived by multiplying interpolated concentrations by daily flow volumes. These daily loads were summed across each month and reporting year to generate total contaminant load estimates. Where the sample result for a contaminant was below the limit of reporting (LOR), a value of half the LOR was assumed to calculate contaminant loads. This conservative approach in some cases, particularly for Chromium (CrIII), may result in over-estimating the actual contaminant load.

Flow volume data was derived from a flow meter placed at Pond K with samples taken at Monitoring Site 3 on a weekly basis throughout the reporting period (30 August 2024 – 19 December 2024).

Table 5-4 shows the annual contaminant load estimates for each of the contaminants of concern.

Table 5-4. Annual contaminant load estimates in Pond K (for reporting period).

Contaminant	Annual contaminant load estimates (kg)
Arsenic	8.33
Cadmium	0.25
Chromium (CrIII)*	12.39
Chromium (CrVI)	2.42
Copper	2.30
Lead	1.44
Mercury	0.12
Nickel	4.17
Selenium	2.72
Zinc	15.55

*Contaminant load estimates use half LOR. This may produce overestimates of contaminant loads for this purpose.

Table 5-5 shows tabulated data for each contaminant of concern. Elevated arsenic results are likely caused by naturally elevated arsenic in sediments around Darwin Harbour and a high sediment load in Pond K, which is the first pond to receive dredge spoil. Contaminant loads at the authorised discharge point would be lower due to retention time and treatment through the settling ponds.

Chromium (CrIII) concentration levels from all sampling events were below the limit of reporting (LOR). An assumption of half the LOR was used as the concentration value to estimate total concentration loads. It is possible that the results for Chromium (CrIII) are an overestimation of the actual contaminate load. However, an underestimation is equally possible, given that the results may also be within half the LOR and the LOR range. CrVI is more toxic than CrIII, and it is not uncommon to find CrIII in water. Ultra trace testing was used for Chromium (CrVI) to ascertain a more precise concentration value and so it is likely that the results for CrIII would be closer to these values than what is reported in **Table 5-4**. The results for CrVI all returned results below LOR and so the results are not indicative of exact contaminant loads. It is likely again that the exact contaminant load would be lower than what is reported in the **Table 5-4** and **Table 5-5**.

Table 5-5. Monthly contaminant load estimates in Pond K.

Month	Monthly contaminant load estimates in Pond K** (kg)											
	Discharge Volume (ML)	Monthly volume (m³)	Arsenic	Cadmium	Chromium (CrIII)*	Chromium (CrVI)	Copper	Lead	Mercury	Nickel	Selenium	Zinc
Aug 24	5.44	5,439.85	0.02	0.00	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.04
Sep 24	387.31	387,312.17	1.84	0.04	1.94	1.35	0.50	0.04	0.02	2.01	0.42	3.54
Oct 24	542.22	542,216.76	2.08	0.05	2.71	0.27	0.93	1.07	0.03	1.22	0.55	3.39
Nov 24	922.82	922,822.32	2.41	0.09	4.61	0.46	0.55	0.27	0.05	0.56	0.92	4.33
Dec 24	619.85	619,850.10	1.98	0.06	3.10	0.32	0.31	0.06	0.03	0.38	0.83	4.25

*Contaminant load estimates use half LOR. This may produce overestimates of contaminant loads for this purpose.

**Annual total may differ slightly to sum of monthly totals due to rounding of the result.

6 COMPLIANCE AND NON-COMPLIANCE

6.1 Compliance Summary

Table 6-1 provides a complete summary of compliance with **WDL254** licence conditions.

Table 6-1. WDL254 compliance summary table

Condition Number	Condition	Item Description	Designation
Discharges			
Condition 20	<i>The Licensee must only discharge waste to water from the authorised discharge points specified in Item 5.</i>	5. Authorised Discharge Point(s)	Compliant.
Condition 21	<i>Discharges from each authorised point must:</i>		21.1 Compliant
	<i>21.1. consist only of waste from the source(s) specified in Item 6.</i>	6. Source(s) of waste <i>Tailwater from dredged unconsolidated materials mixed with existing East Arm Pond water from Pond K through to Pond E (south).</i>	21.2 Non-compliant. Two non-compliances were recorded at the authorised discharge point. However, investigations into exceedances resulted in no required corrective action as there was either no tailwater flowing between Pond E (North) and Pond E (South) or there were no trigger exceedances at Pond K or Pond E (North) at the time of recorded exceedances. As the exceedances did not occur over 3 consecutive sampling events, nor were they above 3 times the trigger value, both non-compliances were non-notifiable to the EPA as per Item 10 (Condition 25) . See Section 5 for full summary. Investigation undertaken complies with WDL254 Condition 24 .
	<i>21.2. not exceed the trigger value limits specified in Item 7 at the compliance point specified in Item 8; and</i>	7. Trigger values <i>a) The triggers for parameters specified in Section 7.5 'Table 9' of the Document listed at Item 4 (a), where it relates to the East Arm Wharf Settling Ponds.</i>	
		 <	

Condition Number	Condition	Item Description	Designation
		<i>the Document listed at Item 4 (a), where it relates to the East Arm Wharf Settling Ponds.</i>	Appendix G for record of exceedance notifications.
		8. Compliance point Site 1 as shown on the plan at Appendix 1.	
	24.1. investigate the exceedance, including undertaking targeted monitoring, in addition to routine monitoring; and		
	24.2. take corrective action to mitigate any environmental harm and ensure the exceedance does not reoccur; and		
	24.3. make a record of: 24.3.1. when the exceedance was detected and by whom; 24.3.2. the date and time of the exceedance; 24.3.3. the actual and potential causes and contributing factors to the exceedance;		
	24.3.4. the risk of environmental harm arising from the exceedance;		
	24.3.5. exceedances and details of the investigation and corrective action taken; and		
	24.3.6. if no action was taken, why no action was taken.		
Condition 25	If one of the incidents specified in Item 10 occurs, the Licensee must notify the Administering Agency by emailing environmentalregulation@nt.gov.au as soon as practicable after (and in any case within 24 hours after) first becoming aware of the incident, including the following information:	10. Notifiable incidents a) An exceedance of a trigger value specified in Item 7 at the compliance point in Item 8, on three consecutive sampling occasions; b) An exceedance of three or more times a trigger value specified in Item 7 at the compliance point in Item 8; c) A discharge from a source not specified in Item 6; or d) A failure to comply with condition 23	Not applicable. No notifiable incidents occurred during reporting period.
	25.1. when the incident was detected and by whom;		
	25.2. the date and time of the incident;		
	25.3. whether discharge was occurring at the time of the incident and the source of the discharge;		
	25.4. whether discharge is still occurring; and		
	25.5. a date (within 10 business days of the incident) when an investigation report will be submitted to the Administering Agency.		
Condition 26	Within 10 business days of notifying the Administering Agency of an incident specified in Item 10, the Licensee must provide the Administering Agency an investigation report that includes:	10. Notifiable incidents a) An exceedance of a trigger value specified in Item 7 at the compliance point in Item 8, on three consecutive sampling occasions; b) An exceedance of three or more times a trigger value specified in Item 7 at the compliance point in Item 8; c) A discharge from a source not specified in Item 6; or d) A failure to comply with condition 23.	Not applicable. No notifiable incidents occurred during reporting period.

Condition Number	Condition	Item Description	Designation
	26.1. when the incident was detected and by whom;		
	26.2. the date and time of the incident;		
	26.3. whether discharge was occurring at the time of the incident and the source of the discharge;		
	26.4. the actual and potential causes and contributing factors to the incident;		
	26.5. monitoring data of the discharge, and upstream and downstream water of the incident, collected for the date the incident was detected and three sampling rounds prior;		
	26.6. available flow rates to demonstrate any influence streams and rivers may have had on the incident;		
	26.7. rainfall recorded at the site prior to the incident;		
	26.8. the risk of environmental harm arising from the incident;		
	26.9. the action(s) that have or will be undertaken to mitigate any environmental harm arising from the incident;		
	26.10. corrective actions that have or will be undertaken to ensure the incident does not reoccur; and		
	26.11. if no action was taken, why no action was taken.		
Monitoring			
Condition 27	From the Commencement Date of this licence, the Licensee must implement and comply with the Monitoring Program specified in Item 11.	11. Monitoring Program The Monitoring Program includes surface water monitoring in accordance with: (a) Section 7.2 of the Document listed at Item 4 (a), once tailwater discharge is flowing, from the commencement of dredging until the cessation of discharge. (b) Section 7.5 Table 9 of the Document listed at Item 4 (a) where it relates to the East Arm Wharf Settling Ponds.	Compliant. See Table 4-4.
Condition 31	The Licensee must ensure that all samples and field environmental data are collected in accordance with recognised Australian Standards and guidelines (such as AS/NZS 5667.1 1998, ANZG (2018), as updated from time to time).		Compliant. See Table 4-4.
Recording and Reporting			
Condition 39	The Licensee must complete and provide to the Administering Agency a report of data and information obtained through the implementation and performance of the Monitoring Program (the Monitoring Report), as prescribed by this licence, on the dates specified in Item 13.	13. Monitoring Report The Monitoring Report is due on: (a) each Anniversary Date; and (b) the Expiry Date of this licence; and (c) in the event the Licensee applies to renew the licence, 90 days prior to the Expiry Date.	Compliant as of submission of this Monitoring report.
Condition 40	The Licensee must ensure that each Monitoring Report:		40.1 Compliant
	40.1. is prepared in accordance with the requirements of the Administering Agency 'Guideline for Reporting on Environmental Monitoring' (or any other guideline as adopted by		40.2 Compliant
			40.3 Non-compliant, for

Condition Number	Condition	Item Description	Designation
	<i>the Administering Agency from time to time);</i>		reasons described in Section 5.7 Pond K was used to determine contaminant load estimate resulting in technical non-compliance as 'the authorised discharge point, Pond E (South), is through a permeable bund, so there was no opportunity to capture flow volumes via a flow meter. Contaminant load estimates were calculated for Pond K as the next best option. Estimates for this location are likely to be greater than contaminant loads moving through the discharge point as contaminants are likely to settle in Pond E.
	<i>40.2. includes a tabulation, in Microsoft ® Excel ® format or another format requested by the Administering Agency, of all monitoring data required to be collected in accordance with this licence for the preceding 12 month period;</i>		
	<i>40.3. includes a tabulation of monthly and annual contaminant loads discharged from the authorised discharge point specified in Item 5 for the preceding 12 month period. Contaminant loads must be calculated for metals, metalloids and other parameters (excluding field parameters) listed in the monitoring program specified in Item 11. The calculations must be based on the daily discharge volume and the concentration of contaminant present in the discharge on that day. On the days when a sample was not taken then the concentration of the contaminant must be estimated using Linear Interpolation methodology.</i>	5. Authorised Discharge Point(s) Permeable bund at Pond E (South) as shown on the plan at Appendix 1 between ADP(A) and ADP(B). 11. Monitoring Program <i>The Monitoring Program includes surface water monitoring in accordance with:</i> <i>(a) Section 7.2 of the Document listed at Item 4 (a), once tailwater discharge is flowing, from the commencement of dredging until the cessation of discharge.</i> <i>(b) Section 7.5 Table 9 of the Document listed at Item 4 (a) where it relates to the East Arm Wharf Settling Ponds.</i>	
	<i>40.4. includes long term trend analysis of monitoring data to demonstrate any environmental impact associated with the Licensed Action over a minimum period of three years (of part thereof);</i>		40.4 Not applicable
	<i>40.5. includes a summary of any investigations undertaken by the Licensee in accordance with this licence for the preceding 12 month period;*</i> <i>and</i>		40.5 Compliant. See Table 5-3.
	<i>40.6. includes an assessment of environmental impact from the Licensed Action.</i>		40.6 Compliant. See Section 5.6.

7 CONCLUSION

This WDL254 Monitoring Report confirms that the Darwin Ship Lift Project achieved near full compliance with all relevant **WDL254** conditions at the compliance point, Pond E (South), during the monitoring period of 30 August to 19 December 2024. The only minor non-compliances relate to **WDL254 Condition 21.2** and **Condition 40.3**. Toxicant water sample results at Pond E (South) recorded only two minor, non-notifiable Copper (Cu) exceedances, on 16 September 2024 and 30 September 2024, indicating the effective management of dredge tailwater discharge through the authorised discharge point. Investigations into these exceedances as per **WDL254 Condition 24** resulted in no corrective actions being deemed necessary. While Pond K exhibited multiple exceedances in for Copper (Cu), Zinc (Zn), Lead (Pb) and turbidity, these were contained within the pond system and did not impact the authorised discharge point, aligning with the environmental objectives of the Dredge and Dredge Spoil Placement Management Plan (**DDSPMP**). Investigations into these exceedances again resulted in no corrective actions being required.

The monitoring program successfully conformed to Darwin Harbour's Water Quality Objectives and fulfilled the objectives as stated in the DDSPMP, to:

- protect the quality and productivity of water, sediment and biota so that environmental values are maintained within Darwin Harbour beyond the approved extent of the project; and
- ensure no material environmental harm to the environmental values and declared beneficial uses of Darwin Harbour beyond the approved extent.

The monitoring program was completed in accordance with **WDL254 Item 11**, and this report complies with **WDL254 Conditions 22, 39, and 40**.

Despite the minor non-compliances reported, it can be reasonably inferred that the impact to the environmental values and declared beneficial uses of Darwin Harbour is negligible.

REFERENCES

- CloughGroup (2025). Darwin Ship Lift Project Overview [online] Available at: <https://www.cloughgroup.com/projects/darwin-ship-lift-facility> Accessed 14 March 2025.
- Clough-BMD Joint Venture (CBJV) (2024). *Dredge and Dredge Spoil Placement Management Plan*. Document No.: 41213-HSE-PL-D-0001, Revision G. [unpublished/internal].
- Australian and New Zealand Governments (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments [online] Available at: <https://www.waterquality.gov.au/anz-guidelines> Accessed 15 March 2025.
- Fortune, J and Patterson, R (2016). Darwin Harbour Region 2015 Report Card Water Quality Supplement. Report No. 4/2016D. Aquatic Health Unit, Department of Land Resource Management. Palmerston, NT.
- Standards Australia and Standards New Zealand (1998). *AS/NZS 5667.1:1998 Water quality – Sampling – Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*. Homebush, NSW: Standards Australia and Standards New Zealand.
- Standards Australia and Standards New Zealand (1998). *AS/NZS 5667.4:1998 Water quality – Sampling – Part 4: Guidance on sampling from lakes, natural and man-made*. Homebush, NSW: Standards Australia and Standards New Zealand.
- Standards Australia and Standards New Zealand (1998). *AS/NZS 5667.6:1998 Water quality – Sampling – Part 6: Guidance on sampling of rivers and streams*. Homebush, NSW: Standards Australia and Standards New Zealand.
- Standards Australia and Standards New Zealand (1998). *AS/NZS 5667.10:1998 Water quality – Sampling – Part 10: Guidance on sampling of waste waters*. Homebush, NSW: Standards Australia and Standards New Zealand.

APPENDIX A [WATER] FIELD DATA RAW

						Surface Water						
						Baseline Levels						
						8	487		4.4		28.1	
						Trigger Levels						
						<6			140			N
Location	Site No	Date	Time	Sampled by	Meter ID	pH	Electrical Conductivity (ms/cm)	TDS (g/L)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (C)	Oil/Grease (Y/N)
Instrument Measure of Uncertainty:						±0.2 units	±0.5% of reading or 0.001 mS/cm, whichever is greater	User-Selectable TDS Multiplier (0.30 to 1.00; 0.65 default)	0 to 999 (0.3 or ±2% of reading, whichever is greater) 1000 to 4000 (±5% of reading)	0 to 20 mg/L (±0.1 mg/L or 1% of reading, whichever is greater) 20 – 50 mg/L (±8% of reading)	±0.2°C	N/A
Pond E (North)	2	23-Aug-24	8:30	CF, JM	VPELKND4	8.23	54.6	32.8	64	4.24	27.27	N
Pond E (North)	2	29-Aug-24	14:45	CF, JM	VPELKND4	8.34	53	32.7	14.3	4.43	30.76	N
Pond E (North)	2	30-Aug-24	9:20	CF, JM	VPELKND4	8.28	55.5	33.3	10.9	4.26	27.89	N
Pond E (North)	2	31-Aug-24	11:15	CF, JM	VPELKND4	8.29	54.5	32.7	59.2	4.31	30.39	N
Pond E (North)	2	01-Sep-24	8:20	CF	VPELKND4	8.21	54.6	32.8	29	4.27	28.15	N
Pond E (North)	2	02-Sep-24	12:55	CF, JM	VPELKND4	8.22	55.3	33.2	19.7	5.52	30.46	N
Pond E (North)	2	03-Sep-24	7:38	CF, JM	VPELKND4	8.2	55	33	10.4	4.15	28.58	N
Pond E (North)	2	04-Sep-24	1:55	CF	VPELKND4	8.19	54.2	32.5	25.6	5.59	31.19	N
Pond E (North)	2	05-Sep-24	9:20	CF, CH	VPELKND4	8.13	55.3	33.2	9.1	6.25	29.05	N
Pond E (North)	2	06-Sep-24	10:20	CH	VPELKND4	8.11	55	33	20.9	3.36	29.37	N
Pond E (North)	2	07-Sep-24	10:35	CH	VPELKND4	8.08	54.9	33	9.7	5.56	29.36	N
Pond E (North)	2	08-Sep-24	10:04	CH	VPELKND4	8.01	55.3	33.2	7.5	5.57	28.79	N
Pond E (North)	2	09-Sep-24	11:46	CH	VPELKND4	8.1	54.7	32.8	6.1	2.93	30.63	N
Pond E (North)	2	10-Sep-24	10:01	CH	VPELKND4	8.05	55.1	33	7.1	1.64	28.9	N
Pond E (North)	2	11-Sep-24	10:58	CH	VPELKND4	8.06	55.5	33.3	7.4	0.14	29.65	N
Pond E (North)	2	12-Sep-24	11:35	MP	VPELKND4	8.09	55.3	33.2	11	11.62	29.47	N
Pond E (North)	2	13-Sep-24	13:51	CF, MP	VPELKND4	8.12	55.1	33.1	7.7	3.78	30.85	N
Pond E (North)	2	14-Sep-24	10:56	CF, MP	VPELKND4	8.12	55.6	33.4	45.8	-	29.1	N
Pond E (North)	2	15-Sep-24	9:23	CH	VPELKND4	8.08	54.9	33	8.4	2.03	29.61	N
Pond E (North)	2	16-Sep-24	8:38	CF, MP	VPELKND4	8.07	55.5	33.3	7.9	2.52	28.82	N
Pond E (North)	2	17-Sep-24	9:57	CF, CH	VPELKND4	8.05	55.7	33.4	28.5	0.72	28.14	N
Pond E (North)	2	18-Sep-24	11:12	CF, CH	VPELKND4	7.95	55.1	33	53.7	4.56	27.69	N
Pond E (North)	2	19-Sep-24	11:20	CF, MP	VPELKND4	8.02	55.1	33.1	37.9	3.55	28.51	N
Pond E (North)	2	20-Sep-24	1:02	CF, MP	VPELKND4	8.07	55	33	52.7	2.89	29.84	N
Pond E (North)	2	21-Sep-24	9:52	CF, MP	VPELKND4	8.02	54.3	32.4	44	3.13	28.37	N
Pond E (North)	2	22-Sep-24	7:37	CF, MP	VPELKND4	8	55.4	33.2	81.6	4.86	27.36	N
Pond E (North)	2	23-Sep-24	7:29	CF, MP	VPELKND4	8.06	55.2	33.1	28.8	3.56	28.2	N
Pond E (North)	2	24-Sep-24	8:22	CF	VPELKND4	8.04	55.5	33.3	28.9	4.6	28.54	N
Pond E (North)	2	25-Sep-24	7:34	CF	VPELKND4	8.02	55.4	33.2	49	2.78	28.43	N
Pond E (North)	2	26-Sep-24	8:10	CF, CH	VPELKND4	8.05	54.8	32.9	9.3	2.87	29.59	N
Pond E (North)	2	27-Sep-24	13:25	CH	VPELKND4	8.09	55.7	33.5	64.2	4.52	30.83	N
Pond E (North)	2	28-Sep-24	8:41	CH	VPELKND4	8.03	55.5	33.3	108	3.14	29.79	N
Pond E (North)	2	29-Sep-24										
Pond E (North)	2	30-Sep-24	10:34	CH	VPELKND4	8.07	55.8	33.5	17.3	2.64	30.35	N
Pond E (North)	2	01-Oct-24	15:16	CH	VPELKND4	8.1	55.3	33.2	31.4	2.25	32.51	N
Pond E (North)	2	02-Oct-24	11:24	MP / CH	VPELKND4	8.08	55.6	33.4	111	1.94	30.33	N
Pond E (North)	2	03-Oct-24	9:38	CH	VPELKND4	8.06	55.3	33.2	15	3.69	30.4	N
Pond E (North)	2	04-Oct-24	1:22	CF, MP	VPELKND4	8.12	56.4	33.8	98.9	4.87	31.66	N
Pond E (North)	2	05-Oct-24	10:24	CF, MP	VPELKND4	8.15	55.5	33.3	101	2.54	29.88	N
Pond E (North)	2	06-Oct-24	7:35	CF	VPELKND4	8.15	55.6	33.4	16	3.77	29.65	N
Pond E (North)	2	07-Oct-24	8:09	CF	VPELKND4	8.14	55.8	33.5	100	2.79	28.61	N
Pond E (North)	2	08-Oct-24	9:34	CF	VPELKND4	8.14	56.1	33.7	13.5	4.04	30.19	N
Pond E (North)	2	09-Oct-24	8:47	CF	VPELKND4	8.17	56.5	33.9	134	3.09	30.39	N
Pond E (North)	2	10-Oct-24	2:06	CF, MP	VPELKND4	8.2	55.9	33.5	71.6	3.75	33.19	N
Pond E (North)	2	11-Oct-24	2:40	CF, MP	VPELKND4	8.2	57.1	34.2	70.5	4.45	32.45	N
Pond E (North)	2	12-Oct-24	11:34	CF, MP	VPELKND4	8.08	56	33.6	115	4.51	30.39	N
Pond E (North)	2	13-Oct-24	9:22	CF, MP	VPELKND4	8.15	55.9	33.5	25.2	4.43	31	N
Pond E (North)	2	14-Oct-24	9:33	CF, MP	VPELKND4	8.17	56.2	33.7	98.6	4.44	29.95	N
Pond E (North)	2	15-Oct-24	9:36	CF, MP	VPELKND4	8.2	56.3	33.8	53.9	4.6	30.99	N
Pond E (North)	2	16-Oct-24	1:34	CF	VPELKND4	8.23	57	34.2	34.9	4.76	31.36	N
Pond E (North)	2	17-Oct-24	11:27	CF, CH	VPELKND4	8.21	55.6	33.3	42.7	10.66	32.21	N
Pond E (North)	2	18-Oct-24	10:42	CH	VPELKND4	8.24	56.3	33.8	43.2	3.23	31.54	N
Pond E (North)	2	19-Oct-24	8:34	CH	VPELKND4	8.21	55.5	33.3	11.3	3.78	30.56	N
Pond E (North)	2	20-Oct-24	11:34	CH	VPELKND4	8.22	55.8	33.5	61.1	3.43	32.2	N
Pond E (North)	2	21-Oct-24	12:47	CH	VPELKND4	8.28	55.5	33.3	43.3	3.14	33.2	N
Pond E (North)	2	22-Oct-24	9:02	CH	VPELKND4	8.27	56.7	34	133	3.97	30.52	N
Pond E (North)	2	23-Oct-24	10:29	CH	VPELKND4	8.29	55.2	33.1	54	4.13	31.66	N
Pond E (North)	2	24-Oct-24	9:23	CH	VPELKND4	8.29	55	33	11.9	3.45	31.17	N
Pond E (North)	2	25-Oct-24	14:19	CF	VPELKND4	8.29	56.3	33.8	133	4.63	31.77	N
Pond E (North)	2	26-Oct-24	9:41	CF	VPELKND4	8.3	56.1	33.7	75.5	4.2	29.71	N
Pond E (North)	2	27-Oct-24	7:42	TB	VPELKND4	8.28	56	33.6	23.6	4.44	30.12	N
Pond E (North)	2	28-Oct-24	7:26	CF	VPELKND4	8.24	56	33.6	100	4.3	28.88	N
Pond E (North)	2	29-Oct-24	7:31	CH	VPELKND4	8.3	55.7	33.4	97.5	3.95	29.73	N
Pond E (North)	2	30-Oct-24	1:36	CF	VPELKND4	8.32	55.9	33.5	19.3	3.93	31.96	N
Pond E (North)	2	31-Oct-24	9:15	CF	VPELKND4	8.28	0.32	0.21	104	6	26.53	N
Pond E (North)	2	01-Nov-24	2:34	CF	VPELKND4	8.33	54.1	32.5	38.8	3.91	31.21	N
Pond E (North)	2	02-Nov-24	11:41	CF	VPELKND4	8.32	55.8	33.5	83.4	4.51	30.09	N
Pond E (North)	2	03-Nov-24	9:13	CF	VPELKND4	8.19	53.5	32.1	52.8	4.91	28.72	N
Pond E (North)	2	04-Nov-24	9:21	CF	VPELKND4	8.33	48.8	29.1	94.6	3.38	29.21	N
Pond E (North)	2	05-Nov-24	7:07	CF	VPELKND4	8.31	54.6	32.8	133	3.82	29.64	N
Pond E (North)	2	06-Nov-24	14:56	CF	VPELKND4	8.34	55.7	33.4	37	4.53	31.26	N

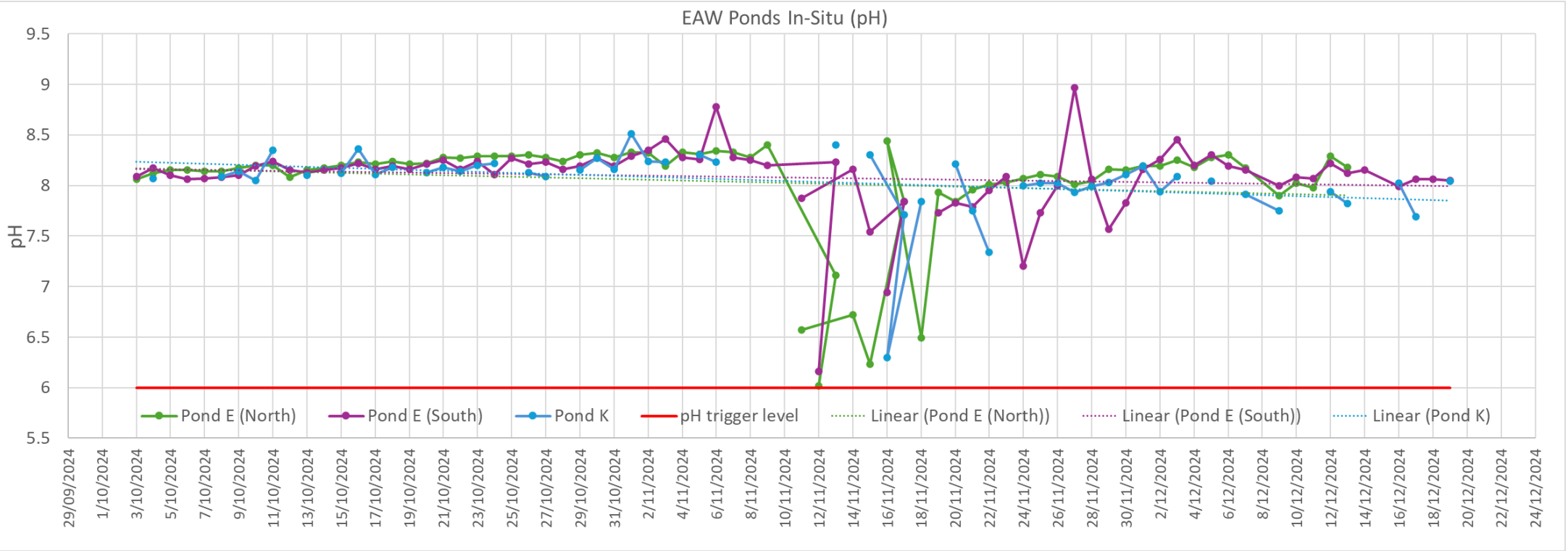
						Surface Water						
						Baseline Levels						
						8	487		4.4		28.1	
						Trigger Levels						
						<6			140			N
Location	Site No	Date	Time	Sampled by	Meter ID	pH	Electrical Conductivity (ms/cm)	TDS (g/L)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (C)	Oil/Grease (Y/N)
Instrument Measure of Uncertainty:						±0.2 units	±0.5% of reading or 0.001 mS/cm, whichever is greater	User-Selectable TDS Multiplier (0.30 to 1.00; 0.65 default)	0 to 999 (0.3 or ±2% of reading, whichever is greater) 1000 to 4000 (±5% of reading)	0 to 20 mg/L (±0.1 mg/L or 1% of reading, whichever is greater) 20 – 50 mg/L (±8% of reading)	±0.2°C	N/A
Pond E (North)	2	07-Nov-24	9:26	CH	VPELKN4	8.33	54.9	32.9	8	3.8	30.97	N
Pond E (North)	2	08-Nov-24	9:03	CH	VPELKN4	8.28	56.5	33.9	79.7	4.27	28.78	N
Pond E (North)	2	09-Nov-24	8:42	CH	VPELKN4	8.4	54.8	32.9	9.2	3.67	30.92	N
Pond E (North)	2	13-Nov-24	9:01	CH	VPELKN4	7.11	55.3	33.2	64.8	3.16	30.6	N
Pond E (North)	2	12-Nov-24	6:39	CH	VPELKN4	6.02	56	33.6	81.1	3.84	29.25	N
Pond E (North)	2	10-Nov-24										
Pond E (North)	2	11-Nov-24	12:12	CH	VPELKN4	6.57	55.7	33.4	89.7	9.67	30.46	N
Pond E (North)	2	14-Nov-24	15:31	CH	VPELKN4	6.72	54.9	32.9	69.6	3.44	34.78	N
Pond E (North)	2	15-Nov-24	14:15	CH	VPELKN4	6.23	55.8	33.5	78.2	3.96	32.01	N
Pond E (North)	2	17-Nov-24	9:17	MS	VPELKN4	7.84	54.5	32.7	34.3	3.47	28.76	N
Pond E (North)	2	16-Nov-24	10:07	CH	VPELKN4	8.44	49.5	30.2	131	2.84	30.24	N
Pond E (North)	2	18-Nov-24	10:30	CF	VPELKN4	6.49	52.4	31.4	47.8	4.95	27.11	N
Pond E (North)	2	19-Nov-24	7:51	CF	VPELKN4	7.93	53.6	32.1	88.5	14.68	29.09	N
Pond E (North)	2	20-Nov-24	6:48	CF	VPELKN4	7.84	54.8	32.9	97.2	3.29	27.93	N
Pond E (North)	2	21-Nov-24	9:02	CF	VPELKN4	7.96	53.9	32.4	84.5	11.55	30.03	N
Pond E (North)	2	22-Nov-24	13:12	CF	ProDSS	8.01	54.3	35.8	8.7	6.4	31.3	N
Pond E (North)	2	23-Nov-24	14:00	CF	ProDSS	8.03	53	34.4	15.3	6.69	31.6	N
Pond E (North)	2	24-Nov-24	12:03	CF	ProDSS	8.07	53.7	34.9	7.18	6.54	29.9	N
Pond E (North)	2	25-Nov-24	7:45	CF	ProDSS	8.11	53.9	35	5.83	6	29.7	N
Pond E (North)	2	26-Nov-24	7:17	CF	ProDSS	8.09	54.2	35.2	5.67	5.69	29.8	N
Pond E (North)	2	27-Nov-24	7:49	CF	ProDSS	8.01	54.5	35.4	11.99	4.89	30	N
Pond E (North)	2	28-Nov-24	7:54	CF	ProDSS	8.04	54.6	35.5	12.38	5.23	29.9	N
Pond E (North)	2	29-Nov-24	4:02	CH	ProDSS	8.16	51.3	33.3	15	6.12	30.4	N
Pond E (North)	2	30-Nov-24	9:10	CH	ProDSS	8.15	53.2	34.6	13.7	3.44	30.4	N
Pond E (North)	2	01-Dec-24	11:06	CH	ProDSS	8.19	53.1	34.5	6.9	4.72	31.5	N
Pond E (North)	2	02-Dec-24	9:12	CH	ProDSS	8.19	51	33.1	12.8	4.36	30.8	N
Pond E (North)	2	03-Dec-24	12:24	CH	ProDSS	8.25	52.2	33.9	10.7	4.61	31.1	N
Pond E (North)	2	04-Dec-24	9:25	CH	ProDSS	8.18	53.1	34.5	13.48	3.52	31	N
Pond E (North)	2	05-Dec-24	1:54	CH	ProDSS	8.28	53.3	34.6	9.9	5.15	32.3	N
Pond E (North)	2	06-Dec-24	10:48	CH	ProDSS	8.3	53.3	34.6	14.4	4.9	31.4	N
Pond E (North)	2	07-Dec-24	8:37	CF	ProDSS	8.17	53.2	34.6	10.23	5.29	30.5	N
Pond E (North)	2	09-Dec-24	7:08	CF	ProDSS	7.9	49.5	32	15.75	5.64	29.6	N
Pond E (North)	2	10-Dec-24	9:41	CF	ProDSS	8.02	51.3	33	10.37	5	30.8	N
Pond E (North)	2	11-Dec-24	7:53	CF	ProDSS	7.98	51.4	33	12.48	5.21	29.5	N
Pond E (North)	2	12-Dec-24	11:10	CF	ProDSS	8.29	51.7	34	13.11	6.45	32.3	N
Pond E (North)	2	13-Dec-24	7:49	CF	ProDSS	8.18	51.8	34	17.17	5.52	31.1	N
Pond E (North)	2	14-Dec-24	9:40	CF	ProDSS	8.06	43.3	28	30.33	5.96	29.7	N
Pond E (North)	2	16-Dec-24	7:24	CF	ProDSS	8.07	50.1	33	4.55	6.04	30.4	N
Pond E (North)	2	17-Dec-24	9:52	CF	ProDSS	8.02	50.1	33	14.24	5.77	31.8	N
Pond E (North)	2	18-Dec-24	12:52	CF	ProDSS	7.98	50	32	15.13	6.03	32.9	N
Pond E (North)	2	19-Dec-24	8:38	CF	ProDSS	8.02	49.7	32	16.35	5.67	30.8	N
Pond E (South)	1	23-Aug-24	9:50	CF, JM	VPELKN4	8.19	52.8	31.7	5.7	2.78	28.05	N
Pond E (South)	1	29-Aug-24	14:55	CF, JM	VPELKN4	8.28	53	31.8	9.1	5.28	30.06	N
Pond E (South)	1	30-Aug-24	9:10	CF, JM	VPELKN4	8.09	54	32.4	51.1	6.63	27.02	N
Pond E (South)	1	31-Aug-24	11:20	CF, JM	VPELKN4	8.22	53.4	32	11.3	5.32	28.99	N
Pond E (South)	1	01-Sep-24	8:25	CF	VPELKN4	8.13	53.8	32.3	5.8	6.05	27.91	N
Pond E (South)	1	02-Sep-24	1:10	CF, JM	VPELKN4	8.17	52.7	31.6	7.4	4	30.93	N
Pond E (South)	1	03-Sep-24	7:30	CF, JM	VPELKN4	8.11	59.8	31.9	6.1	3.84	28.16	N
Pond E (South)	1	04-Sep-24	2:05	CF	VPELKN4	8.18	52.5	31.5	5.8	5.78	31.37	N
Pond E (South)	1	05-Sep-24	9:30	CF, CH	VPELKN4	8.14	53.1	31.9	5.2	3.68	28.78	N
Pond E (South)	1	06-Sep-24	10:40	CH	VPELKN4	8.16	53.2	31.9	5.7	4.42	28.87	N
Pond E (South)	1	07-Sep-24	10:45	CH	VPELKN4	8.22	53.5	32.1	5.7	4.16	29.52	N
Pond E (South)	1	08-Sep-24	10:09	CH	VPELKN4	8.14	53.5	32.1	6	39.82	28.69	N
Pond E (South)	1	09-Sep-24	14:04	CH	VPELKN4	8.21	53.1	31.9	4.8	2.71	30.71	N
Pond E (South)	1	10-Sep-24	10:09	CH	VPELKN4	8.14	53.5	32.1	5	1.23	28.83	N
Pond E (South)	1	11-Sep-24	11:04	CH	VPELKN4	8.14	53.5	32.1	7.3	-	29.42	N
Pond E (South)	1	12-Sep-24	11:42	MP	VPELKN4	8.15	53.8	32.3	4.6	3.18	29.32	N
Pond E (South)	1	13-Sep-24	14:10	CF, MP	VPELKN4	8.21	53.4	32.1	5	4.6	31.53	N
Pond E (South)	1	14-Sep-24	11:03	CF, MP	VPELKN4	8.19	54.2	32.5	8.2	-	29.17	N
Pond E (South)	1	15-Sep-24	9:16	CH	VPELKN4	8.11	54.2	32.5	5.7	4.07	29.03	N
Pond E (South)	1	16-Sep-24	8:59	CF, MP	VPELKN4	8.14	53.5	32.1	4.2	3.74	29.8	N
Pond E (South)	1	17-Sep-24	9:50	CF, CH	VPELKN4	8.12	54.1	32.4	44.4	1.03	27.13	N
Pond E (South)	1	18-Sep-24	11:18	CF, CH	VPELKN4	8.04	53.2	31.9	6.9	5.92	28.01	N
Pond E (South)	1	19-Sep-24	11:30	CF, MP	VPELKN4	8.1	53.2	31.9	8.2	1.64	28.64	N
Pond E (South)	1	20-Sep-24	1:09	CF, MP	VPELKN4	8.13	53.3	32	9.1	4.81	26.12	N
Pond E (South)	1	21-Sep-24	10:00	CF, MP	VPELKN4	8.08	53.4	32	9.5	2.27	28.65	N
Pond E (South)	1	22-Sep-24	7:45	CF, MP	VPELKN4	8.03	8.03	32.5	9.1	4.21	27.9	N
Pond E (South)	1	23-Sep-24	7:48	CF, MP	VPELKN4	8.05	54	32.4	4.2	4.55	28.12	N
Pond E (South)	1	24-Sep-24	8:28	CF	VPELKN4	8.01	52	31.2	6.1	6.7	28.4	N
Pond E (South)	1	25-Sep-24	7:42	CF	VPELKN4	8.04	54.2	32.5	14.7	1.53	27.79	N
Pond E (South)	1	26-Sep-24	8:04	CF	VPELKN4	8.03	53.4	32	6	2.62	28.8	N
Pond E (South)	1	26-Sep-24	8:04	CH	VPELKN4	8.08	54.2	32.5	14	4.21	30.48	N
Pond E (South)	1	28-Sep-24	8:49	CH	VPELKN4	8.04	54	32.4	16.8	4.38	29.33	N
Pond E (South)	1	29-Sep-24										
Pond E (South)	1	30-Sep-24	10:54	CH	VPELKN4	8.13	53.4	32.1	9.2	2.54	31.59	N
Pond E (South)	1	02-Oct-24	11:34	MP / CH	VPELKN4	8.1	53.9	32.3	8.4	3.21	52	N
Pond E (South)	1	03-Oct-24	9:44	CH	VPELKN4	8.09	53.9	32.3	7.6	4.09	30.25	N
Pond E (South)	1	04-Oct-24	1:28	CF, MP	VPELKN4	8.17	54.3	32.6	18.4	4.75	30.7	N
Pond E (South)	1	05-Oct-24	10:33	CF, MP	VPELKN4	8.1	53.7	32.2	9	2.73	29.98	N
Pond E (South)	1	06-Oct-24	7:42	CF	VPELKN4	8.06	54.2	32.5	5.8	3.15	29.03	N
Pond E (South)	1	01-Oct-24	15:28	CH	VPELKN4	8.3	53.5	35.29	8.8	2.37	32.78	N
Pond E (South)	1	07-Oct-24	8:15	CF	VPELKN4	8.07	53.8	32.3	30.6	2.62	29.02	N

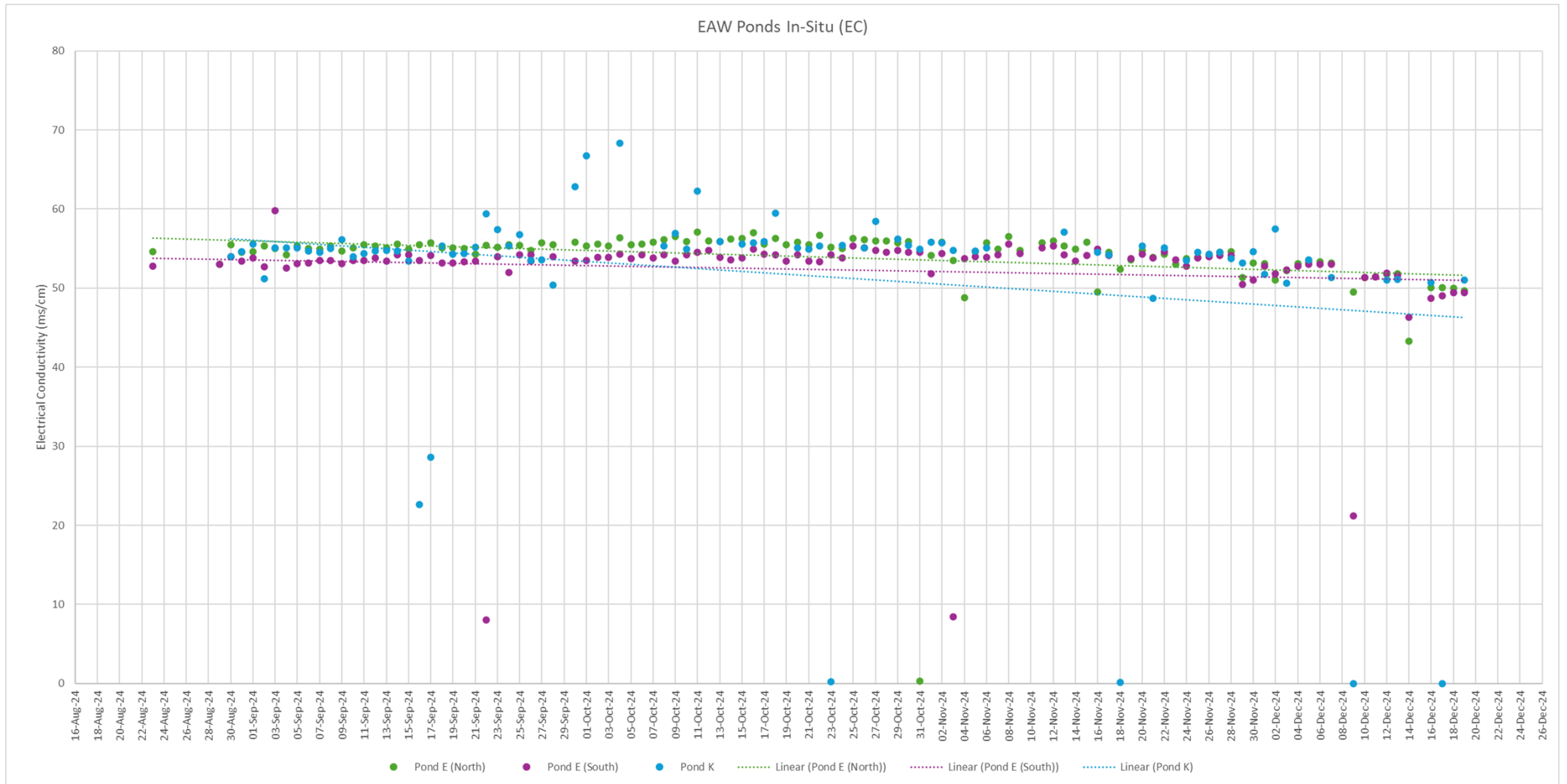
						Surface Water						
						Baseline Levels						
						8	487		4.4		28.1	
						Trigger Levels						
						<6			140			N
Location	Site No	Date	Time	Sampled by	Meter ID	pH	Electrical Conductivity (ms/cm)	TDS (g/L)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (C)	Oil/Grease (Y/N)
Instrument Measure of Uncertainty:						±0.2 units	±0.5% of reading or 0.001 mS/cm, whichever is greater	User-Selectable TDS Multiplier (0.30 to 1.00; 0.65 default)	0 to 999 (0.3 or ±2% of reading, whichever is greater) 1000 to 4000 (±5% of reading)	0 to 20 mg/L (±0.1 mg/L or 1% of reading, whichever is greater) 20 – 50 mg/L (±8% of reading)	±0.2°C	N/A
Pond E (South)	1	08-Oct-24	9:39	CF	VPELKND4	8.08	54.2	32.5	6.1	3.95	30.05	N
Pond E (South)	1	09-Oct-24	9:05	CF	VPELKND4	8.1	53.4	32.1	27.3	3.01	31.25	N
Pond E (South)	1	10-Oct-24	2:11	CF, MP	VPELKND4	8.19	54.2	32.5	31.1	3.51	31.9	N
Pond E (South)	1	11-Oct-24	2:46	CF, MP	VPELKND4	8.24	54.5	32.7	32.2	3.66	32.31	N
Pond E (South)	1	12-Oct-24	11:40	CF, MP	VPELKND4	8.15	54.8	32.9	59.7	3.53	30.77	N
Pond E (South)	1	13-Oct-24	9:28	CF, MP	VPELKND4	8.13	53.9	32.3	9.9	3.41	30.93	N
Pond E (South)	1	14-Oct-24	9:41	CF, MP	VPELKND4	8.15	53.6	32.1	21.9	3.65	30.61	N
Pond E (South)	1	15-Oct-24	9:50	CF, MP	VPELKND4	8.17	53.8	32.3	9.8	4.2	31.28	N
Pond E (South)	1	16-Oct-24	1:40	CF	VPELKND4	8.22	54.9	32.9	14.8	4.92	31	N
Pond E (South)	1	17-Oct-24	11:35	CF, CH	VPELKND4	8.16	54.3	32.6	10.7	3.74	31.11	N
Pond E (South)	1	18-Oct-24	10:47	CH	VPELKND4	8.19	54.2	32.5	14.8	3.7	31.32	N
Pond E (South)	1	19-Oct-24	8:40	CH	VPELKND4	8.16	53.4	32	6.5	3.46	30.56	N
Pond E (South)	1	20-Oct-24	11:39	CH	VPELKND4	8.21	54.2	32.5	22	3.81	31.91	N
Pond E (South)	1	21-Oct-24	12:55	CH	VPELKND4	8.25	53.4	32	11.3	3.66	32.32	N
Pond E (South)	1	22-Oct-24	9:19	CH	VPELKND4	8.16	53.3	32	16.3	3.45	32	N
Pond E (South)	1	23-Oct-24	10:34	CH	VPELKND4	8.24	54.2	32.6	10.5	4.42	31.52	N
Pond E (South)	1	24-Oct-24	9:33	CH	VPELKND4	8.11	53.8	32.3	6	2.52	31.21	N
Pond E (South)	1	25-Oct-24	14:28	CF	VPELKND4	8.27	55.3	33.2	50	4.69	31.58	N
Pond E (South)	1	26-Oct-24	9:47	CF	VPELKND4	8.21	55.1	33.1	46.7	3.82	30.28	N
Pond E (South)	1	27-Oct-24	7:42	TB	VPELKND4	8.23	54.8	32.9	10.7	3.59	30.72	N
Pond E (South)	1	28-Oct-24	7:34	CF	VPELKND4	8.16	54.5	32.7	45.2	3.88	29.83	N
Pond E (South)	1	29-Oct-24	7:53	CH	VPELKND4	8.19	54.8	32.9	8.7	3.87	30.14	N
Pond E (South)	1	30-Oct-24	1:25	CF	VPELKND4	8.27	54.5	32.7	46.7	4.36	31.2	N
Pond E (South)	1	31-Oct-24	9:20	CF	VPELKND4	8.19	54.5	32.7	37.7	3.95	28.76	N
Pond E (South)	1	01-Nov-24	2:46	CF	VPELKND4	8.29	51.8	31.1	10.6	2.64	31.03	N
Pond E (South)	1	02-Nov-24	11:52	CF	VPELKND4	8.35	54.4	32.7	12.9	4.31	30.69	N
Pond E (South)	1	03-Nov-24	9:18	CF	VPELKND4	8.46	8.46	32.2	9.7	2.48	29.7	N
Pond E (South)	1	04-Nov-24	9:28	CF	VPELKND4	8.28	53.7	32.2	35.5	3.12	29.86	N
Pond E (South)	1	05-Nov-24	7:27	CF	VPELKND4	8.26	54	32.4	28.7	4.64	30.09	N
Pond E (South)	1	06-Nov-24	15:03	CF	VPELKND4	8.78	53.9	32.3	6.7	2.95	31.59	N
Pond E (South)	1	07-Nov-24	9:12	CH	VPELKND4	8.28	54.2	32.5	11.5	3.41	30.75	N
Pond E (South)	1	08-Nov-24	9:16	CH	VPELKND4	8.25	55.6	33.4	7.7	4.21	29.32	N
Pond E (South)	1	09-Nov-24	8:58	CH	VPELKND4	8.2	54.4	32.6	50.3	10.86	32.83	N
Pond E (South)	1	13-Nov-24	9:06	CH	VPELKND4	8.23	54.2	32.5	32.4	2.85	31.04	N
Pond E (South)	1	12-Nov-24	6:44	CH	VPELKND4	6.16	55.3	33.2	57	3.32	30	N
Pond E (South)	1	10-Nov-24										
Pond E (South)	1	11-Nov-24	12:20	CH	VPELKND4	7.87	55.1	33	53.5	3.03	32.1	N
Pond E (South)	1	14-Nov-24	15:45	CH	VPELKND4	8.16	53.4	32	7.7	2.28	33.35	N
Pond E (South)	1	15-Nov-24	14:22	CH	VPELKND4	7.54	54.1	32.5	18	3.23	31.92	N
Pond E (South)	1	17-Nov-24	9:08	MS	VPELKND4	7.84	54.1	32.5	18.3	2.88	30.16	N
Pond E (South)	1	16-Nov-24	10:14	CH	VPELKND4	6.94	54.9	32.9	60.2	4.49	30.27	N
Pond E (South)	1	18-Nov-24	10:14	CH	VPELKND4							
Pond E (South)	1	19-Nov-24	7:58	CF	VPELKND4	7.73	53.7	32.2	43.6	3.22	30.16	N
Pond E (South)	1	20-Nov-24	6:53	CF	VPELKND4	7.83	54.3	32.6	36.1	4.17	28.72	N
Pond E (South)	1	21-Nov-24	9:10	CF	VPELKND4	7.79	53.8	32.3	25.5	2.92	30.42	N
Pond E (South)	1	22-Nov-24	13:18	CF	ProDSS	7.95	54.6	35.5	7.25	6.57	32.2	N
Pond E (South)	1	23-Nov-24	13:56	CF	ProDSS	8.09	53.6	34.9	5.84	6.7	31.6	N
Pond E (South)	1	24-Nov-24	11:58	CF	ProDSS	7.2	52.8	34.3	7.24	6.44	30.4	N
Pond E (South)	1	25-Nov-24	7:16	CF	ProDSS	7.73	53.8	34.9	8.4	5.3	29.7	N
Pond E (South)	1	26-Nov-24	7:22	CF	ProDSS	8	54	35.1	7.4	4.71	30.1	N
Pond E (South)	1	27-Nov-24	7:55	CF	ProDSS	8.97	54.1	35.2	8.97	4.87	29.7	N
Pond E (South)	1	28-Nov-24	7:59	CF	ProDSS	8.06	54.1	35.2	11.49	5	30.1	N
Pond E (South)	1	29-Nov-24	4:06	CH	ProDSS	7.57	50.5	32.8	14.7	7.07	30.5	N
Pond E (South)	1	30-Nov-24	9:25	CH	ProDSS	7.83	51	33.1	13.7	7	29.6	N
Pond E (South)	1	01-Dec-24	11:13	CH	ProDSS	8.16	52.8	34.3	26.7	8.51	31.4	N
Pond E (South)	1	02-Dec-24	9:22	CH	ProDSS	8.26	51.8	33.6	8.52	6.01	30.9	N
Pond E (South)	1	03-Dec-24	12:34	CH	ProDSS	8.45	52.3	34	21.18	8.02	31.7	N
Pond E (South)	1	04-Dec-24	9:32	CH	ProDSS	8.2	52.8	34.3	9.22	4.76	31.2	N
Pond E (South)	1	05-Dec-24	2:00	CH	ProDSS	8.3	53	34.4	9.8	6.47	32.4	N
Pond E (South)	1	06-Dec-24	11:02	CH	ProDSS	8.19	53	34.4	7.63	5.99	31.8	N
Pond E (South)	1	07-Dec-24	8:47	CF	ProDSS	8.15	53	34.5	6.62	6.39	30.2	N
Pond E (South)	1	09-Dec-24	7:28	CF	ProDSS	8	21.2	14	8.79	7.03	29.5	N
Pond E (South)	1	10-Dec-24	9:46	CF	ProDSS	8.08	51.3	33	8.78	6.91	31.1	N
Pond E (South)	1	11-Dec-24	7:58	CF	ProDSS	8.07	51.4	33	8.07	6.03	30.2	N
Pond E (South)	1	12-Dec-24	11:14	CF	ProDSS	8.22	51.9	34	3.64	7.3	32.9	N
Pond E (South)	1	13-Dec-24	7:53	CF	ProDSS	8.12	51.6	34	10.35	5.04	31.3	N
Pond E (South)	1	14-Dec-24	9:50	CF	ProDSS	8.15	46.3	30	25.79	5.98	30.5	N
Pond E (South)	1	16-Dec-24	7:08	CF	ProDSS	7.99	48.7	32	40.15	6.32	30.2	N
Pond E (South)	1	17-Dec-24	9:57	CF	ProDSS	8.06	49	32	16.45	6	31.6	N
Pond E (South)	1	18-Dec-24	12:57	CF	ProDSS	8.06	49.4	32	7.28	6.62	33.1	N
Pond E (South)	1	19-Dec-24	8:42	CF	ProDSS	8.05	49.4	32	5.43	5.68	30.8	N
Pond K	3	30-Aug-24	15:15	CF, JM	VPELKND4	7.27	54	32.4	204	5.21	33.3	N
Pond K	3	31-Aug-24	11:10	CF, JM	VPELKND4	7.54	54.6	32.8	66.2	5.31	28.11	N
Pond K	3	01-Sep-24	8:10	CF	VPELKND4	7.49	55.6	33.3	89.8	2.51	27.2	N
Pond K	3	02-Sep-24	12:45	CF, JM	VPELKND4	7.35	51.2	31.8	131	5.2	29.85	N
Pond K	3	03-Sep-24	7:45	CF, JM	VPELKND4	7.45	55.1	33.1	9.1	2.65	28.93	N
Pond K	3	04-Sep-24	1:45	CF	VPELKND4	8.12	55.1	33.1	99.6	5.59	30.53	N
Pond K	3	05-Sep-24	9:15	CF, CH	VPELKND4	8.09	55.1	33	17	4.18	28.45	N
Pond K	3	06-Sep-24	10:16	CH	VPELKND4	7.95	54.7	32.8	8.6	4.23	27.04	N
Pond K	3	07-Sep-24	10:25	CH	VPELKND4	7.96	54.5	32.7	36.5	4.06	29.11	N
Pond K	3	08-Sep-24	9:56	CH	VPELKND4	7.88	55	33	7	1.85	30.5	N
Pond K	3	09-Sep-24	11:19	CH	VPELKND4	7.73	56.1	33.7	51.6	1.24	27.81	N

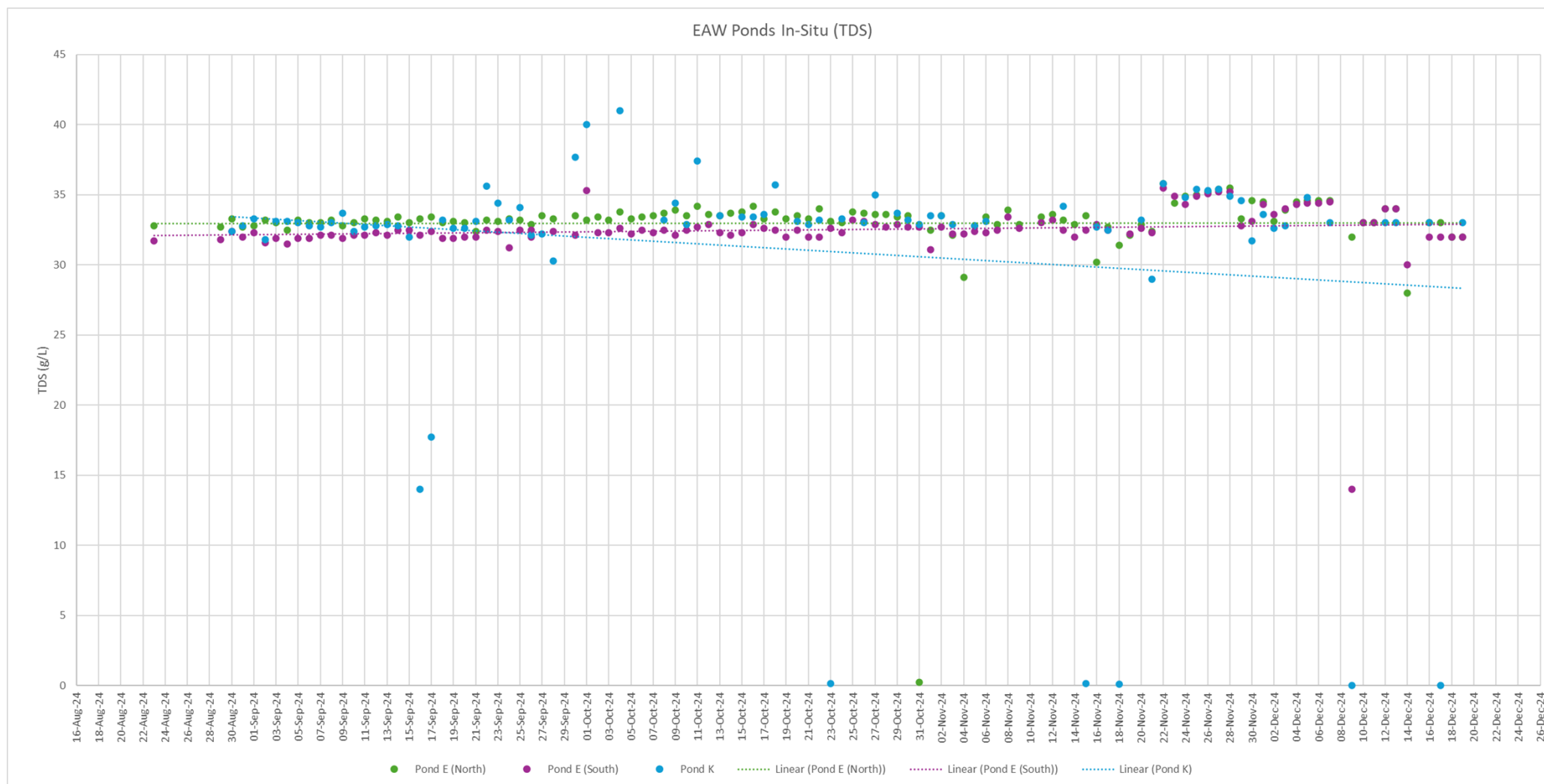
						Surface Water						
						Baseline Levels						
						8	487		4.4		28.1	
						Trigger Levels						
						<6			140			N
Location	Site No	Date	Time	Sampled by	Meter ID	pH	Electrical Conductivity (ms/cm)	TDS (g/L)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (C)	Oil/Grease (Y/N)
Instrument Measure of Uncertainty:						±0.2 units	±0.5% of reading or 0.001 mS/cm, whichever is greater	User-Selectable TDS Multiplier (0.30 to 1.00; 0.65 default)	0 to 999 (0.3 or ±2% of reading, whichever is greater) 1000 to 4000 (±5% of reading)	0 to 20 mg/L (±0.1 mg/L or 1% of reading, whichever is greater) 20 – 50 mg/L (±8% of reading)	±0.2°C	N/A
Pond K	3	10-Sep-24	9:52	CH	VPELKND4	7.85	54	32.4	5.4	0.73	27.91	N
Pond K	3	11-Sep-24	10:52	CH	VPELKND4	7.9	54.4	32.7	4.9	0.3	28.82	N
Pond K	3	12-Sep-24	11:25	MP	VPELKND4	7.99	54.7	32.8	9.5	10.08	28	N
Pond K	3	13-Sep-24	13:42	CF, MP	VPELKND4	8.31	54.8	32.9	62.9	4.37	30.77	N
Pond K	3	14-Sep-24	10:43	CF, MP	VPELKND4	8.06	54.7	32.8	1000	-	28.03	N
Pond K	3	15-Sep-24	9:28	CH	VPELKND4	7.94	53.4	32	40.5	0.01	27.19	N
Pond K	3	16-Sep-24	8:20	CF, MP	VPELKND4	8.13	22.6	14	9.1	2.91	26.12	N
Pond K	3	17-Sep-24	10:04	CF, CH	VPELKND4	8.1	28.6	17.7	52.7	1.01	24.49	N
Pond K	3	18-Sep-24	11:05	CF, CH	VPELKND4	7.88	55.3	33.2	1000	4.26	27.2	N
Pond K	3	19-Sep-24	11:15	CF, MP	VPELKND4	7.97	54.3	32.6	1000	3.04	29.84	N
Pond K	3	20-Sep-24	12:48	CF, MP	VPELKND4	7.95	54.4	32.6	1000	3.58	31.49	N
Pond K	3	21-Sep-24	9:45	CF, MP	VPELKND4	7.88	55.2	33.1	114	4.26	26.77	N
Pond K	3	22-Sep-24	7:30	CF, MP	VPELKND4	7.88	59.4	35.6	97.5	3.48	24.91	N
Pond K	3	23-Sep-24	7:06	CF, MP	VPELKND4	7.92	57.4	34.4	94.4	3.38	25.28	N
Pond K	3	24-Sep-24	8:12	CF	VPELKND4	7.95	55.3	33.2	80.8	6.9	24.38	N
Pond K	3	25-Sep-24	7:25	CF	VPELKND4	7.89	56.8	34.1	78.5	4.8	24.05	N
Pond K	3	26-Sep-24	8:15	CF, CH	VPELKND4	8.03	53.5	32.1	1000	2.91	28.35	N
Pond K	3	27-Sep-24	13:18	CH	VPELKND4	7.98	53.6	32.2	1000	2.85	32.24	N
Pond K	3	28-Sep-24	8:33	CH	VPELKND4	7.89	50.4	30.3	1000	4.29	27	N
Pond K	3	29-Sep-24										
Pond K	3	30-Sep-24	10:19	CH	VPELKND4	7.94	62.8	37.7	45.2	3.12	29.01	N
Pond K	3	01-Oct-24	15:08	CH	VPELKND4	8.18	66.7	40	93.1	3.07	34.94	N
Pond K	3	02-Oct-24	11:12	MP / CH	VPELKND4							N
Pond K	3	03-Oct-24										
Pond K	3	04-Oct-24	1:16	CF, MP	VPELKND4	8.07	68.3	41	139	6.37	32.69	N
Pond K	3	05-Oct-24										
Pond K	3	06-Oct-24										
Pond K	3	07-Oct-24										
Pond K	3	08-Oct-24	14:40	CF	VPELKND4	8.09	55.3	33.2	1000	4.58	33.71	N
Pond K	3	09-Oct-24	8:35	CF	VPELKND4	8.14	56.9	34.4	1000	2.56	29.17	N
Pond K	3	10-Oct-24	1:58	CF, MP	VPELKND4	8.05	54.9	32.9	1000	3.01	35.17	N
Pond K	3	11-Oct-24	2:34	CF, MP	VPELKND4	8.35	62.3	37.4	192	4.95	34.88	N
Pond K	3	12-Oct-24		CF, MP	VPELKND4							
Pond K	3	13-Oct-24	9:15	CF, MP	VPELKND4	8.1	55.9	33.5	477	3.85	30.6	N
Pond K	3	14-Oct-24										
Pond K	3	15-Oct-24	9:15	CF, MP	VPELKND4	8.12	55.6	33.4	1000	4.49	29.84	N
Pond K	3	16-Oct-24	1:28	CF	VPELKND4	8.36	55.7	33.4	453	3.64	33.06	N
Pond K	3	17-Oct-24	11:10	CF, CH	VPELKND4	8.11	55.9	33.6	940	4.05	34.36	N
Pond K	3	18-Oct-24	10:37	CH	VPELKND4	8.18	59.5	35.7	1000	3.69	29.33	N
Pond K	3	19-Oct-24										
Pond K	3	20-Oct-24	11:27	CH	VPELKND4	8.13	55.1	33.1	1000	3.54	34.51	N
Pond K	3	21-Oct-24	12:42	CH	VPELKND4	8.18	54.9	32.9	1000	3.36	35.95	N
Pond K	3	22-Oct-24	8:18	CH	VPELKND4	8.14	55.3	33.2	1000	4.02	28.17	N
Pond K	3	23-Oct-24	10:25	CH	VPELKND4	8.2	0.19	0.129	1000	6.49	30	N
Pond K	3	24-Oct-24	9:11	CH	VPELKND4	8.22	55.4	33.3	235	3.77	30.65	N
Pond K	3	25-Oct-24										
Pond K	3	26-Oct-24	9:35	CF	VPELKND4	8.13	55.1	33	1000	4.01	29.53	N
Pond K	3	27-Oct-24	7:35	TB	VPELKND4	8.09	58.4	35	48.8	5.06	26.34	N
Pond K	3	28-Oct-24										
Pond K	3	29-Oct-24	7:18	CH	VPELKND4	8.15	56.2	33.7	1000	4.3	27.21	N
Pond K	3	30-Oct-24	1:45	CF	VPELKND4	8.27	55.4	33.2	1000	3.33	33.41	N
Pond K	3	31-Oct-24	9:04	CF	VPELKND4	8.16	54.9	32.9	1000	4.49	25.34	N
Pond K	3	01-Nov-24	2:27	CF	VPELKND4	8.51	55.8	33.5	168	4.05	32.51	N
Pond K	3	02-Nov-24	11:36	CF	VPELKND4	8.24	55.7	33.5	1000	3.5	32.05	N
Pond K	3	03-Nov-24	9:07	CF	VPELKND4	8.23	54.8	32.9	172	4.58	29.22	N
Pond K	3	04-Nov-24										
Pond K	3	05-Nov-24	6:49	CF	VPELKND4	8.3	54.7	32.8	1000	3.18	26.82	N
Pond K	3	06-Nov-24	14:17	CF		8.23	55.1	33.1	148	4.33	30.73	N
Pond K	3	07-Nov-24										
Pond K	3	08-Nov-24										
Pond K	3	09-Nov-24										
Pond K	3	13-Nov-24	8:52	CH	VPELKND4	8.4	57.1	34.2	733	3.4	28.67	N
Pond K	3	12-Nov-24										
Pond K	3	10-Nov-24										
Pond K	3	11-Nov-24										
Pond K	3	14-Nov-24										
Pond K	3	15-Nov-24	14:10	CH	VPELKND4	8.3		0.138	317	6.85	27.74	N
Pond K	3	17-Nov-24	9:28	MS	VPELKND4	7.71	54.2	32.5	1000	2.73	30.95	N
Pond K	3	16-Nov-24	10:00	CH	VPELKND4	6.3	54.5	32.7	1000	2.81	29.42	N
Pond K	3	18-Nov-24	10:42	CF	VPELKND4	7.84	0.153	0.099	1000	8.15	25.68	N
Pond K	3	19-Nov-24	7:41	CF	VPELKND4							
Pond K	3	20-Nov-24	6:40	CF	VPELKND4	8.21	55.3	33.2	543	3.42	25.28	N
Pond K	3	21-Nov-24	8:53	CF	VPELKND4	7.75	48.7	29	135	3.38	27.53	N
Pond K	3	22-Nov-24	13:06	CF	ProDSS	7.34	55.1	35.8	131067	4.27	36	N
Pond K	3	23-Nov-24			ProDSS							
Pond K	3	24-Nov-24	12:07	CF	ProDSS	8	53.5	34.8	57481	3.97	30.5	N
Pond K	3	25-Nov-24	7:55	CF	ProDSS	8.02	54.5	35.4	126932	4.94	29.8	N
Pond K	3	26-Nov-24	7:13	CF	ProDSS	8.02	54.3	35.3	151357	4.35	28.7	N
Pond K	3	27-Nov-24	7:45	CF	ProDSS	7.93	54.5	35.4	142852	4.68	29.9	N
Pond K	3	28-Nov-24	7:46	CF	ProDSS	7.99	53.7	34.9	139893	3.2	29.5	N
Pond K	3	29-Nov-24	4:00	CH	ProDSS	8.03	53.2	34.6	112725	4.69	30.7	N
Pond K	3	30-Nov-24	8:54	CH	ProDSS	8.11	54.6	31.7	14066	3.6	31.2	N

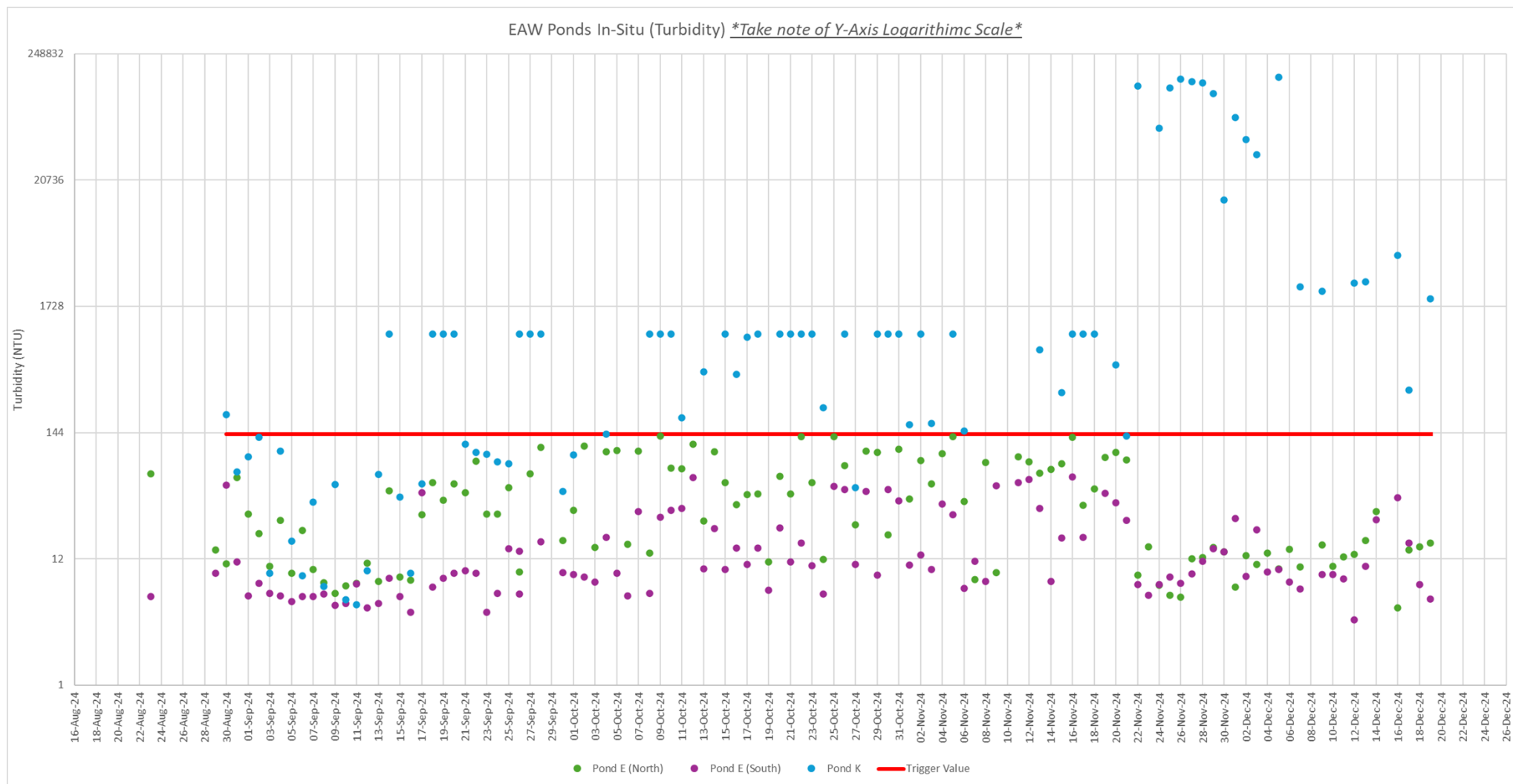
						Surface Water						
						Baseline Levels						
						8	487		4.4		28.1	
						Trigger Levels						
						<6			140			N
Location	Site No	Date	Time	Sampled by	Meter ID	pH	Electrical Conductivity (ms/cm)	TDS (g/L)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (C)	Oil/Grease (Y/N)
Instrument Measure of Uncertainty:						±0.2 units	±0.5% of reading or 0.001 mS/cm, whichever is greater	User-Selectable TDS Multiplier (0.30 to 1.00; 0.65 default)	0 to 999 (0.3 or ±2% of reading, whichever is greater) 1000 to 4000 (±5% of reading)	0 to 20 mg/L (±0.1 mg/L or 1% of reading, whichever is greater) 20 – 50 mg/L (±8% of reading)	±0.2°C	N/A
Pond K	3	01-Dec-24	10:58	CH	ProDSS	8.19	51.7	33.6	70542	0.94	33.7	N
Pond K	3	02-Dec-24	8:52	CH	ProDSS	7.94	57.5	32.6	45955	0.33	32.6	N
Pond K	3	03-Dec-24	12:19	CH	ProDSS	8.09	50.6	32.8	34096	0.26	32	N
Pond K	3	04-Dec-24		CH	ProDSS							
Pond K	3	05-Dec-24	1:51	CH	ProDSS	8.04	53.6	34.8	156989	3.52	36.3	N
Pond K	3	06-Dec-24		CH	ProDSS							
Pond K	3	07-Dec-24	8:29	CF	ProDSS	7.91	51.3	33	2518	3.74	30.8	N
Pond K	3	09-Dec-24	6:59	CF	ProDSS	7.75	-	-	2336	5.69	27.3	N
Pond K	3	10-Dec-24										
Pond K	3	11-Dec-24										
Pond K	3	12-Dec-24	9:16	CF	ProDSS	7.94	51	33	2733	3.38	32.5	N
Pond K	3	13-Dec-24	7:46	CF	ProDSS	7.82	51.1	33	2789	4.17	31.2	N
Pond K	3	14-Dec-24										
Pond K	3	16-Dec-24	7:36	CF	ProDSS	8.02	50.7	33	4726	5.47	29.4	N
Pond K	3	17-Dec-24	9:48	CF	ProDSS	7.69	-	-	334	8.29	27.2	N
Pond K	3	18-Dec-24										
Pond K	3	19-Dec-24	8:35	CF	ProDSS	8.04	51	33	1998	5.07	30.7	N

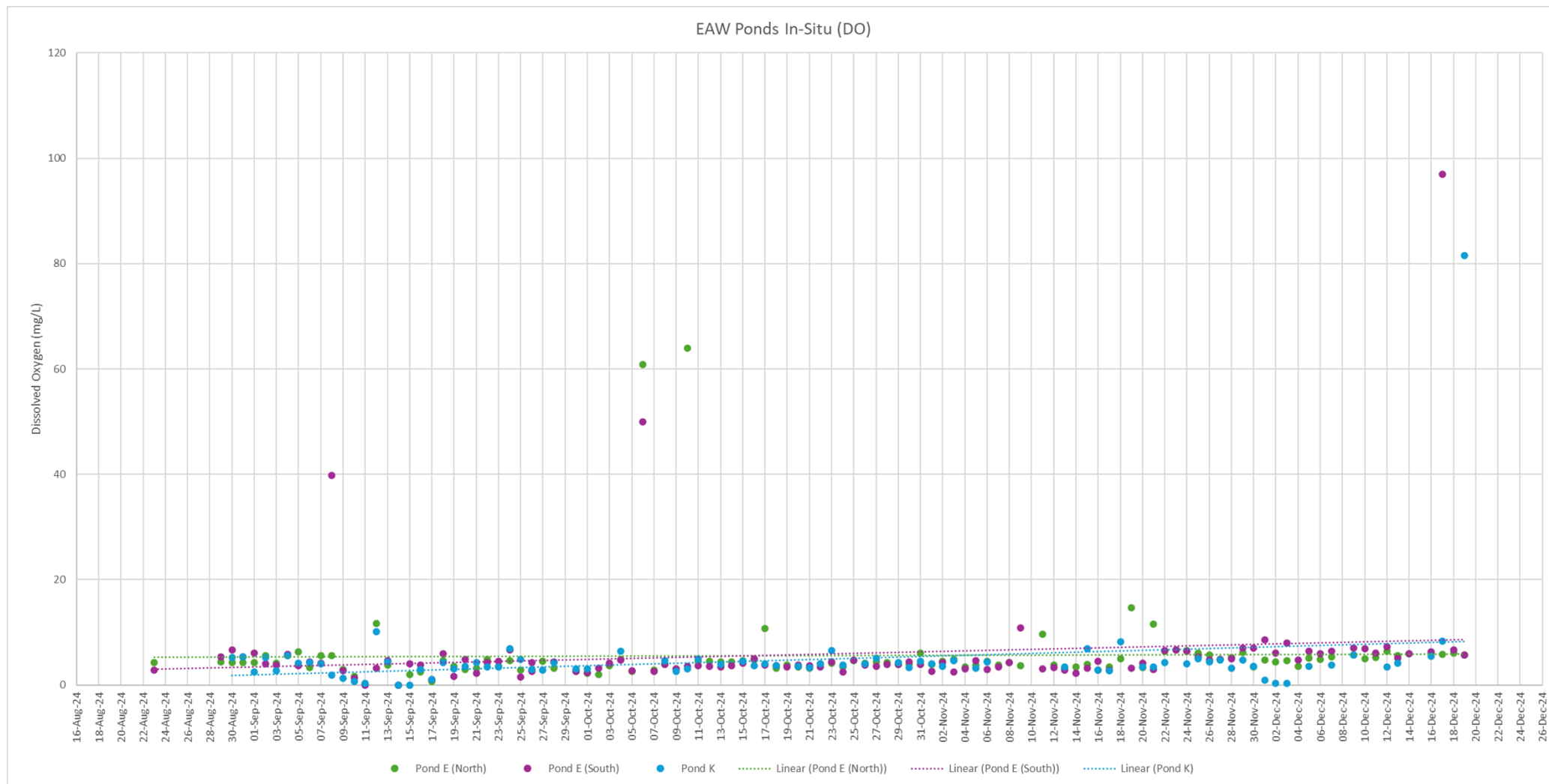
APPENDIX B [WATER] FIELD DATA GRAPHS

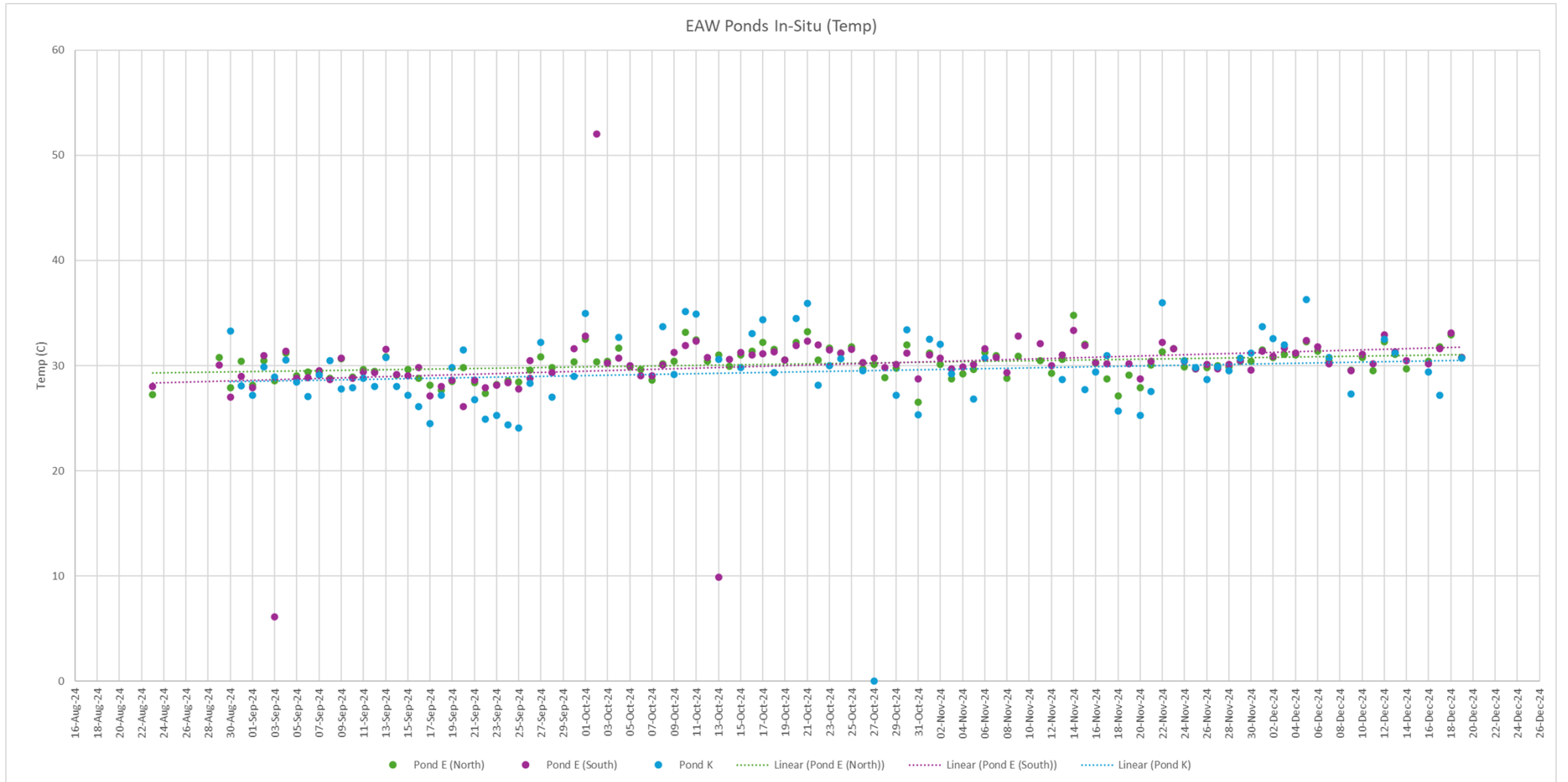








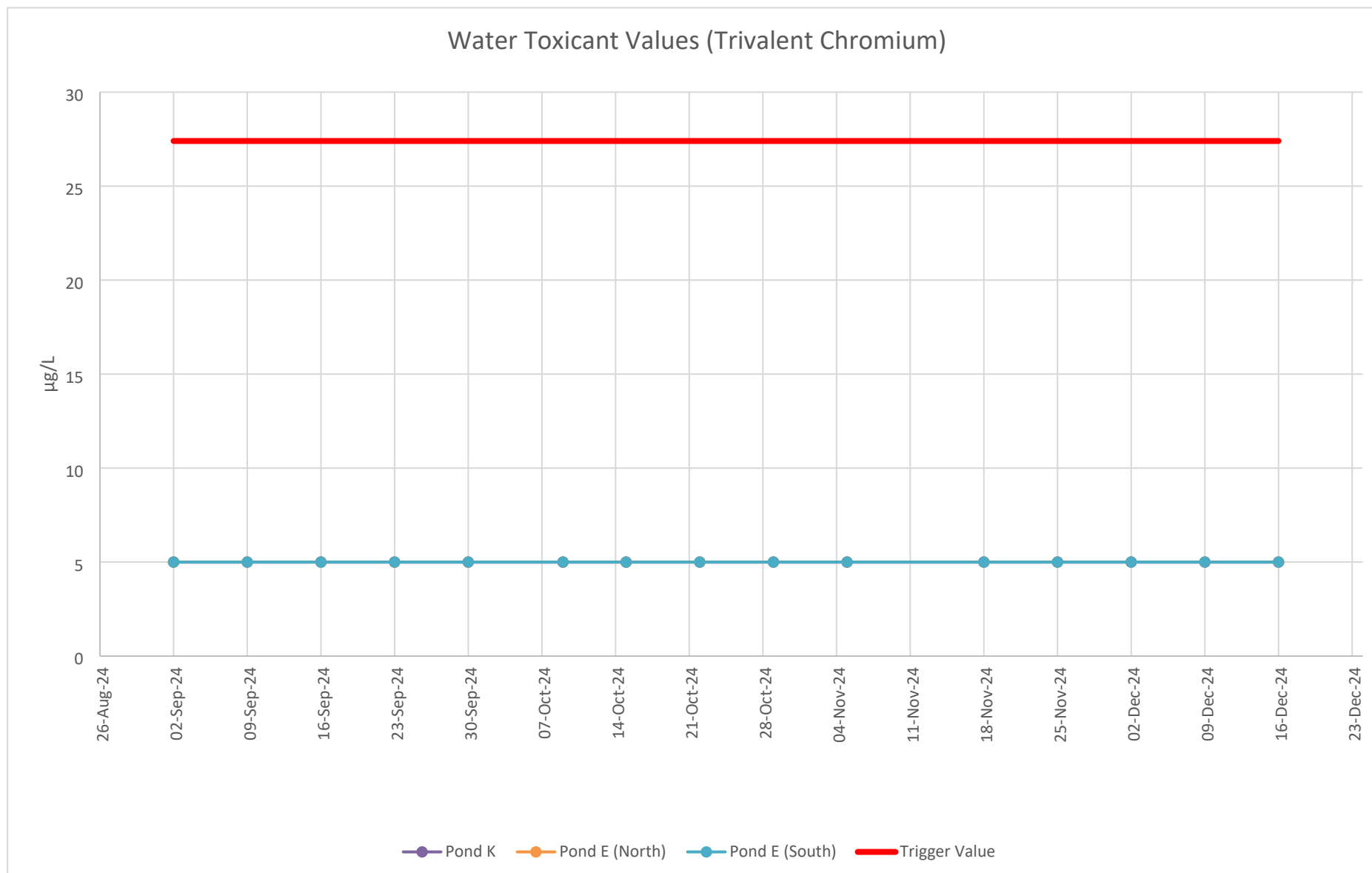




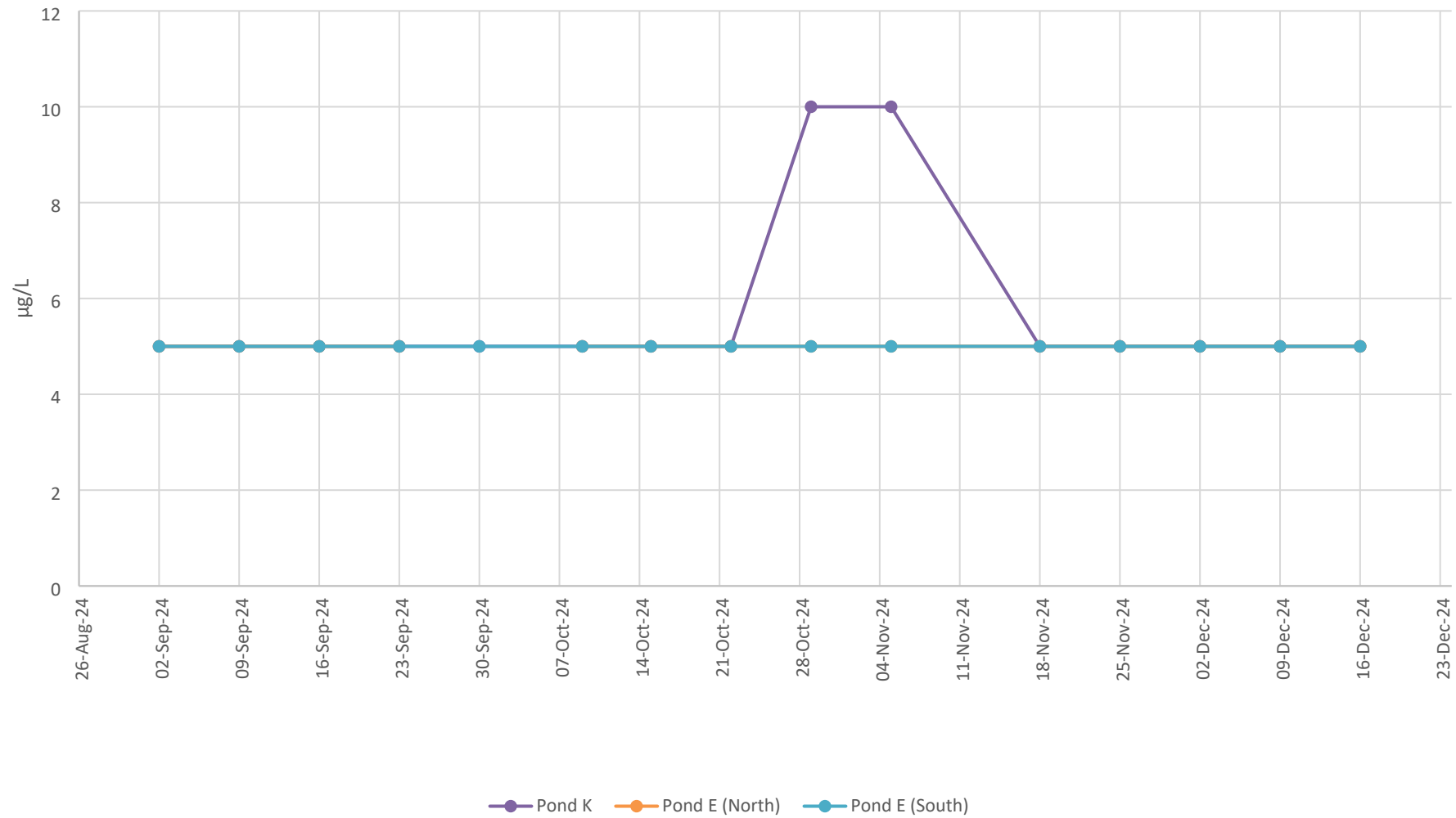
APPENDIX C [WATER] LAB DATA RAW

				Results converted to unit (µg/L) and halved if the original data contained a 'less than' (<) prefix.															
	Toxicant name	LOR/EQL (µg/L)	Trigger Level (µg/L)	02-Sep-24	09-Sep-24	16-Sep-24	23-Sep-24	30-Sep-24	09-Oct-24	15-Oct-24	22-Oct-24	29-Oct-24	05-Nov-24	18-Nov-24	25-Nov-24	02-Dec-24	09-Dec-24	16-Dec-24	
Pond K	Trivalent Chromium	1	27.4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
	Chromium (ICP-MS)	1		5	5	5	5	5	5	5	5	10	10	5	5	5	5	5	
	Hexavalent Chromium	1	4.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Mercury	0.1	0.4	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	Iron	5		228	43	2.5	10	12	2.5	2.5	46	3430	2.5	2.5	2.5	2.5	2.5	2.5	
	Selenium	2	5	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	
	Aluminium	5		18	2.5	6	6	2.5	2.5	2.5	58	1130	5	2.5	2.5	2.5	2.5	2.5	
	Cobalt	0.2		1.2	0.3	0.5	1.2	1.6	1.3	0.5	0.5	2.5	0.5	0.3	0.4	0.2	0.4	0.4	
	Copper	1	1.3	3	0.5	0.5	2	2	1	2	0.5	3	0.5	0.5	0.5	0.5	0.5	0.5	
	Lead	0.2	4.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	5.4	0.1	0.1	0.1	0.1	0.1	0.1	
	Manganese	0.5		1290	510	65.4	343	2170	315	2.3	5.4	69.3	0.6	1.1	1.1	12.6	1	0.25	
	Nickel	0.5	70	10	0.8	2.2	11.2	4.4	4.6	3.2	0.6	2.6	0.25	0.6	0.7	0.25	0.6	0.8	
	Vanadium	0.5		3.4	4.2	9.9	9.3	3.9	9.6	11.2	13	11.9	3.7	7	2	8.1	3.8	2.1	
	Zinc	5	15	10	2.5	2.5	25	2.5	6	2.5	2.5	12	2.5	2.5	2.5	20	2.5	2.5	
	Arsenic	0.5		5.2	4.8	3.5	5.4	5.9	4.4	2.6	3.6	4.5	2.3	3.2	1.3	4.3	3.1	2.6	
	Cadmium	0.2	5.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Chromium (ORC-I)	0.5		0.5	0.25	0.25	0.9	0.25	0.25	0.25	0.25	4.9	0.25	0.25	0.25	0.25	0.25	0.25		
Oil + Grease	N/A	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pond E (North)	Trivalent Chromium	1	27.4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
	Chromium (ICP-MS)	1		5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	
	Hexavalent Chromium	1	4.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Mercury	0.1	0.4	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	Iron	5		7	2.5	2.5	2.5	18	5	2.5	2.5	6	2.5	6	2.5	6	2.5	2.5	
	Selenium	2	5	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	
	Aluminium	5		19	2.5	5	6	5	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
	Cobalt	0.2		0.1	0.1	0.4	0.1	0.2	0.2	0.1	0.1	0.3	0.4	0.4	0.4	0.4	0.4	0.4	
	Copper	1	1.3	1	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Lead	0.2	4.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	Manganese	0.5		31.1	3.8	14.7	10.3	66.8	17.9	16.9	2.1	29.7	49.4	5.5	8.4	58.2	29.5	4.1	
	Nickel	0.5	70	3	0.6	11.6	3.6	1.2	3.2	1.2	0.8	1.2	1	1.2	0.9	0.25	0.7	0.8	
	Vanadium	0.5		0.9	2.2	3.9	4.5	5.4	4.3	6.6	1	7.4	7.5	12.6	11.1	27	16.6	8	
	Zinc	5	15	10	2.5	7	14	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	6	2.5	2.5	
	Arsenic	0.5		1.2	2	1.8	2.4	2.2	2	2.5	2.4	2.7	2.6	3	2.9	6.4	5.4	3.4	
	Cadmium	0.2	5.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Chromium (ORC-I)	0.5		0.25	0.25	0.25	0.7	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		
Oil + Grease	N/A	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pond E (South)	Trivalent Chromium	1	27.4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
	Chromium (ICP-MS)	1		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
	Hexavalent Chromium	1	4.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Mercury	0.1	0.4	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	Iron	5		2.5	2.5	2.5	5	6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
	Selenium	2	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Aluminium	5		13	11	6	2.5	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5	2.5	10	
	Cobalt	0.2		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	
	Copper	1	1.3	0.5	0.5	3	1	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Lead	0.2	4.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	Manganese	0.5		9.2	7.5	5.4	3.4	8.4	8.2	3.9	6.1	3.7	4.8	5.3	4.6	35.2	25.3	12.5	
	Nickel	0.5	70	1.9	2.6	4.5	2.3	0.25	0.25	0.25	0.25	0.25	0.25	0.6	0.8	0.7	0.5	1.2	
	Vanadium	0.5		1.7	1.5	1.8	1.8	1.7	1.5	1.7	2	2.1	1.6	1.7	7.4	23.2	15.3	9.9	
	Zinc	5	15	6	2.5	6	10	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	7	
	Arsenic	0.5		1.4	1.4	0.9	1.6	1.4	1.4	1.2	1.5	1.4	1.7	1.3	2.4	5.2	4.9	3.7	
	Cadmium	0.2	5.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Chromium (ORC-I)	0.5		0.25	0.25	0.25	0.6	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		
Oil + Grease	N/A	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

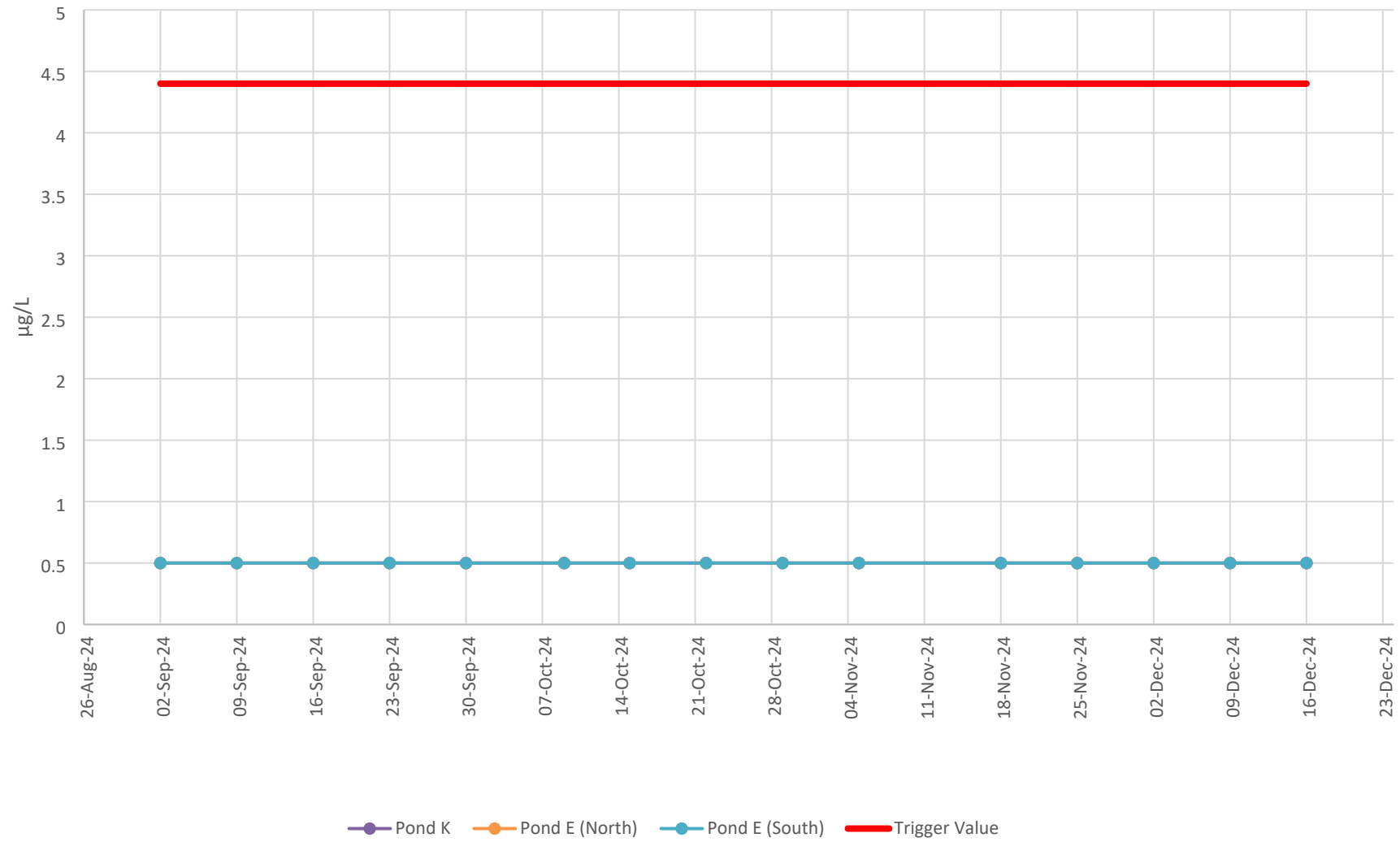
APPENDIX D [WATER] LAB DATA GRAPHS



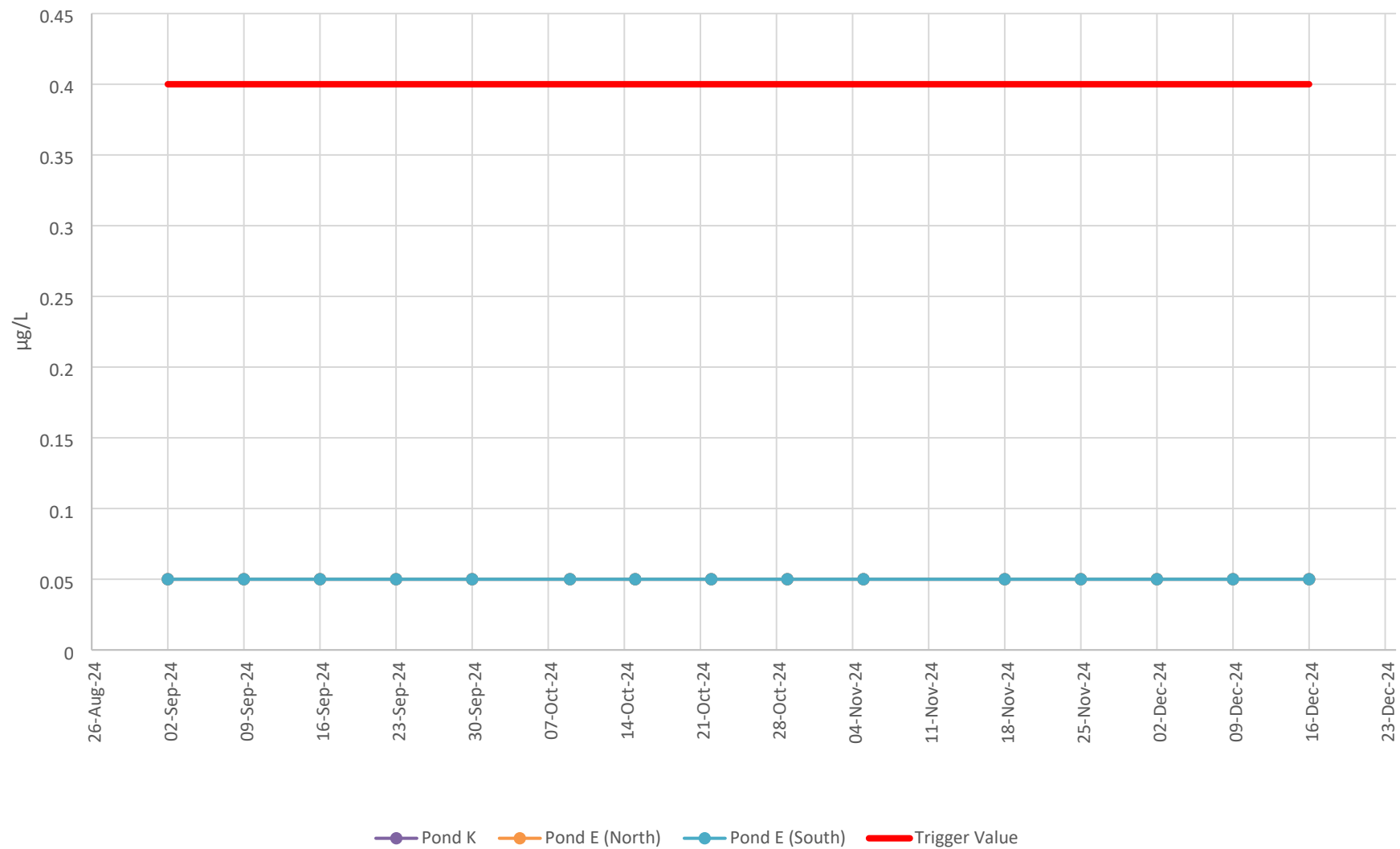
Water Toxicant Values (ICP-MS Chromium)



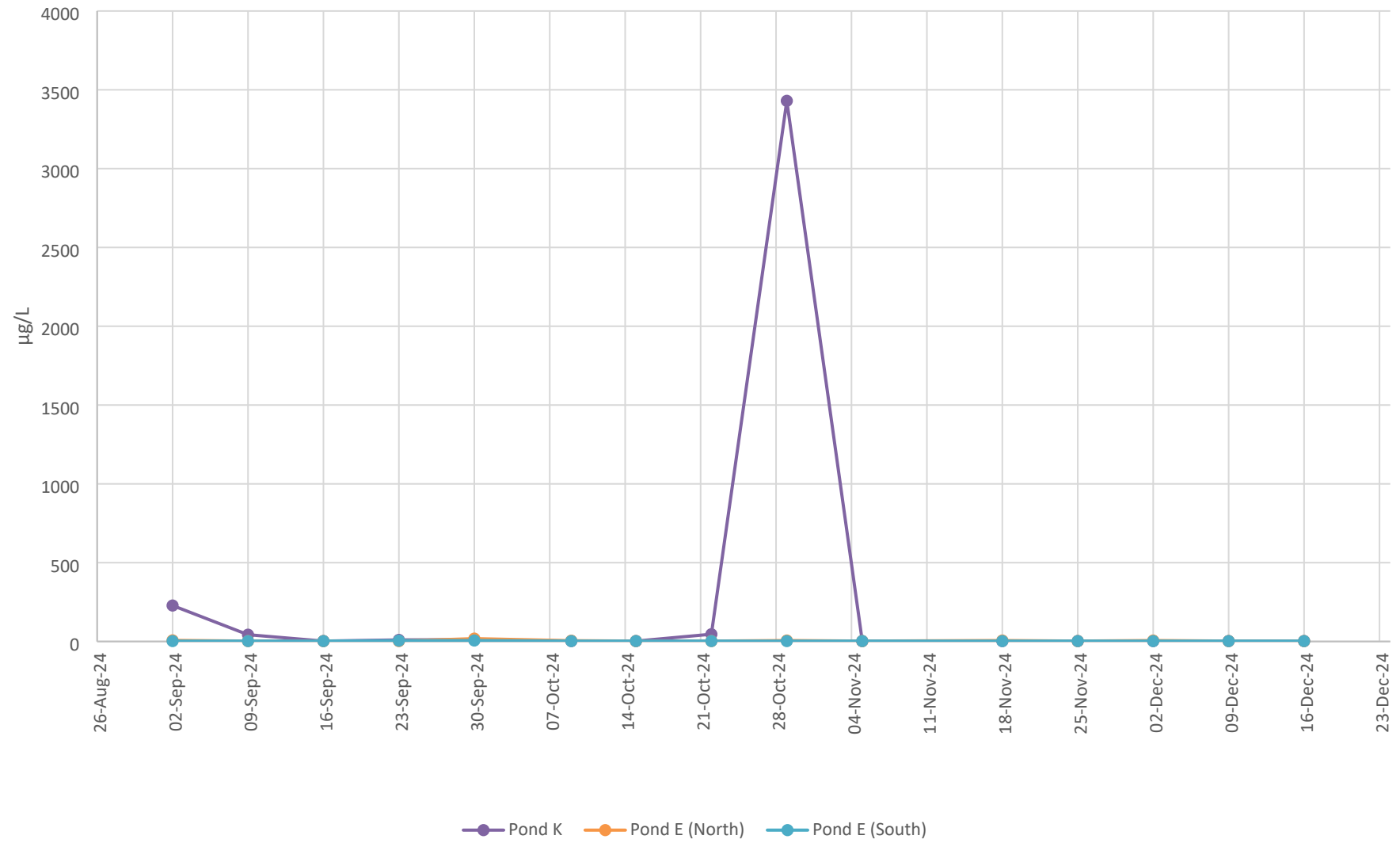
Water Toxicant Values (Hexavalant Chromium)



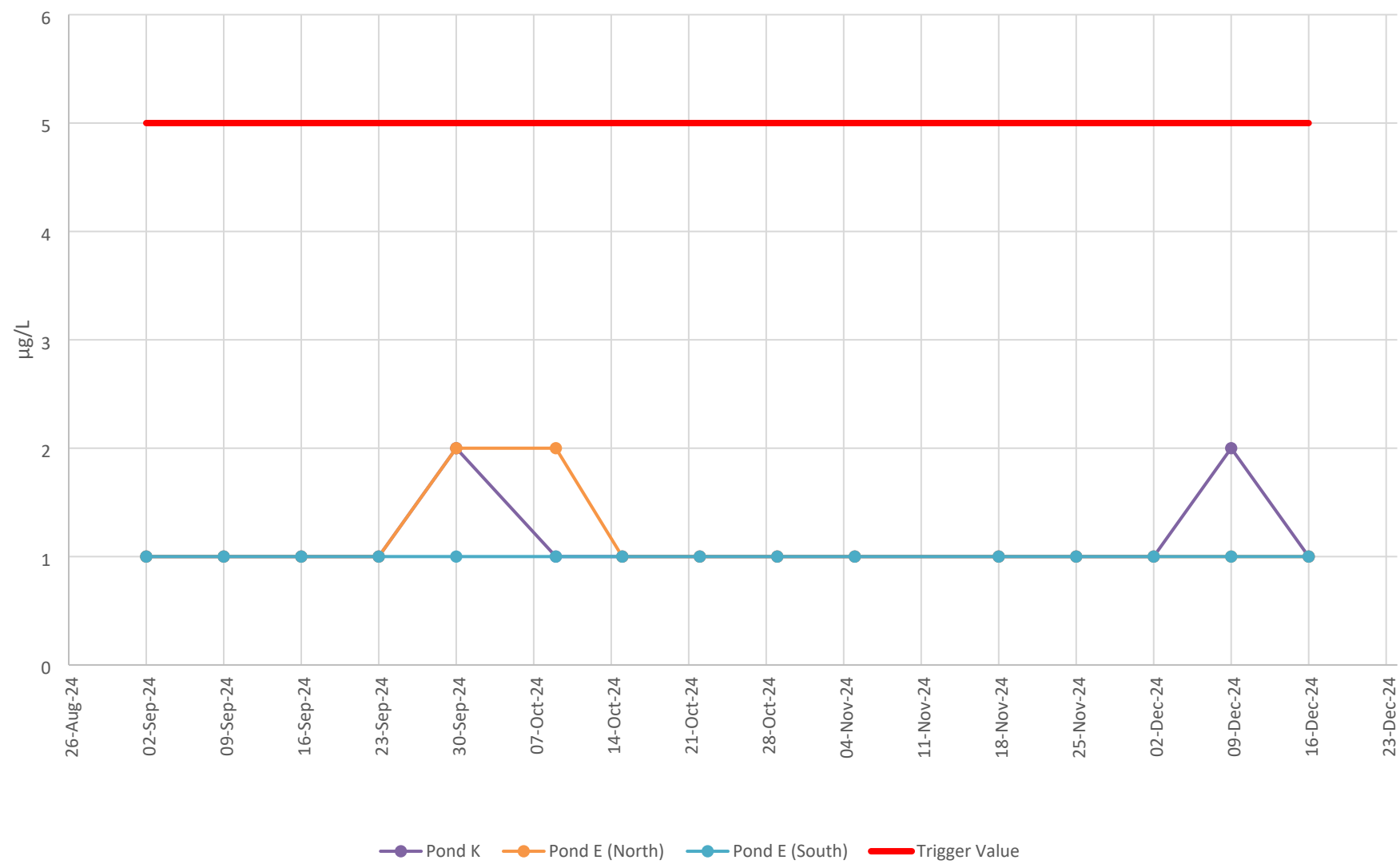
Water Toxicant Values (Mercury)



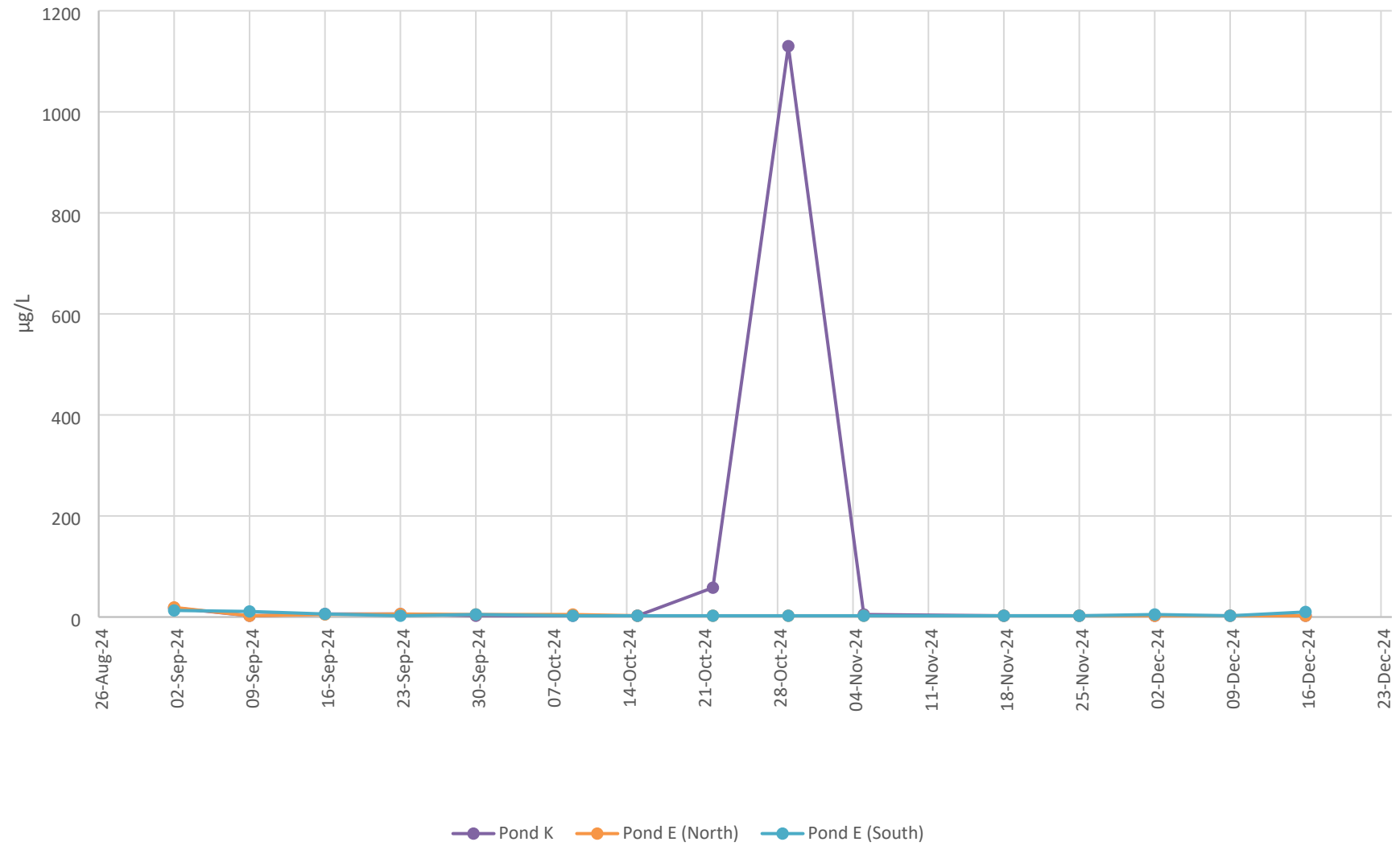
Water Toxicant Values (Iron)



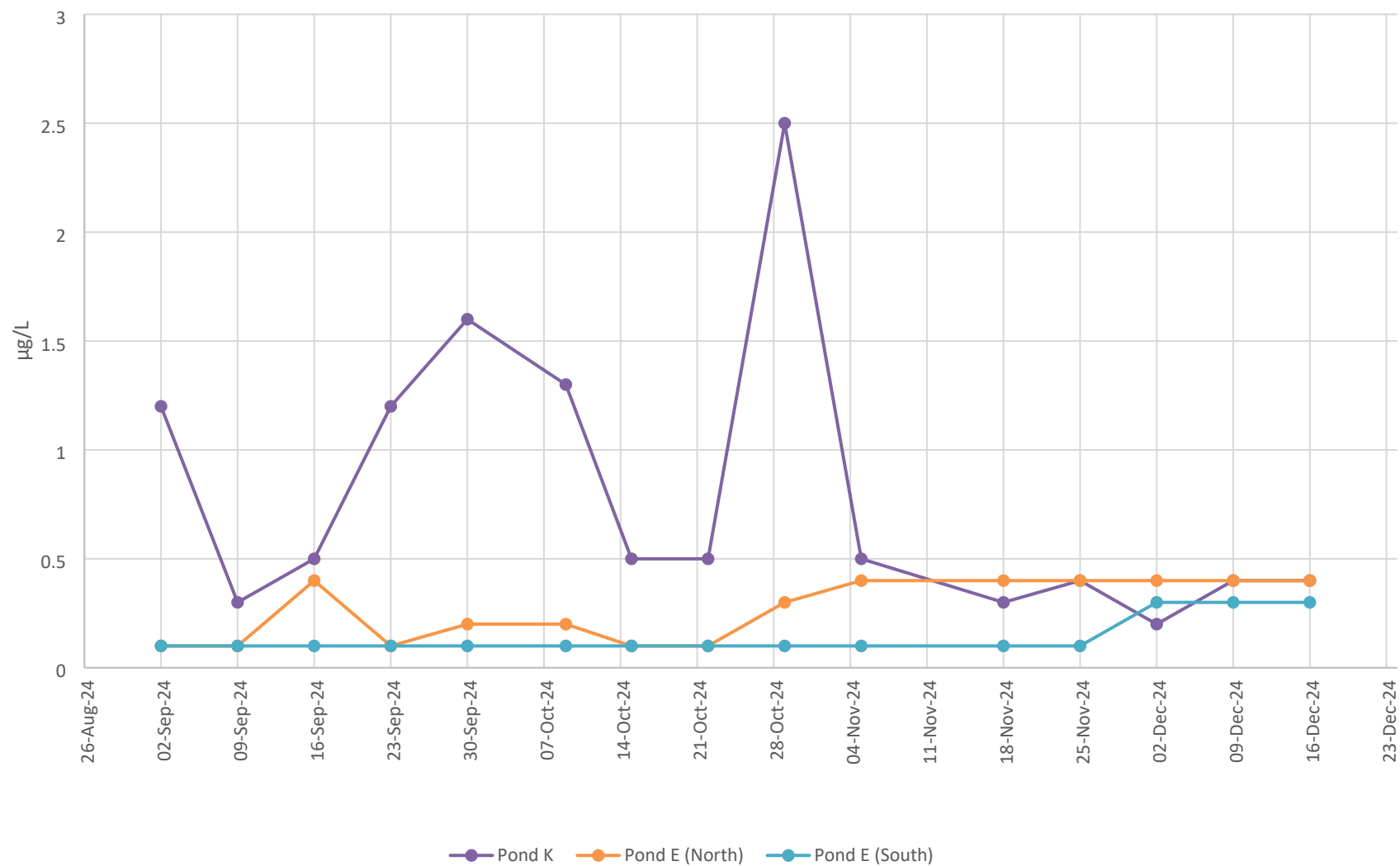
Water Toxicant Values (Selenium)



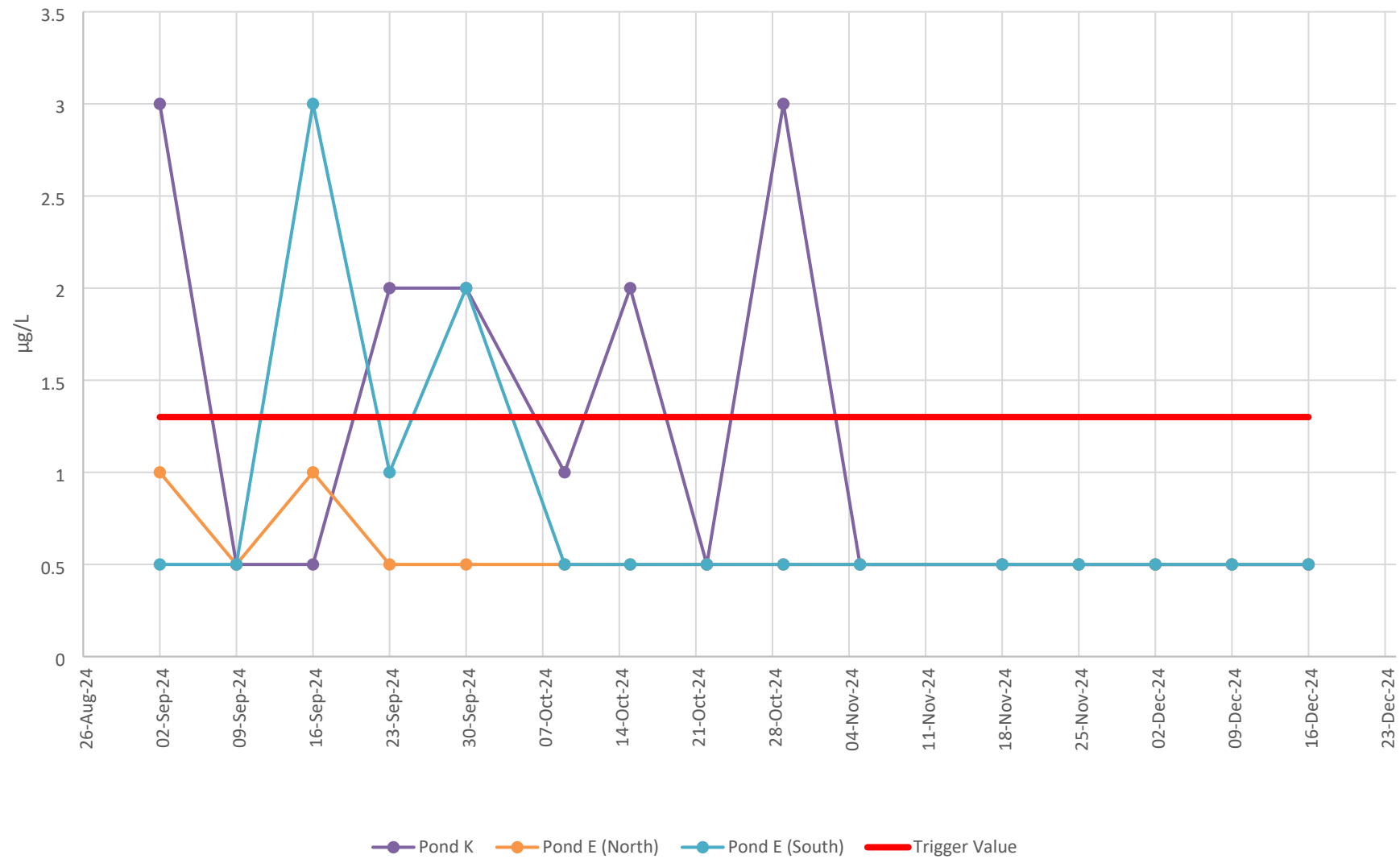
Water Toxicant Values (Aluminum)

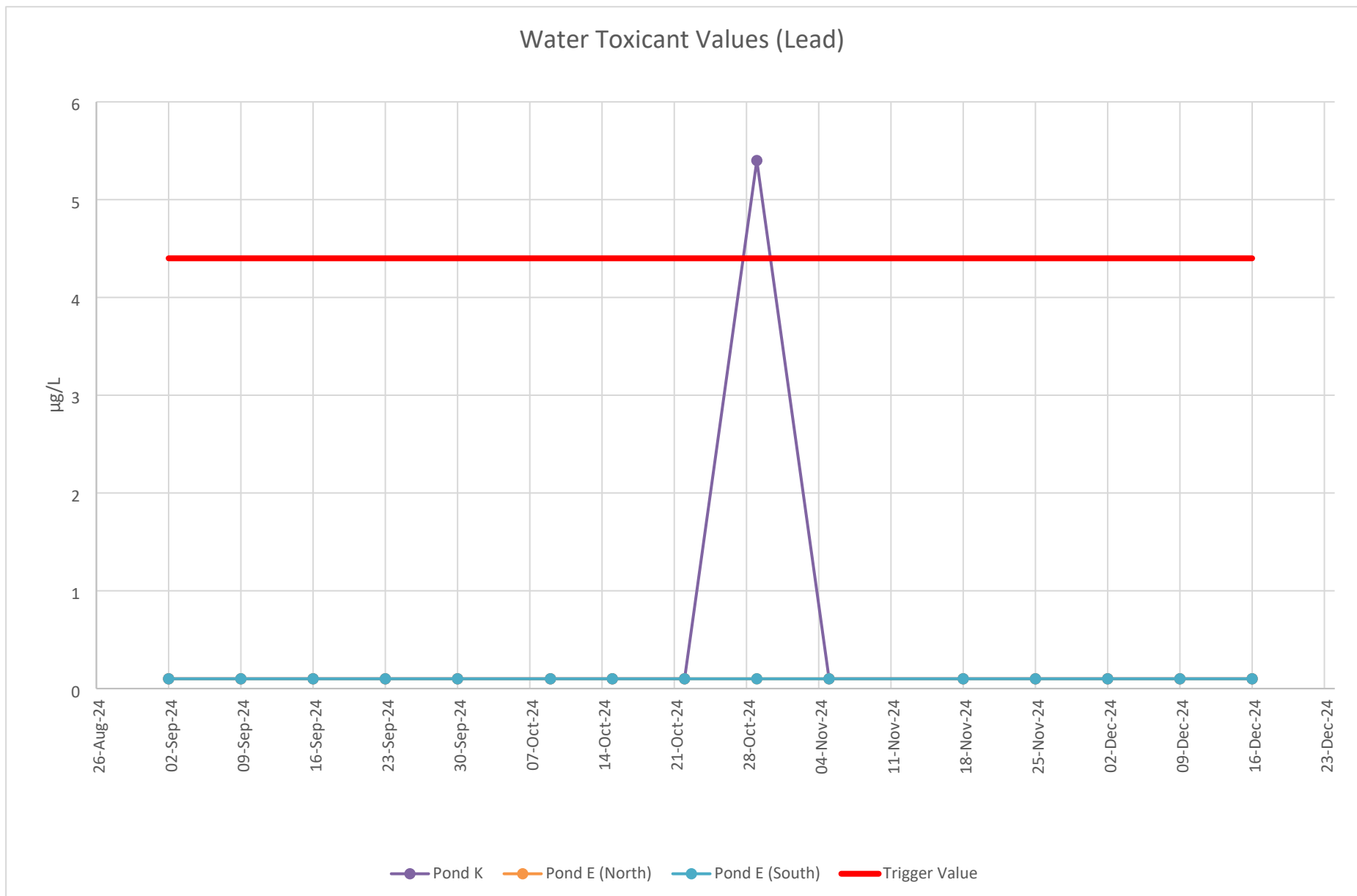


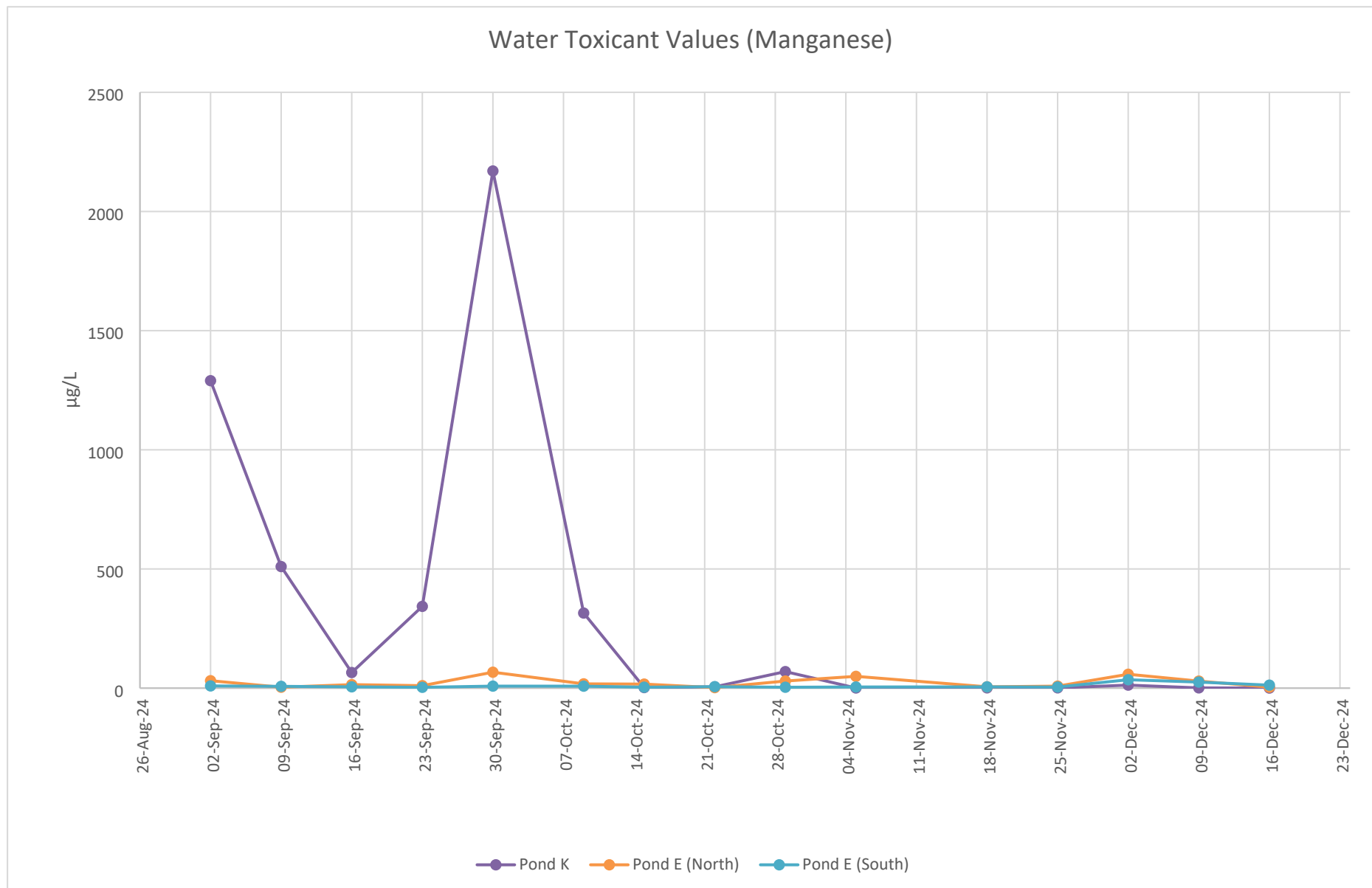
Water Toxicant Values (Cobalt)



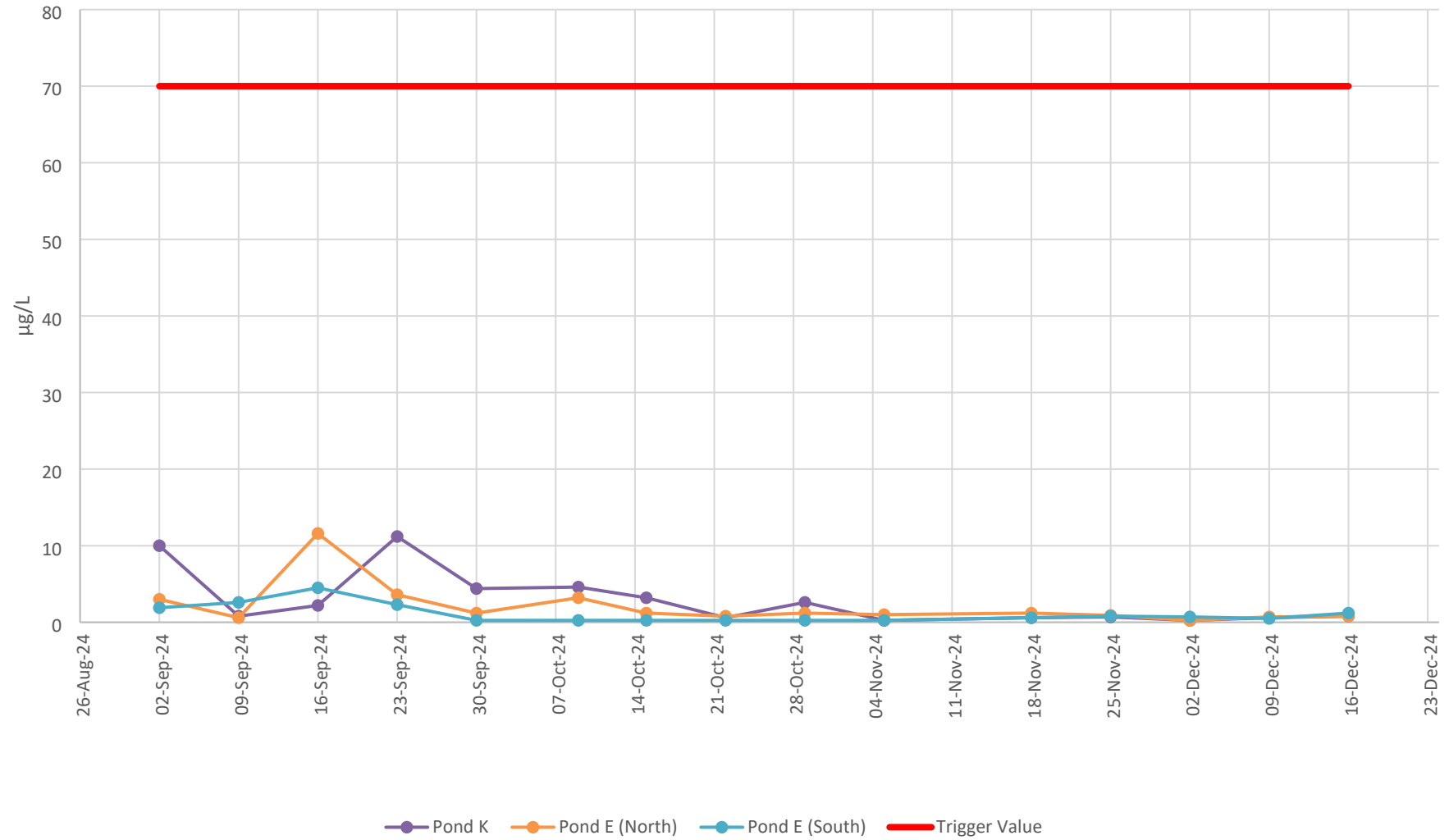
Water Toxicant Values (Copper)



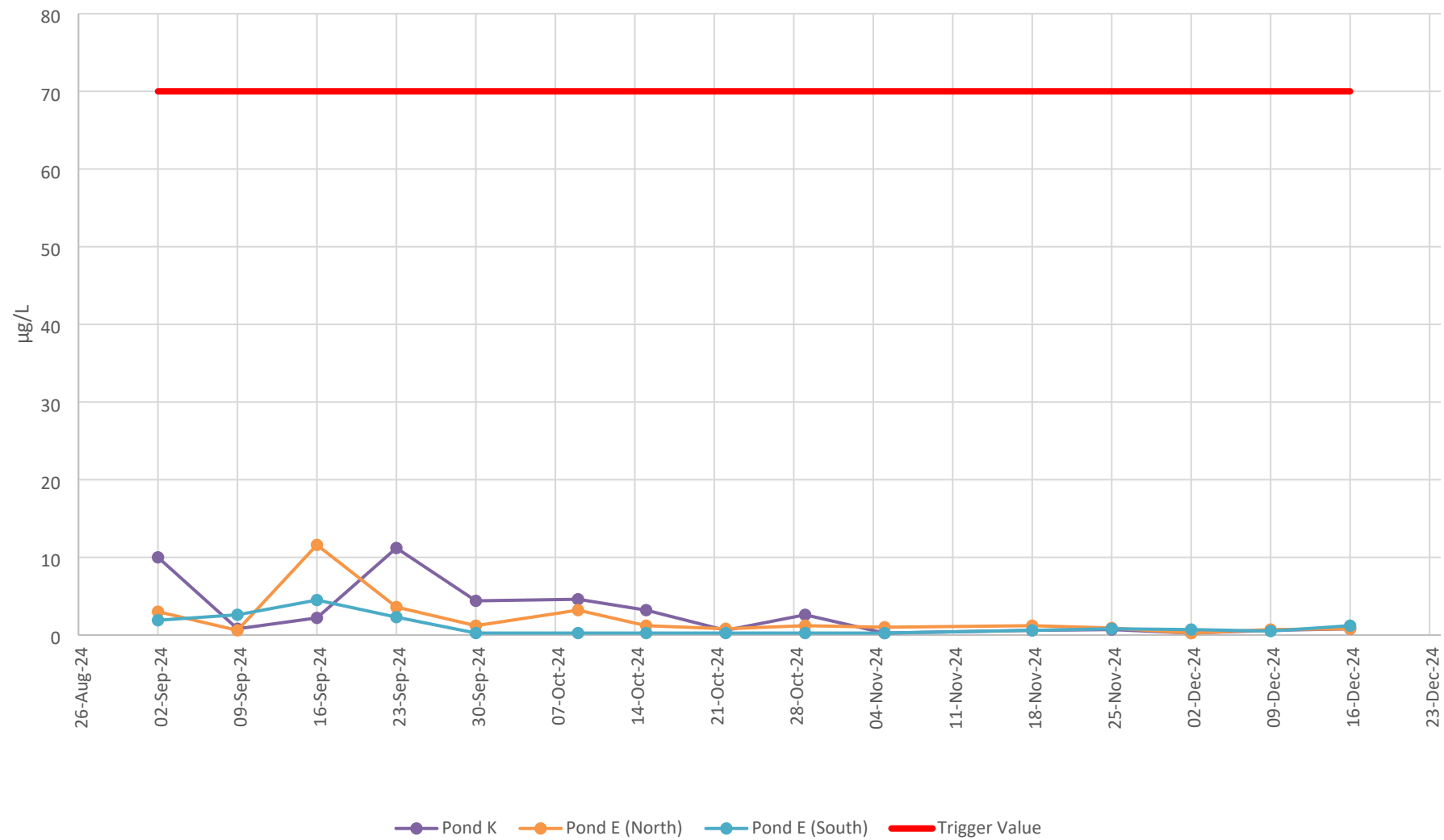




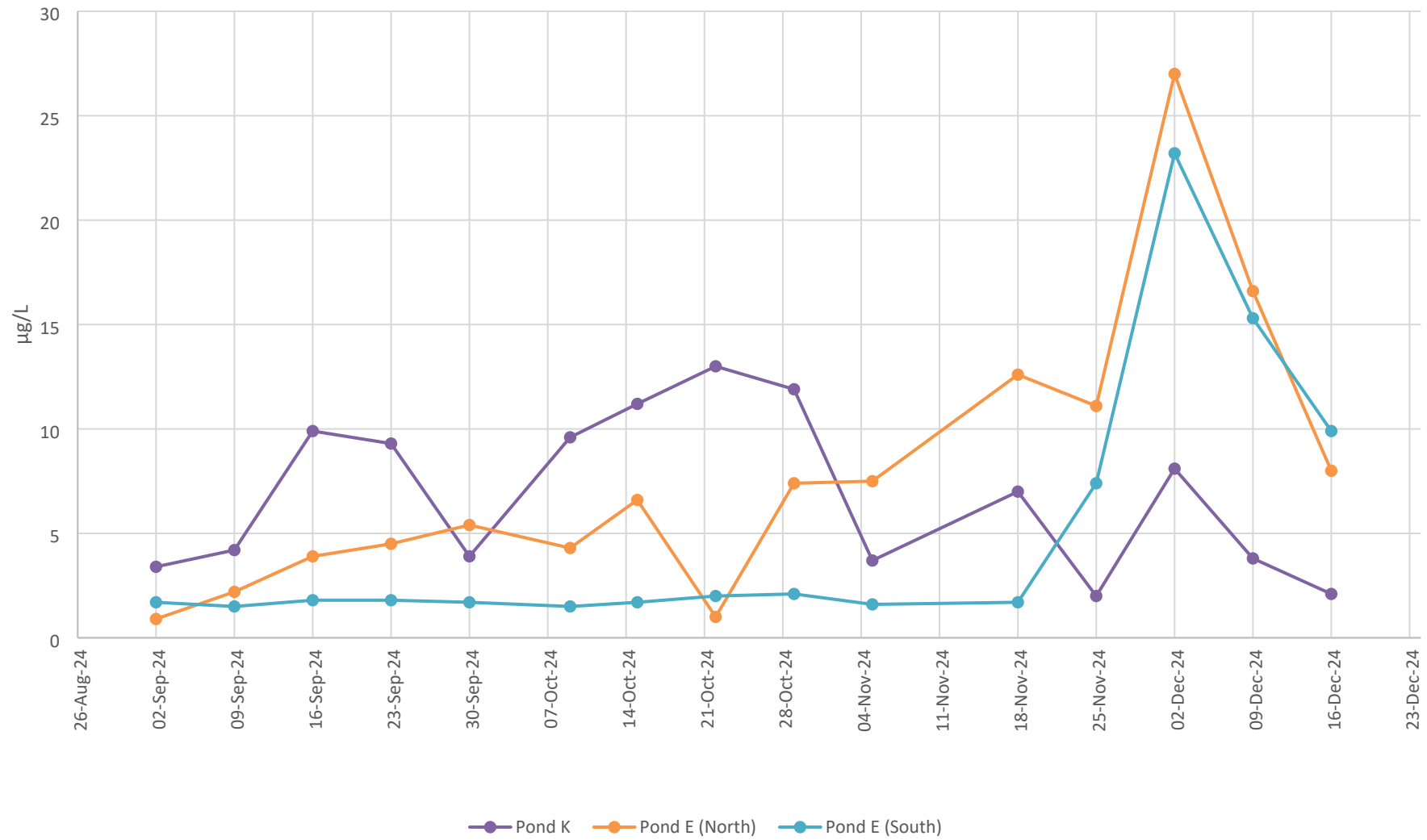
Water Toxicant Values (Nickel)



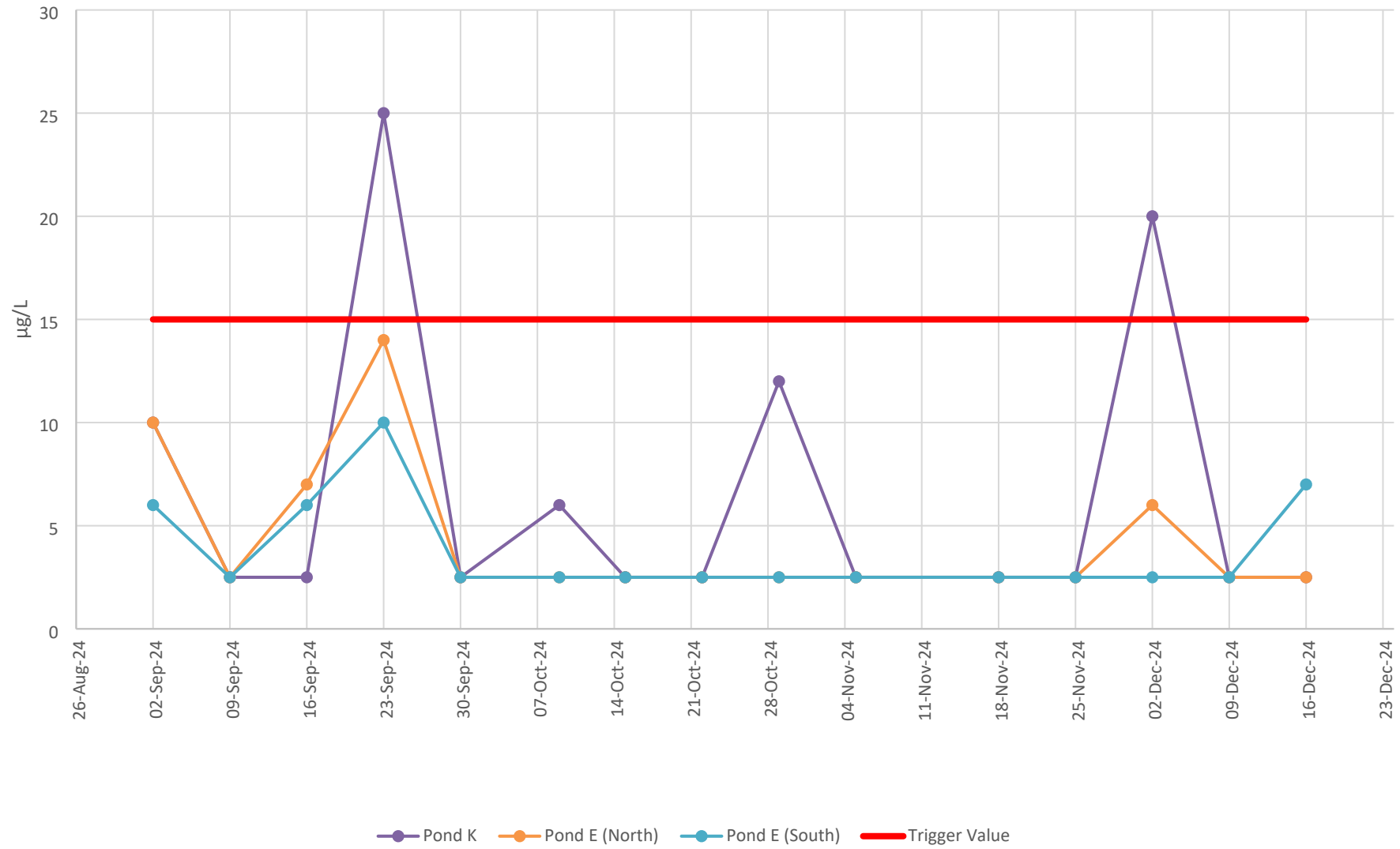
Water Toxicant Values (Nickel)



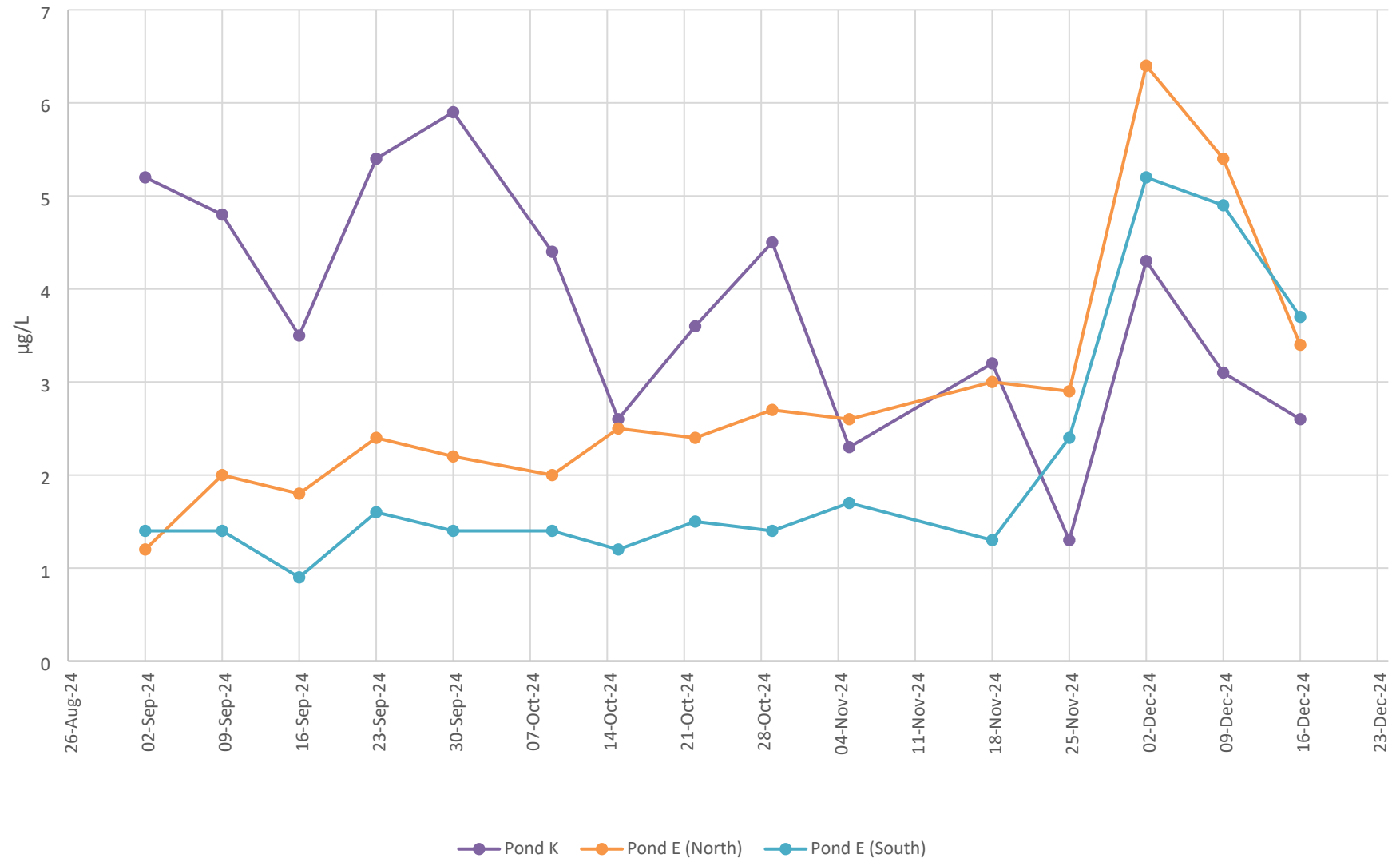
Water Toxicant Values (Vanadium)

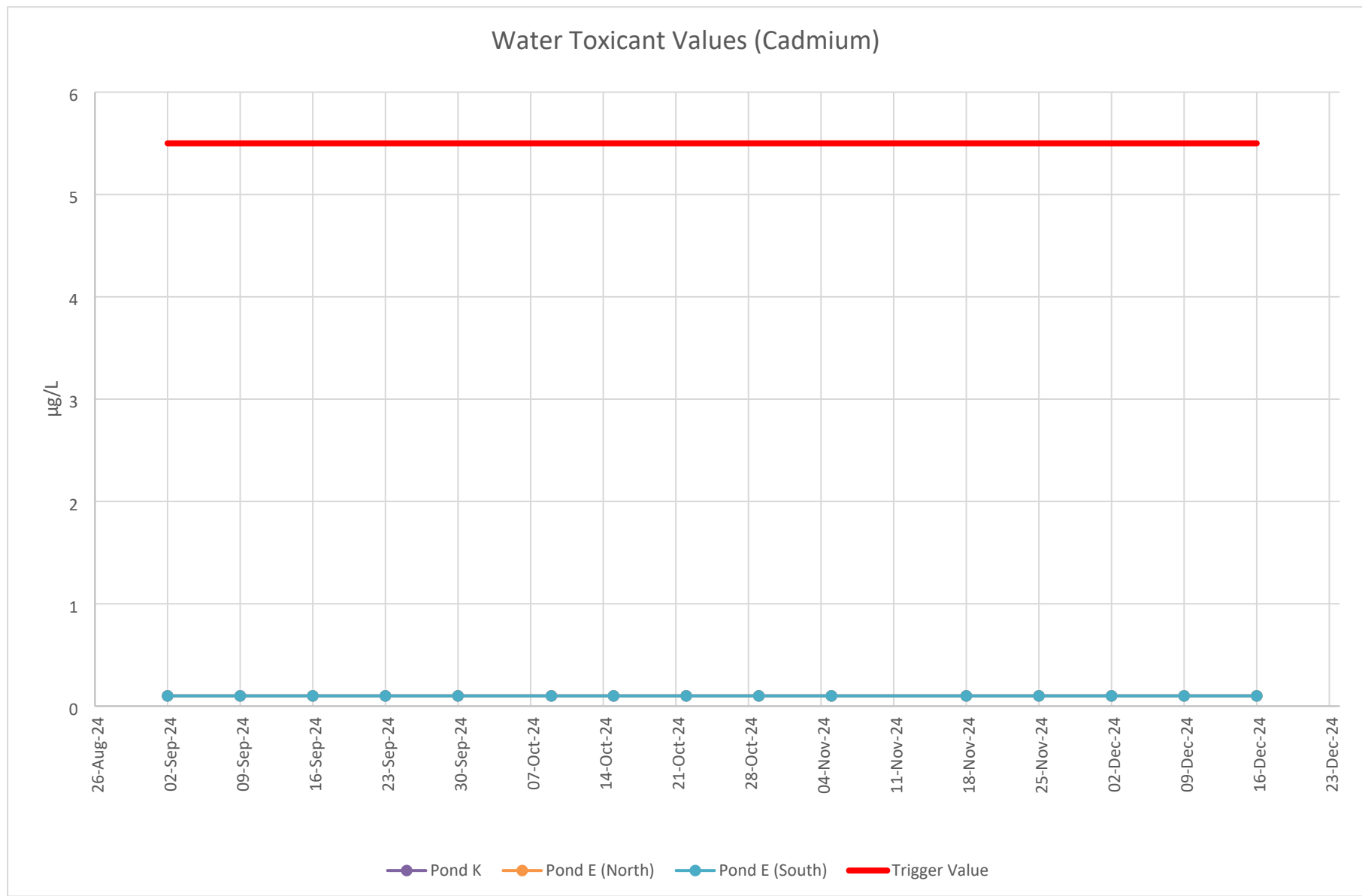


Water Toxicant Values (Zinc)

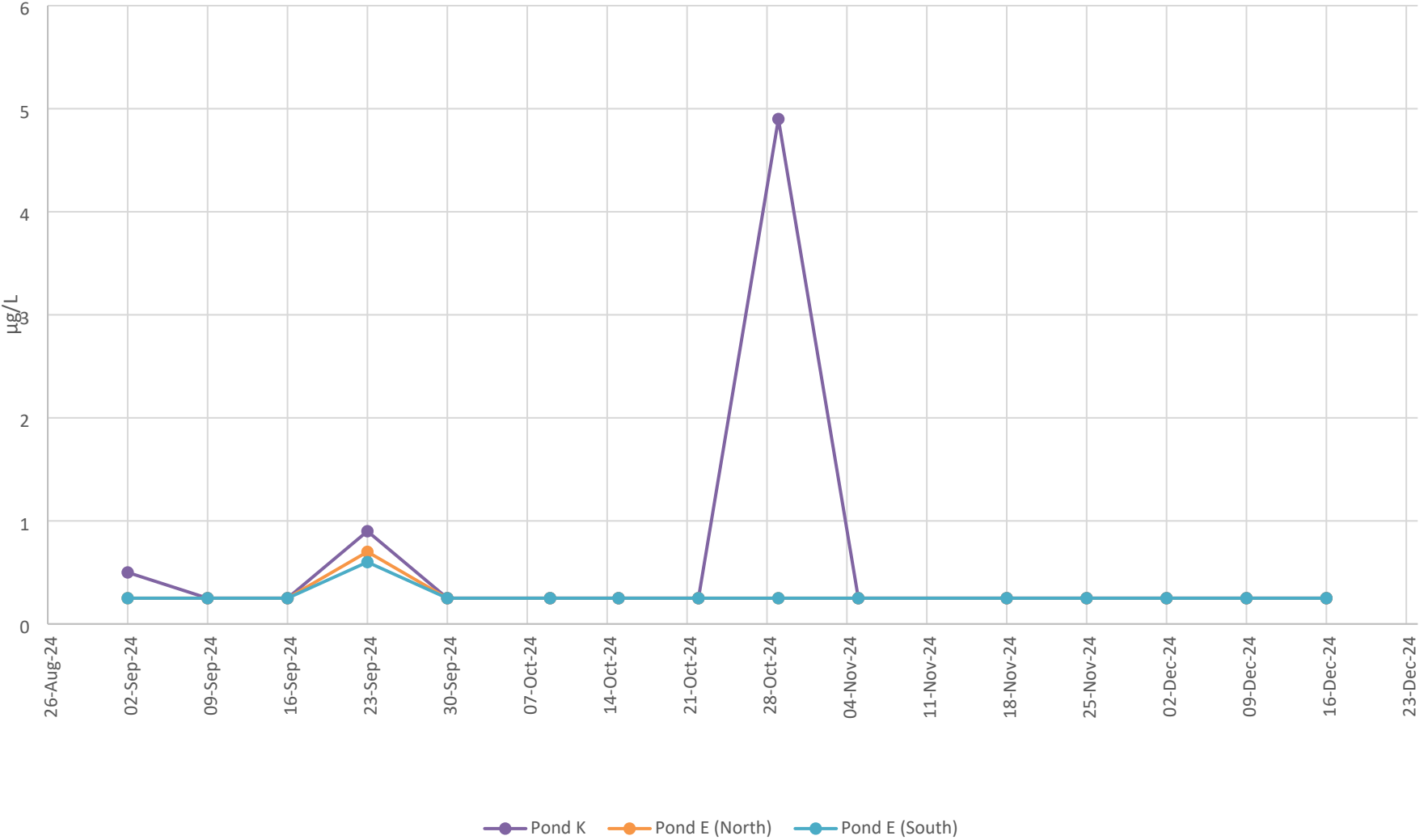


Water Toxicant Values (Arsenic)





Water Toxicant Values (ORC-I Chromium)



APPENDIX E ANNUAL CONTAMINANT LOAD ESTIMATE

			Discharge Volume (ML)	Discharge Rate of Flow (m³/h)	Daily volume (m3/day)	Arsenic (ug/L)	Interpolation Arsenic (ug/L)	Load (kg) - Arsenic - Pond K	Cadmium (ug/L)	Interpolation Cadmium (ug/L)	Load (kg) - Cadmium - Pond K	Chromium (CrIII) (ug/L)	Interpolation Chromium (CrIII) (ug/L)	Load (kg) - Chromium (CrIII) - Pond K	Chromium (CrVI) (ug/L)	Interpolation Chromium (CrVI) (ug/L)	Load (kg) - Chromium (CrVI) - Pond K	Copper (ug/L)	Interpolation Copper (ug/L)	Load (kg) - Copper - Pond K	Lead (ug/L)	Interpolation Lead (ug/L)	Load (kg) - Lead - Pond K	Mercury (ug/L)	Interpolatio n Mercury (ug/L)	Load (kg) - Mercury - Pond K	Nickel (ug/L)	Interpolatio n Nickel (ug/L)	Load (kg) - Nickel - Pond K	Selenium (ug/L)	Interpolatio n Selenium (ug/L)	Load (kg) - Selenium - Pond K	Zinc (ug/L)	Interpolation Zinc (ug/L)	Load (kg) - Zinc - Pond K
30/08/2024	2024-08		3.331	139	3331		4.13	0.01		0.10	0.00		5.00	0.02		2.30	0.01		1.63	0.01		0.36	0.00		0.05	0.00		4.6	0.00		1.10	0.00		7.40	0.02
31/08/2024	2024-08		2.109	88	2109		4.49	0.01		0.10	0.00		5.00	0.01		3.20	0.01		2.08	0.00		0.28	0.00		0.05	0.00		6.4	0.00		1.07	0.00		8.27	0.02
1/09/2024	2024-09		2.905	121	2905		4.53	0.01		0.10	0.00		5.00	0.01		4.10	0.01		2.54	0.01		0.19	0.00		0.05	0.00		8.2	0.02		1.03	0.00		9.13	0.03
2/09/2024	2024-09		6.506	271	6506	5.20	5.20	0.03	0.10	0.00	0.00	5.00	5.00	0.03	5.00	5.00	0.03	3.00	3.00	0.02	0.10	0.00	0.05	0.05	0.00	10.00	10.00	0.07	1.00	1.00	0.01	10	10.00	0.07	
3/09/2024	2024-09		10.009	417	10009		5.14	0.05		0.10	0.00		5.00	0.05		5.00	0.05		2.64	0.03		0.10	0.00		0.05	0.00		8.69	0.09		1.00	0.01		8.93	0.09
4/09/2024	2024-09		17.374	724	17374		5.09	0.09		0.10	0.00		5.00	0.09		5.00	0.09		2.29	0.04		0.10	0.00		0.05	0.00		7.37	0.13		1.00	0.02		7.86	0.14
5/09/2024	2024-09		11.844	493	11844		5.03	0.06		0.10	0.00		5.00	0.06		5.00	0.06		1.93	0.02		0.10	0.00		0.05	0.00		6.06	0.07		1.00	0.01		6.79	0.08
6/09/2024	2024-09		14.881	620	14881		4.97	0.07		0.10	0.00		5.00	0.07		5.00	0.07		1.57	0.02		0.10	0.00		0.05	0.00		4.74	0.07		1.00	0.01		5.71	0.09
7/09/2024	2024-09		4.536	189	4536		4.91	0.02		0.10	0.00		5.00	0.02		5.00	0.02		1.21	0.01		0.10	0.00		0.05	0.00		3.43	0.02		1.00	0.00		4.64	0.02
8/09/2024	2024-09		12.378	516	12378		4.86	0.06		0.10	0.00		5.00	0.06		5.00	0.06		0.86	0.01		0.10	0.00		0.05	0.00		2.11	0.03		1.00	0.01		3.57	0.04
9/09/2024	2024-09		15.185	633	15185	4.80	4.80	0.07	0.10	0.00	0.00	5.00	5.00	0.08	5.00	5.00	0.08	0.50	0.50	0.01	0.10	0.00	0.05	0.05	0.00	0.80	0.80	0.01	1.00	1.00	0.02	2.5	2.50	0.04	
10/09/2024	2024-09		16.882	703	16882		4.61	0.08		0.10	0.00		5.00	0.08		5.00	0.08		0.50	0.01		0.10	0.00		0.05	0.00		1.00	0.02		1.00	0.02		2.50	0.04
11/09/2024	2024-09		21.066	878	21066		4.43	0.09		0.10	0.00		5.00	0.11		5.00	0.11		0.50	0.01		0.10	0.00		0.05	0.00		1.20	0.03		1.00	0.02		2.50	0.05
12/09/2024	2024-09		26.174	1091	26174		4.24	0.11		0.10	0.00		5.00	0.13		5.00	0.13		0.50	0.01		0.10	0.00		0.05	0.00		1.40	0.04		1.00	0.03		2.50	0.07
13/09/2024	2024-09		26.148	1090	26148		4.06	0.11		0.10	0.00		5.00	0.13		5.00	0.13		0.50	0.01		0.10	0.00		0.05	0.00		1.60	0.04		1.00	0.03		2.50	0.07
14/09/2024	2024-09		17.582	733	17582		3.87	0.07		0.10	0.00		5.00	0.09		5.00	0.09		0.50	0.01		0.10	0.00		0.05	0.00		1.80	0.03		1.00	0.02		2.50	0.04
15/09/2024	2024-09		23.815	992	23815		3.69	0.09		0.10	0.00		5.00	0.12		5.00	0.12		0.50	0.01		0.10	0.00		0.05	0.00		2.00	0.05		1.00	0.02		2.50	0.06
16/09/2024	2024-09		3.045	127	3045	3.50	3.50	0.01	0.10	0.00	0.00	5.00	5.00	0.02	5.00	5.00	0.02	0.50	0.50	0.00	0.10	0.00	0.05	0.05	0.00	2.20	2.2	0.01	1.00	1.00	0.00	2.5	2.50	0.01	
17/09/2024	2024-09		8.235	343	8235		3.77	0.03		0.10	0.00		5.00	0.04		4.36	0.04		0.71	0.01		0.10	0.00		0.05	0.00		3.49	0.03		1.00	0.01		5.71	0.05
18/09/2024	2024-09		11.608	484	11608		4.04	0.05		0.10	0.00		5.00	0.06		3.71	0.04		0.93	0.01		0.10	0.00		0.05	0.00		4.77	0.06		1.00	0.01		8.93	0.10
19/09/2024	2024-09		13.835	576	13835		4.31	0.06		0.10	0.00		5.00	0.07		3.07	0.04		1.14	0.02		0.10	0.00		0.05	0.00		6.06	0.08		1.00	0.01		12.14	0.17
20/09/2024	2024-09		2.407	100	2407		4.59	0.01		0.10	0.00		5.00	0.01		2.43	0.01		1.36	0.00		0.10	0.00		0.05	0.00		7.34	0.02		1.00	0.00		15.36	0.04
21/09/2024	2024-09		6.202	258	6202		4.86	0.03		0.10	0.00		5.00	0.03		1.79	0.01		1.57	0.01		0.10	0.00		0.05	0.00		8.63	0.05		1.00	0.01		18.57	0.12
22/09/2024	2024-09		15.845	660	15845		5.13	0.08		0.10	0.00		5.00	0.08		1.14	0.02		1.79	0.03		0.10	0.00		0.05	0.00		9.91	0.16		1.00	0.02		21.79	0.35
23/09/2024	2024-09		14.502	604	14502	5.40	5.40	0.08	0.10	0.00	0.00	5.00	5.00	0.07	0.50	0.50	0.01	2.00	2.00	0.03	0.10	0.00	0.05	0.05	0.00	11.20	11.2	0.16	1.00	1.00	0.01	25	25.00	0.36	
24/09/2024	2024-09		23.046	960	23046		5.47	0.13		0.10	0.00		5.00	0.12		0.50	0.01		2.00	0.05		0.10	0.00		0.05	0.00		10.23	0.24		1.14	0.03		21.79	0.50
25/09/2024	2024-09		23.618	984	23618		5.54	0.13		0.10	0.00		5.00	0.12		0.50	0.01		2.00	0.05		0.10	0.00		0.05	0.00		9.26	0.22		1.29	0.03		18.57	0.44
26/09/2024	2024-09		17.496	729	17496		5.61	0.10		0.10	0.00		5.00	0.09		0.50	0.01		2.00	0.03		0.10	0.00		0.05	0.00		8.29	0.14		1.43	0.02		15.36	0.27
27/09/2024	2024-09		18.011	750	18011		5.69	0.10		0.10	0.00		5.00	0.09		0.50	0.01		2.00	0.04		0.10	0.00		0.05	0.00		7.31	0.13		1.57	0.03		12.14	0.22
28/09/2024	2024-09		0.694	29	694		5.76	0.00		0.10	0.00		5.00	0.00		0.50	0.00		2.00	0.00		0.10	0.00		0.05	0.00		6.34	0.00		1.71	0.00		8.93	0.01
29/09/2024	2024-09		0.930	39	930		5.83	0.01		0.10	0.00		5.00	0.00		0.50	0.00		2.00	0.00		0.10	0.00		0.05	0.00		5.37	0.00		1.86	0.00		5.71	0.01
30/09/2024	2024-09		0.555	23	555	5.90	5.90	0.00	0.10	0.00	0.00	5.00	5.00	0.00	0.50	0.50	0.00	2.00	2.00	0.00	0.10	0.00	0.05	0.05	0.00	4.40	4.4	0.00	2.00	2.00	0.00	2.5	2.50	0.00	
1/10/2024	2024-10		0.707	29	707		5.73	0.00		0.10	0.00		5.00	0.00		0.50	0.00		1.89	0.00		0.10	0.00		0.05	0.00		4.42	0.00		1.89	0.00		2.89	0.00
2/10/2024	2024-10		0.526	22	526		5.57	0.00		0.10	0.00		5.00	0.00		0.50	0.00		1.78	0.00		0.10	0.00		0.05	0.00		4.44	0.00		1.78	0.00		3.28	0.00
3/10/2024	2024-10		0.872	36	872		5.40	0.00		0.10	0.00		5.00	0.00		0.50	0.00		1.67	0.00		0.10	0.00		0.05	0.00		4.47	0.00		1.67	0.00		3.67	0.00
4/10/2024	2024-10		0.812	34	812		5.23	0.00		0.10	0.00		5.00	0.00		0.50	0.00		1.56	0.00		0.10	0.00		0.05	0.00		4.49	0.00		1.56	0.00		4.06	0.00
5/10/2024	2024-10		0.251	10	251		5.07	0.00		0.10	0.00		5.00	0.00		0.50	0.00		1.44	0.00		0.10	0.00		0.05	0.00		4.51	0.00		1.44	0.00		4.44	0.00
6/10/2024	2024-10		0.276	11	276		4.90	0.00		0.10	0.00		5.00	0.00		0.50	0.00		1.33	0.00		0.10	0.00		0.05	0.00		4.53	0.00		1.33	0.00		4.83	0.00
7/10/2024	2024-10		18.483	770	18483		4.73	0.09		0.10	0.00		5.00	0.09		0.50	0.01		1.22	0.02		0.10	0.00		0.05	0.00		4.56	0.08		1.22	0.02		5.22	0.10
8/10/2024	2024-10		21.307	888	21307		4.57	0.10		0.10	0.00		5.00	0.11		0.50	0.01		1.11	0.02		0.10	0.00		0.05	0.00		4.58	0.10		1.11	0.02		5.61	0.12
9/10/2024	2024-10		16.519	688	16519	4.40	4.40	0.07	0.10	0.00	0.00	5.00	5.00	0.08	0.50	0.50	0.01	1.00	1.00	0.02	0.10	0.00	0.05	0.05	0.00										

		Discharge Volume (ML)	Discharge Rate of Flow (m³/h)	Daily volume (m3/day)	Arsenic (ug/L)	Interpolation Arsenic (ug/L)	Load (kg) - Arsenic - Pond K	Cadmium (ug/L)	Interpolation Cadmium (ug/L)	Load (kg) - Cadmium - Pond K	Chromium (CrIII) (ug/L)	Interpolation Chromium (CrIII) (ug/L)	Load (kg) - Chromium (CrIII) - Pond K	Chromium (CrVI) (ug/L)	Interpolation Chromium (CrVI) (ug/L)	Load (kg) - Chromium (CrVI) - Pond K	Copper (ug/L)	Interpolation Copper (ug/L)	Load (kg) - Copper - Pond K	Lead (ug/L)	Interpolation Lead (ug/L)	Load (kg) - Lead - Pond K	Mercury (ug/L)	Interpolatio n Mercury (ug/L)	Load (kg) - Mercury - Pond K	Nickel (ug/L)	Interpolatio n Nickel (ug/L)	Load (kg) - Nickel - Pond K	Selenium (ug/L)	Interpolatio n Selenium (ug/L)	Load (kg) - Selenium - Pond K	Zinc (ug/L)	Interpolation Zinc (ug/L)	Load (kg) - Zinc - Pond K			
	Month																																				
1/11/2024	2024-11	36	1501	36019		3.56	0.13		0.10	0.00		5.00	0.18		0.50	0.02		1.93	0.07		3.13	0.11		0.05	0.00		1.59	0.06		1.00	0.04		7.93	0.29			
2/11/2024	2024-11	1	47	1139		3.24	0.00		0.10	0.00		5.00	0.01		0.50	0.00		1.57	0.00		2.37	0.00		0.05	0.00		1.26	0.00		1.00	0.00		6.57	0.01			
3/11/2024	2024-11	18	741	17796		2.93	0.05		0.10	0.00		5.00	0.09		0.50	0.01		1.21	0.02		1.61	0.03		0.05	0.00		0.92	0.02		1.00	0.02		5.21	0.09			
4/11/2024	2024-11	52	2179	52306		2.61	0.14		0.10	0.01		5.00	0.26		0.50	0.03		0.86	0.04		0.86	0.04		0.05	0.00		0.59	0.03		1.00	0.05		3.86	0.20			
5/11/2024	2024-11	3	114	2748	2.30	2.30	0.01	0.10	0.00	5.00	5.00	0.01	0.50	0.50	0.00	0.50	0.50	0.10	0.10	0.00	0.10	0.00	0.05	0.05	0.00	0.25	0.3	0.00	1.00	1.00	0.00	2.5	2.50	0.01			
6/11/2024	2024-11	1	24	572		2.37	0.00		0.10	0.00		5.00	0.00		0.50	0.00		0.50	0.00		0.10	0.00		0.05	0.00		0.28	0.00		1.00	0.00		2.50	0.00			
7/11/2024	2024-11	1	32	769		2.44	0.00		0.10	0.00		5.00	0.00		0.50	0.00		0.50	0.00		0.10	0.00		0.05	0.00		0.30	0.00		1.00	0.00		2.50	0.00			
8/11/2024	2024-11	1	26	636		2.51	0.00		0.10	0.00		5.00	0.00		0.50	0.00		0.50	0.00		0.10	0.00		0.05	0.00		0.33	0.00		1.00	0.00		2.50	0.00			
9/11/2024	2024-11	1	34	811		2.58	0.00		0.10	0.00		5.00	0.00		0.50	0.00		0.50	0.00		0.10	0.00		0.05	0.00		0.36	0.00		1.00	0.00		2.50	0.00			
10/11/2024	2024-11	1	38	923		2.65	0.00		0.10	0.00		5.00	0.00		0.50	0.00		0.50	0.00		0.10	0.00		0.05	0.00		0.38	0.00		1.00	0.00		2.50	0.00			
11/11/2024	2024-11	20	817	19602		2.72	0.05		0.10	0.00		5.00	0.10		0.50	0.01		0.50	0.01		0.10	0.00		0.05	0.00		0.41	0.01		1.00	0.02		2.50	0.05			
12/11/2024	2024-11	44	1813	43516		2.78	0.12		0.10	0.00		5.00	0.22		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.44	0.02		1.00	0.04		2.50	0.11			
13/11/2024	2024-11	16	653	15683		2.85	0.04		0.10	0.00		5.00	0.08		0.50	0.01		0.50	0.01		0.10	0.00		0.05	0.00		0.47	0.01		1.00	0.02		2.50	0.04			
14/11/2024	2024-11	34	1417	33999		2.92	0.10		0.10	0.00		5.00	0.17		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.49	0.02		1.00	0.03		2.50	0.08			
15/11/2024	2024-11	48	2005	48118		2.99	0.14		0.10	0.00		5.00	0.24		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.52	0.02		1.00	0.05		2.50	0.12			
16/11/2024	2024-11	41	1721	41304		3.06	0.13		0.10	0.00		5.00	0.21		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.55	0.02		1.00	0.04		2.50	0.10			
17/11/2024	2024-11	53	2193	52630		3.13	0.16		0.10	0.01		5.00	0.26		0.50	0.03		0.50	0.03		0.10	0.01		0.05	0.00		0.57	0.03		1.00	0.05		2.50	0.13			
18/11/2024	2024-11	45	1889	45335	3.20	3.20	0.15	0.10	0.10	0.00	5.00	5.00	0.23	0.50	0.50	0.02	0.50	0.50	0.02	0.10	0.00	0.05	0.05	0.00	0.60	0.6	0.03	1.00	1.00	0.05	2.5	2.50	0.11				
19/11/2024	2024-11	43	1796	43096		2.93	0.13		0.10	0.00		5.00	0.22		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.61	0.03		1.00	0.04		2.50	0.11			
20/11/2024	2024-11	40	1670	40091		2.66	0.11		0.10	0.00		5.00	0.20		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.63	0.03		1.00	0.04		2.50	0.10			
21/11/2024	2024-11	36	1494	35863		2.39	0.09		0.10	0.00		5.00	0.18		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.64	0.02		1.00	0.04		2.50	0.09			
22/11/2024	2024-11	25	1044	25048		2.11	0.05		0.10	0.00		5.00	0.13		0.50	0.01		0.50	0.01		0.10	0.00		0.05	0.00		0.66	0.02		1.00	0.03		2.50	0.06			
23/11/2024	2024-11	44	1844	44265		1.84	0.08		0.10	0.00		5.00	0.22		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.67	0.03		1.00	0.04		2.50	0.11			
24/11/2024	2024-11	38	1574	37776		1.57	0.06		0.10	0.00		5.00	0.19		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.69	0.03		1.00	0.04		2.50	0.09			
25/11/2024	2024-11	54	2258	54186	1.30	1.30	0.07	0.10	0.10	0.01	5.00	5.00	0.27	0.50	0.50	0.03	0.50	0.50	0.03	0.10	0.01	0.05	0.05	0.00	0.70	0.7	0.04	1.00	1.00	0.05	2.5	2.50	0.14				
26/11/2024	2024-11	44	1822	43727		1.73	0.08		0.10	0.00		5.00	0.22		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.64	0.03		1.00	0.04		5.00	0.22			
27/11/2024	2024-11	40	1673	40163		2.16	0.09		0.10	0.00		5.00	0.20		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.57	0.02		1.00	0.04		7.50	0.30			
28/11/2024	2024-11	61	2562	61478		2.59	0.16		0.10	0.01		5.00	0.31		0.50	0.03		0.50	0.03		0.10	0.01		0.05	0.00		0.51	0.03		1.00	0.06		10.00	0.61			
29/11/2024	2024-11	43	1779	42695		3.01	0.13		0.10	0.00		5.00	0.21		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.44	0.02		1.00	0.04		12.50	0.53			
30/11/2024	2024-11	41	1689	40529		3.44	0.14		0.10	0.00		5.00	0.20		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.38	0.02		1.00	0.04		15.00	0.61			
1/12/2024	2024-12	41	1725	41406		3.87	0.16		0.10	0.00		5.00	0.21		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.31	0.01		1.00	0.04		17.50	0.72			
2/12/2024	2024-12	28	1161	27864	4.30	4.30	0.12	0.10	0.10	0.00	5.00	5.00	0.14	0.50	0.50	0.01	0.50	0.50	0.01	0.10	0.00	0.05	0.05	0.00	0.25	0.3	0.01	1.00	1.00	0.03	20	20.00	0.56				
3/12/2024	2024-12	24	1002	24048		4.13	0.10		0.10	0.00		5.00	0.12		0.50	0.01		0.50	0.01		0.10	0.00		0.05	0.00		0.30	0.01		1.14	0.03		17.50	0.42			
4/12/2024	2024-12	47	1959	47021		3.96	0.19		0.10	0.00		5.00	0.24		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.35	0.02		1.29	0.06		15.00	0.71			
5/12/2024	2024-12	20	853	20476		3.79	0.08		0.10	0.00		5.00	0.10		0.50	0.01		0.50	0.01		0.10	0.00		0.05	0.00		0.40	0.01		1.43	0.03		12.50	0.26			
6/12/2024	2024-12	19	799	19181		3.61	0.07		0.10	0.00		5.00	0.10		0.50	0.01		0.50	0.01		0.10	0.00		0.05	0.00		0.45	0.01		1.57	0.03		10.00	0.19			
7/12/2024	2024-12	38	1590	38165		3.44	0.13		0.10	0.00		5.00	0.19		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.50	0.02		1.71	0.07		7.50	0.29			
8/12/2024	2024-12	29	1229	29486		3.27	0.10		0.10	0.00		5.00	0.15		0.50	0.01		0.50	0.01		0.10	0.00		0.05	0.00		0.55	0.02		1.86	0.05		5.00	0.15			
9/12/2024	2024-12	15	637	15289	3.10	3.10	0.05	0.10	0.10	0.00	5.00	5.00	0.08	0.50	0.50	0.01	0.50	0.50	0.01	0.10	0.00	0.05	0.05	0.00	0.60	0.6	0.01	2.00	2.00	0.03	2.5	2.50	0.04				
10/12/2024	2024-12	29	1217	29217		3.03	0.09		0.10	0.00		5.00	0.15		0.50	0.01		0.50	0.01		0.10	0.00		0.05	0.00		0.63	0.02		1.86	0.05		2.50	0.07			
11/12/2024	2024-12	31	1311	31475		2.96	0.09		0.10	0.00		5.00	0.16		0.50	0.02		0.50	0.02		0.10	0.00		0.05	0.00		0.66	0.02		1.71	0.05		2.50	0.08			
12/12/2024	2024-12	50	2091	50175		2.89	0.14		0.10	0.01		5.00	0.25																								

APPENDIX F MONTHLY CONTAMINANT LOAD ESTIMATE

Month	Discharge Volume (ML)	Monthly volume (m3)	Monthly Contaminant Load Estimate (kg)									
			Arsenic	Cadmium	Chromium (CrIII) -	Chromium (CrVI) -	Copper	Lead	Mercury	Nickel	Selenium	Zinc
Aug-24	5.44	5,439.85	0.02	0.00	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.04
Sep-24	387.31	387,312.17	1.84	0.04	1.94	1.35	0.50	0.04	0.02	2.01	0.42	3.54
Oct-24	542.22	542,216.76	2.08	0.05	2.71	0.27	0.93	1.07	0.03	1.22	0.55	3.39
Nov-24	922.82	922,822.32	2.41	0.09	4.61	0.46	0.55	0.27	0.05	0.56	0.92	4.33
Dec-24	619.85	619,850.10	1.98	0.06	3.10	0.32	0.31	0.06	0.03	0.38	0.83	4.25

APPENDIX G TOXICANT EXCEEDANCE NOTIFICATION

From: Caprice Hyde <Caprice.Hyde@cloughbmdjv.com.au>
Sent: Thursday, 26 September 2024 3:18 PM
To: DSL Construction <DSL.Construction@nt.gov.au>; Luke Munro <luke.munro@cloughbmdjv.com.au>; Matthew Boynes <Matthew.Boynes@cloughbmdjv.com.au>; Joseph Solomon <joseph.solomon@cloughbmdjv.com.au>; Oliver Warburton <Oliver.Warburton@cloughbmdjv.com.au>; Kieran West <Kieran.West@cloughbmdjv.com.au>; Shane Dahlhelm <Shane.Dahlhelm@nt.gov.au>; Vimal Makwana <yjmal.Makwana@nt.gov.au>; Suzanne Dunkerton <suzanne.Dunkerton@nt.gov.au>
Cc: John Weir <john.weir@cloughbmdjv.com.au>; Curtis Triffett <Curtis.Triffett@cloughbmdjv.com.au>; Morgan Pinkerton <morgan.pinkerton@cloughbmdjv.com.au>; Christian Freeman <Christian.Freeman@cloughbmdjv.com.au>; Tomas Evans-Butcher <Tomas.Evans-Butcher@cloughbmdjv.com.au>; Matt Sibley <Matthew.Sibley@cloughbmdjv.com.au>
Subject: Heads up Notification | Toxicant Trigger Exceedance - Pond E South

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Good afternoon,

Please be advised that we have received today (26th September) the laboratory toxicant results for samples taken on 16th September from the Settling ponds. The results indicate that *Copper* (dissolved metal) exceeded the **trigger value** of 1.3 µg/L at Pond E (South), as shown below.

Please note, Pond E (North) and Pond K fall below the trigger value and are within the Limits of Reporting.

Date	Sample time	Location	Monitoring site	Trigger Value for Copper (dissolved metals in Saline water)	Actual Value for Copper (dissolved metals in Saline water)	Tidal height / Type
16-Sep-24	8:55AM	Pond E South	1	1.3 µg/L	3	4.1m/Neap
16-Sep-24	8:40AM	Pond E North	2	1.3 µg/L		4.4m / Neap
16-Sep-24	8:30AM	PondK	3	1.3 µg/L	0.5	4.4m / Neap

The following points were noted:

- Upon investigation, it was confirmed that the weir between Pond E (North) and Pond E (South) has remained closed.
- There has been no tailwater discharge into Pond E (South) since the commencement of dredging.
- The exact cause for the rise in *Copper* is unknown at this stage and will be further investigated (if required) upon receiving the laboratory results for the testing carried out on the 23rd of September. These results are expected to be issued to CBN by the 02nd of October.
- Further samples will be taken on the 30th of September and will be sent for analysis, with the return of the results expected by the 09th of October.

As per the WDL, this is not reportable to the EPA. A notifiable incident shall occur in the following instance(s):

- (a) An exceedance of a trigger value at the compliance point (Pond E South), on three consecutive sampling occasions;
- (b) An exceedance of three or more times a trigger value at the compliance point (Pond E South).

Please let me know if you have any queries.

Regards,

Caprice Hyde

Environmental Advisor

E Caprice.Hyde@cloughbmdjv.com.au

M +61 400 396 091



This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom it is addressed. If you have received this email in error please notify the sender and delete the email. Any material that may constitute legal advice or opinion is solely for the reliance and use of Clough BMD JV and its related bodies corporate. You should only read, disclose, re-transmit, copy, distribute, act in reliance on or commercialise the information if you are authorised to do so. Please consider the environment before printing this email.

From: Caprice Hyde <Caprice.Hyde@cloughbmdjv.com.au>
Sent: Thursday, 3 October 2024 7:53 AM
To: Shane Dahlhelm <Shane.Dahlhelm@nt.gov.au>; DSL Construction <DSL.Construction@nt.gov.au>; Luke Munro <luke.munro@cloughbmdjv.com.au>; Matthew Boynes <Matthew.Boynes@cloughbmdjv.com.au>; Joseph Solomon <joseph.solomon@cloughbmdjv.com.au>; Oliver Warburton <Oliver.Warburton@cloughbmdjv.com.au>; Kieran West <Kieran.West@cloughbmdjv.com.au>; Vimal Makwana <Vimal.Makwana@nt.gov.au>; Suzanne Dunkerton <Suzanne.Dunkerton@nt.gov.au>; Shane Elstone <Shane.Elstone@cloughbmdjv.com.au>
Cc: John Weir <john.weir@cloughbmdjv.com.au>; Curtis Triffett <Curtis.Triffett@cloughbmdjv.com.au>; Morgan Pinkerton <morgan.pinkerton@cloughbmdjv.com.au>; Christian Freeman <Christian.Freeman@cloughbmdjv.com.au>; Tomas Evans-Butcher <Tomas.Evans-Butcher@cloughbmdjv.com.au>; Matt Sibley <Matthew.Sibley@cloughbmdjv.com.au>
Subject: Heads up Notification | Toxicant Trigger Exceedance - Pond K

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi all,

Please be advised that we have received today (October 3rd) the laboratory toxicant results for samples taken on September 23rd from the Settling ponds. The results indicate that *Copper* and *Zinc* exceeded the **trigger value** at Pond K, as shown below.

Please note, Pond E (North) and Pond E (South) fall below the trigger value and are within the Limits of Reporting.

Date	Sample time	Location	Monitoring site	Toxicant metal (dissolved)	Trigger value	Toxicant result	Tidal height/ Type
23-Sep-24	1:30PM	Pond K	3	Copper	1.3 µg/L	2	2.1m / Spring
23-Sep-24	1:30PM	Pond K	3	Zinc	15 µg/L	25	2.1m / Spring

Additional notes:

- No corrective actions required.
- DPO will be notified.
- Sediment samples of the dredge spoil will be taken on Monday yth for laboratory analysis.

As per the WDL, this is not reportable to the EPA. A notifiable incident shall occur in the following instance(s):

- An exceedance of a trigger value at the compliance point (Pond E South), on three consecutive sampling occasions;*
- An exceedance of three or more times a trigger value at the compliance point (Pond E South).*

Please let me know if you have any queries.

Regards,

Caprice Hyde

Environmental Advisor

E Caprice.Hyde@cloughbmdjv.com.au

M [+61 400 396 091](tel:+61400396091)



This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom it is addressed. If you have received this email in error please notify the sender and delete the email. Any material that may constitute legal advice or opinion is solely for the reliance and use of Clough BMD JV and its related bodies corporate. You should only read, disclose, re-transmit, copy, distribute, act in reliance on or commercialise the information if you are authorised to do so. Please consider the environment before printing this email.

RE: Heads up Notification | Toxicant Trigger Exceedance - Pond K

From Morgan Pinkerton <morgan.pinkerton@cloughbmdjv.com.au>

Date Mon 2024-10-14 4:27 PM

To John Weir <john.weir@cloughbmdjv.com.au>

Cc Christian Freeman <Christian.Freeman@cloughbmdjv.com.au>; Curtis Triffett <Curtis.Triffett@cloughbmdjv.com.au>; Caprice Hyde <Caprice.Hyde@cloughbmdjv.com.au>

Hi John,

There could be a number of reasons that copper has exceeded the ANZECC guidelines (95% species protection rate) in the EAW dredge ponds.

David McMaster 27/09/2024 in Response to results from 16/0 slated the below:

I have in the past seen elevated levels of dissolved copper in samples taken from open water in Darwin Harbour (East Arm) which are not attributed to East Arm Wharf activities. There are 2 observations I make.

1. Sampling time coincides with 'first' rains of the year. Potential to mobilise sediment or contaminants.
2. Pond E South is the only exceedance, It is the pond most influenced by incoming tide. It was at the end of neap tides (-4m movement). You could hypothesise that legal discharges of copper (Power and Water Sewage plants, and others?) have been discharging and the neap tides in the days prior cause it to be on the low end of mixing and dilution and then pushed into the pond.

The Airport Weather Station recorded rain on the 16th 17th and 18th of September. EAW also had rain around this time including an early shower, on or before the 16th.

In addition, Copper is an essential trace element required by many aquatic organisms. Copper is adsorbed strongly by suspended material. Filtration and speciation measurements should account for this during sampling.

Date	Sample time	Location	Monitoring site	Trigger Value for Copper*	Actual Value for Copper*	Tidal height /Type	Comments
16-Sep-24	8:55AM	Pond E South		1.3 µg/L	3	4.1m / Neap	No trigger exceedances for copper at Pond E South. It was at the end of neap tides (-4m movement) have been discharging and the neap tides Rain The Airport Weather Station recorded rain before the 16 th . Sampling time coincides with 'first' rains of the year.
23-Sep-24	1:30PM	Pond K	3	1.3 µg/L	2	2.1m / Spring	Not unexpected to exceed the trigger value applying that number to a what is in effect
30-Sep-24	10:19AM	Pond K	3	1.3 µg/L	2	2.8m / Neap	Exceedances for copper occurred in Pond E South.
30-Sep-24	10:19AM	Pond E South	3	1.3 µg/L	2	2.8m / Neap	

*Dissolved metals in Saline Water.

We do not have any information currently to suggest that the Darwin Harbour copper levels are high (the water quality report in the EIS showed that copper levels were below , however, additional laboratory sampling of the Darwin Harbour at the discharge point of our site could be completed to provide a better understanding and more accurate representation of the Darwin Harbour body of water.

Christi an pulled together an example from another project of discharge to Darwin Harbour, at a site located at Wickham point (Across East arm). [EPL217 DLNG annual environment monitoring report](#)

The trigger value they use for copper at the Jetty discharge point into Darwin harbour is 3 µg/L. The average copper concentrations from 2017-2023 was 1.9 µg/L. This is the location where the discharge is directly put into the harbour.

The trigger value for jetty outfall mixing zone is 1.3 µg/L and did not exceed this trigger value. The sampling location for the mixing zone is about 200 meters north and south of the discharge point.

Although this does not give insight on Darwin Harbour copper levels already being high, it does give insight on copper levels exceeding 1.3 µg/L at the discharge location and then ultimately not exceeding 1.3 µg/L when mixed with open water. The Darwin Harbour WQOs and ANZECC guidelines apply to the receiving environment, rather than to the tailwater. THE DDSPMP makes the assumption that if the tailwater meets the ANZECC criteria before discharge from the settling ponds then it will be considered suitable for continued release.

Based on the results from the sediment geochemical assessment undertaken by AECOM (2020) it is considered that there is negligible risk of toxicants being released at sufficient concentrations to significantly impact upon the beneficial uses, water quality objectives or identified environmental values of Darwin Harbour during dredging.

We can complete additional sampling if required.

Regards,

Morgan Pinkerton
Environmental Advisor

E morgan.pinkerton@cloughbmdjv.com.au
D +61892819112



This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom it is addressed. If you have received this email in error please notify the sender and delete the email. Any material that may constitute legal advice or opinion is solely for the reliance and use of Clough BMD JV and its related bodies corporate. You should only read, disclose, re-transmit, copy, distribute, act in reliance on or commercialise the information if you are authorised to do so. Please consider the environment before printing this email.

From: Morgan Pinkerton <morgan.pinkerton@cloughbmdjv.com.au>
Sent: Thursday, 10 October 2024 8:45 AM
To: Shane Dahlhelm <Shane.Dahlhelm@nt.gov.au>; DSL Construction <DSL.Construction@nt.gov.au>; Luke Munro <luke.munro@cloughbmdjv.com.au>; Matthew Boynes <Matthew.Boynes@cloughbmdjv.com.au>; Joseph Solomon <joseph.solomon@cloughbmdjv.com.au>; Oliver Warburton <Oliver.Warburton@cloughbmdjv.com.au>; Kieran West<kieran.West@cloughbmdjv.com.au>; Vimal Makwana<vimal.Makwana@nt.gov.au>; Suzanne Dunkerton<Suzanne.Dunkerton@nt.gov.au>
Cc: John Weir<john.weir@cloughbmdjv.com.au>; Curtis Triffett <Curtis.Triffett@cloughbmdjv.com.au>; Caprice Hyde <Caprice.Hyde@cloughbmdjv.com.au>; Christian Freeman <Christian.Freeman@cloughbmdjv.com.au>; Tomas Evans-Butcher <Tomas.Evans-Butcher@cloughbmdjv.com.au>; Matt Sibley <Matthew.Sibley@cloughbmdjv.com.au>; Shane Elstone <Shane.Elstone@cloughbmdjv.com.au>
Subject: Heads up Notification | Toxicant Trigger Exceedance - Pond K

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi all,

Please be advised that today we have received the laboratory toxicant results for samples taken on September 30th from the Settling ponds. The results indicate that *Copper* exceeded the **trigger value** at Pond K, as shown below.

Please note, Pond E (North) and Pond E (South) fall below the trigger value and are within the Limits of Reporting.

Date	Sample time	Location	Monitoring site	Toxicant metal (dissolved)	Trigger value	Toxicant result	Tidal height/ Type
30-Sep-24	10:19AM	Pond K	3	Copper	1.3 µg/L	2	2.8m / Neap

- Additional notes:
- No corrective actions required.
 - DPO **will** be notified.
 - Sediment samples of the dredge spoil were taken on Wednesday, 9th Oct for laboratory analysis.
 - The ANZECC Guideline for 95% species protection captures what natural bodies of water (marine) in good health should achieve.

As per the WDL, this is not reportable to the EPA. A notifiable incident shall occur in the following instance(s):

- An exceedance of a trigger value at the compliance point (Pond E South), on three consecutive sampling occasions;
- An exceedance of three or more times a trigger value at the compliance point (Pond E South).

Please let me know if you have any queries.

Regards,

Morgan Pinkerton
Environmental Advisor

E morgan.pinkerton@cloughbmdjv.com.au
D +61892819112



This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom it is addressed. If you have received this email in error please notify the sender and delete the email. Any material that may constitute legal advice or opinion is solely for the reliance and use of Clough BMD JV and its related bodies corporate. You should only read, disclose, re-transmit, copy, distribute, act in reliance on or commercialise the information if you are authorised to do so. Please consider the environment before printing this email.

Heads up Notification | Toxicant Trigger Exceedance - Pond K

From Christian Freeman <Christian.Freeman@cloughbmdjv.com.au>

Date Thu 2025-10-09 11:29 AM

To Caprice Hyde <Caprice.Hyde@cloughbmdjv.com.au>; DSL Construction <DSL.Construction@nt.gov.au>; Luke Munro <Luke.Munro@webuildgroup.au>; Matthew Boynes <Matthew.Boynes@cloughbmdjv.com.au>; Joseph Solomon <joseph.solomon@cloughbmdjv.com.au>; Oliver Warburton <Oliver.Warburton@cloughbmdjv.com.au>; Kieran West <Kieran.West@cloughbmdjv.com.au>; Shane Dahlhelm <shane.dahlhelm@nt.gov.au>; Shane Elstone <Shane.Elstone@cloughbmdjv.com.au>; Vimal Makwana <Vimal.Makwana@nt.gov.au>; Suzanne Dunkerton <Suzanne.Dunkerton@nt.gov.au>; Prithviraj Jadhav <Prithviraj.Jadhav@nt.gov.au>; Matt Sibley <Matthew.Sibley@cloughbmdjv.com.au>

Cc John Weir <john.weir@cloughbmdjv.com.au>; Curtis Triffett <Curtis.Triffett@cloughbmdjv.com.au>; Tomas Evans-Butcher <Tomas.Evans-Butcher@cloughbmdjv.com.au>

Good afternoon,

Please be advised that today on the 5th of November, we received the laboratory toxicant results for samples taken on the 29th of October from the Settling ponds. The results indicate that *Copper* (dissolved metal) exceeded the **trigger value** of 1.3 µg/L, and *Lead* (dissolved metal) exceeded the **trigger value** of 4.4 µg/L at pond K, shown below.

Please note, *Copper* (dissolved metal) and *Lead* (dissolved metal) results for Pond E (North) and Pond E (South) fall below the trigger value and are within the Limits of Reporting

Date	Sample time	Location	Monitoring site	Trigger Value for Copper (dissolved metals in Saline water)	Actual Value for Copper (dissolved metals in Saline water)	Tidal height (m) / Type
29-Oct-24	7:18AM	Pond K	3	1.3 µg/L	3	4.5 / Spring

Date	Sample time	Location	Monitoring site	Trigger Value for Lead (dissolved metals in Saline water)	Actual Value for Lead (dissolved metals in Saline water)	Tidal height (m) /Type
29-Oct-24	7:18AM	Pond K	3	4.4 µg/L	5.4	4.5 / Spring

The following points were noted:

- Water flow from Pond E (North) into Pond E (South) has been observed from the 1st of November.
- Standard weekly sampling was undertaken as planned in the morning 5th November (expected to be issued to CBJV by 12 November COB) .
- Depending on the level of possible further exceedances, the dredge and dredge spoil management plan will be reviewed for any additional actions as per EPA conditions.

As per the WDL, this is not reportable to the EPA. A notifiable incident shall occur in the following instance(s):

- a. An exceedance of a trigger value at the compliance point (Pond E South), on three consecutive sampling occasions;*
- b. An exceedance of three or more times a trigger value at the compliance point (Pond E South).*

Please let me know if you have any queries.

Regards,

Notification | Toxicant Trigger Exceedance - Pond K

From Caprice Hyde <Caprice.Hyde@cloughbmdjv.com.au>

Date Thu 2025-10-09 11:27 AM

To DSL Construction <DSL.Construction@nt.gov.au>; Luke Munro <Luke.Munro@webuildgroup.au>; Matthew Boynes <Matthew.Boynes@cloughbmdjv.com.au>; Joseph Solomon <joseph.solomon@cloughbmdjv.com.au>; Oliver Warburton <Oliver.Warburton@cloughbmdjv.com.au>; Kieran West <Kieran.West@cloughbmdjv.com.au>; Shane Dahlhelm <shane.dahlhelm@nt.gov.au>; Shane Elstone <Shane.Elstone@cloughbmdjv.com.au>; Vimal Makwana <Vimal.Makwana@nt.gov.au>; Suzanne Dunkerton <Suzanne.Dunkerton@nt.gov.au>; Prithviraj Jadhav <Prithviraj.Jadhav@nt.gov.au>; Nikoo Kheradmandan <Nikoo.Kheradmandan@aurecongroup.com>

Cc John Weir <john.weir@cloughbmdjv.com.au>; Curtis Triffett <Curtis.Triffett@cloughbmdjv.com.au>; Tomas Evans-Butcher <Tomas.Evans-Butcher@cloughbmdjv.com.au>; Matt Sibley <Matthew.Sibley@cloughbmdjv.com.au>; Christian Freeman <Christian.Freeman@cloughbmdjv.com.au>; Benjamin Lister <Benjamin.Lister@cloughbmdjv.com.au>

Good afternoon,

Please be advised that today on the 9th of December, we received the laboratory toxicant results for samples taken on the 2nd of December from the Settling ponds. The results indicate that *Zinc* (dissolved metal) exceeded the **trigger value** of 15 µg/L at pond K, shown below.

Please note, *Zinc* results for Pond E (North) and Pond E (South) fall below the trigger value and are within the Limits of Reporting.

Date	Sample time	Location	Monitoring site	Trigger Value for Zinc (dissolved metals in Saline water)	Actual Value for Zinc (dissolved metals in Saline water)	Tidal height (m) / Type
02-Dec-24	9:00AM	Pond K	3	15 µg/l	20 µg/l	4.1 / Spring

The following points were noted:

- Water flow from Pond E (North) into Pond E (South) has been observed from the 1st of November.
- The previous exceedance for *Zinc* was recorded on 9th September at Pond K.

As per the WDL, this is not reportable to the EPA. A notifiable incident shall occur in the following instance(s):

- a. An exceedance of a trigger value at the compliance point (Pond E South), on three consecutive sampling occasions;
- b. An exceedance of three or more times a trigger value at the compliance point (Pond E South).

Regards,