Expansion of Sha Tau Kok Sewage Treatment Works (Contract No. CM 02/2024)

Monthly Environmental Monitoring and Audit Report (August 2024)

Drainage Services Department

Revision: 1

2024-09-16

aurecon

Bringing ideas to life

ANEWR

Drainage Services Department
42/F, Revenue Tower
5 Gloucester Road
Wan Chai
Hong Kong

Your reference:

Our reference: HKDSD206/50/109986

Date: 17 September 2024

Attention: Mr Lam Tack Ho, Alex

BY EMAIL & POST
(email: thlam@dsd.gov.hk)

Dear Sirs

Agreement No.: CM 14/2018
Independent Environmental Checker Services for
Expansion of Sha Tau Kok Sewage Treatment Works
Environmental Monitoring and Audit Monthly Report (August 2024)

We refer to the email of 16 September 2024 from Aurecon Hong Kong Limited, attaching the Monthly Environmental Monitoring and Audit Report (August 2024).

We have no comment and hereby verify the captioned Report in accordance with Clause 3.4 of the Environmental Permit No. EP-517/2017/A.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Alex Chan at 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/CYCA/thy

cc DSD – Mr Alex Leung (email: alexleung_dsd@dc1803.com.hk)
Binnies – Mr Alaster Chan (email: are_em2@dc1803.com.hk)
Aurecon – Mr Kevin Li (email: kevin.li@aurecongroup.com)

ANewR Consulting Limited
Unit 1813, 1815-16, 18/F, Tower A, Regent Centre
63 Wo Yi Hop Road, Kwai Chung, Hong Kong
Tel: (852) 2618 2831 Fax: (852) 3007 8648
Email: info@anewr.com
Web: www.anewr.com

ISO 9001 : 2015
Certificate No.: CC 3988

Document control record

Document prepared by:

Aurecon Hong Kong Limited

Unit 1608, 16/F, Tower B, Manulife Financial Centre,
223 – 231 Wai Yip Street, Kwun Tong, Kowloon
Hong Kong S. A. R.

T +852 3664 6888
F +852 3664 6999
E hongkong@aurecongroup.com
W aurecongroup.com

Document control						aurecon
Report title		Monthly Environmental Monitoring and Audit Report (August 2024)				
Document code		MEM&AR-06	**Project number**		P526333	
File path						
Client		Drainage Services Department				
Client contact			**Client reference**			
Rev	**Date**	**Revision details/status**	**Author**	**Reviewer**	**Verifier** (if required)	**Approver**
0	2024-09-16	IEC comment release	Toby Wan	Tandy Tse		Kevin Li
1	2024-09-16	Revised according to the comment	Toby Wan	Tandy Tse		Kevin Li
Current revision		**1**				

Approval			
Author signature		Certified by	
Name	Toby Wan	Name	Kevin Li
Title	Environmental Team Consultant	Title	Environmental Team Leader

Content

Appendix

Executive Summary

This is the 63rd EM&A report prepared by Aurecon Hong Kong Limited (Aurecon) for the Expansion of Sha Tau Kok Sewage Treatment Works. This report summarized the monitoring results and audits findings if the EM&A programme under the issued EP (Register No. EP-517/2017/A) and in accordance with the EM&A Manual during the reporting period from 1 August 2024 to 31 August 2024.

Key Construction Works in the Reporting Period

A summary of construction activities undertaken during the reporting period is presented below:

Sha Tau Kok Sewage Treatment Plant

- Formwork erection and rebar fixing for fence wall
- Concreting works
- Defect rectification works
- ABWF works – plastering and screeding
- Metal works – installation of roller shutter
- Waterproofing works for roof top
- E&M installation
- Manhole construction of EDC
- Bamboo scaffolding

Access road

- Watermain installation
- Manhole construction

Shun Hing Street

- CCTV inspection of sewerage manhole

Tong To Village

- No work activities in reporting month

Choi Yuen Kok

- No work activities in reporting month

Implementation of the key mitigation measures during the reporting period as follows:

Implementation of key mitigation measures	Implemented locations
All construction plants / machineries should be checked / serviced on a regular basis during the courses of construction to minimize the emission of noise generation and eliminate dark smoke emission	Sha Tau Kok Sewage Treatment Plant
All C&D materials generated should be transported and stored at temporary storage area	Sha Tau Kok Sewage Treatment Plant
Cover should be provided during transportation of dusty materials. Suitable materials should be sorted for reuse on-site. Only non-inert C&D material should be disposed off-site to NENT Landfill	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit
All dump trucks should be equipped with mechanical covers to prevent the dust emission during transportation when necessary	Sha Tau Kok Sewage Treatment Plant
Dust control measures, such as water spraying should be provided when necessary	Sha Tau Kok Sewage Treatment Plant
Maintaining of wet surface on access road and keep slow speed within the site	Sha Tau Kok Sewage Treatment Plant
Wastewater to be treated by wastewater treatment facilities before discharge	Sha Tau Kok Sewage Treatment Plant

Fuelling of equipment should be conducted carefully on-site by mobile tanker to avoid storage of fuel and oil spillage	Sha Tau Kok Sewage Treatment Plant
Provision of drip trays for equipment/ containers likely cause spillage of chemical / fuel, and provide routine maintenance	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit
Application of silent plant. NRMM and noise labels should be displayed on the PME	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit
Provision of chemical/waste management on site	Sha Tau Kok Sewage Treatment Plant
No discharge of wastewater/ drill fluid should be allowed	Sha Tau Kok Sewage Treatment Plant
Provide sufficient mitigation measures/ precautionary measures as recommended in the method statement of submarine outfall construction and approved EM&A Manual requirements	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit

Breaches of Action/Limit Levels

Construction noise monitoring was carried out in the reporting month, no Action /Limit Level exceedance was recorded during the period.

Complaint Log

No complaint was received in the reporting period.

Reporting Change

There was no reporting change in the reporting period.

Emergency Discharge was conducted on 28 July 2024, a follow up marine water quality monitoring was carried out between 29 July 2024 and 11 August 2024.

Future Key Issues

The main works will be anticipated in the next reporting period are as follows:

Sha Tau Kok Sewage Treatment Plant

- Defect rectification
- Baboo scaffolding
- Concreting work
- E&M installation
- ABWF work – internal wall, floor finish and tiling work
- Metal work – installation of window, door and louver
- Waterproofing works

Access road

- Manhole construction
- Cable duct and water main installation

Shun Hing Street

- Pipe cleaning for CCTV inspection

Tong To Village

- No work in Tong To

Choi Yuen Kok

- No work in Choi Yuen Kok

EP Submission
The following EP submission (EP No.: EP-517/2017/A) was submitted during the report period:

- Condition 3.4:
  The 62nd Monthly EM&A Report (July 2024) was submitted to EPD on 16 August 2024.

Summary Table for Status of Compliance / Required Submission

EP Conditions	Submission(s)	Submission Date
2.8	Project Organization Chart with CVs for the proposed Environmental Team Leader and relevant specialists	01-Mar-2022
2.9	Demolition Noise Mitigation Measures Plan for the Existing Sewage Treatment Plant (Rev.5)	31-May-2022
2.11	Method Statement for Construction of Submarine Outfall and Diffuser Cofferdam (Rev.5)	13-Sept-2021
2.12	Pre-construction Survey of the Night Roosting Site for Great Egrets and other Ardeid Species for the Expansion of Sha Tau Kok Sewage Treatment Works	25-Nov-2019
	Survey Report of the Night Roosting Site for Great Egrets and other Ardeid Species for the Expansion of Sha Tau Kok Sewage Treatment Works (Rev.02)	19-May-2023
2.15	Odour Commissioning Test Report for TSTP (Version: 2)	27-Aug-2022
2.17	Emergency Response Plan for Temporary Sewage Treatment Plant	06-Aug-2020
3.1	Proposal for Reducing Odour Monitoring Frequency (Rev.3)	13-Feb-2023
3.3	Baseline Environmental Monitoring Report (Water)	27-Dec-2019
3.4	62nd Monthly EM&A Report (July 2024)	16-Aug-2024
	Quarterly EM&A Summary Report for December 2023 to February 2024	22-Apr-2024
	4th Annual EM&A Review Report for June 2022 to May 2023 (2022-2023)	12-Sept-2023

1 Introduction

1.1 Background

1.1.1 The Project is to expand the treatment capacity of the existing Sha Tau Kok Sewage Treatment Works (STKSTW) from 1,660 m^3/day to 10,000 m^3/day in 2 phases. The works for this Project in Sha Tau Kok mainly comprises of the following items:

- Increase the treatment capacity of Sha Tau Kok Sewage Treatment Works (STKSTW) to 5,000 m^3/day at Average Dry Weather Flow (ADWF) by in Phase 1, with suitable allowance to cater for a further increase of treatment capacity to 10,000 m^3/day at ADWF after 2030 in Phase 2;
- Construct a temporary sewage treatment plant (TSTP);
- Demolish the existing Sha Tau Kok Sewage Pumping Station (STKSPS) and decommission the rising main between STKSPS and STKSTW;
- Construct a new gravity sewer; and
- Decommission the existing submarine outfall and construct a new one.

1.1.2 The project site will be located within the existing STKSTW, while the construction of the gravity sewers and the demolition of STKSPS will take place in Sha Tau Kok Town. The proposed submarine outfall is to be constructed using the Horizontal Directional Drilling (HDD) method beneath the seabed of Starling Inlet.

1.1.3 The Environmental Impact Assessment (EIA) Report for the Expansion of Sha Tau Kok Sewage Treatment Works (Register No: AEIAR-207/2017) was approved on 14 February 2017. A variation of an Environmental Permit (EP) (Permit No.EP-517/2017/A) was issued on 18 October 2019, which is the current permit for the project.

1.1.4 From 27 May 2019 to 26 February 2020, Fugro Technical Services Limited (FTS) was appointed to provide additional services for the ET during the early stage of the construction phase, implementing the EM&A programme for the project.

1.1.5 From 27 February 2020 to 28 February 2022, AECOM Asia Co. Ltd (AECOM) was appointed as the ET to undertake the ET services for the project and implement the EM&A works during the construction phase.

1.1.6 From 1 March 2022 to 29 February 2024, FTS was appointed as the ET to undertake the ET services for the project and implement the EM&A works under Contract No.CM/2021/11, 'Expansion of Sha Tau Kok Sewage Treatment Works'.

1.1.7 Starting from 1 March 2024, Aurecon Hong Kong Limited (AHK) has been appointed as the ET to undertake the ET services for Contract No. CM02/2024, 'Expansion of Sha Tau Kok Sewage Treatment Works', and to implement the EM&A works during the construction phase.

1.1.8 The EM&A programme of this Project shall be implemented in accordance with the requirements and procedures set out in the EM&A Manual and the EP No. EP-517/2017/A.

1.1.9 A baseline noise monitoring work was conducted between 25 February 2019 and 11 March 2019 and an Environmental Monitoring Report (Noise) Report was approved by EPD on 21 June 2019.

1.1.10 A baseline water quality monitoring was conducted between 26 February 2019 and 23 Mar 2019 and an Environmental Monitoring Report (Water) Report was approved by EPD on 2 March 2020.

1.1.11 A pre-construction survey on night roosting site for great egret was conducted in October 2019 and Pre-construction Survey Report was found in order by Agriculture, Fisheries and Conservation Department on 30 December 2019. An updated pre-construction survey was conducted in December 2021 to reconfirm the usage of the Night Roosting Site by Great Egrets or other ardeids species before the commencement of any construction/ demolition works within 100m of the Night Roosting Site.

1.1.12 The submission of a proposal for changes to the environmental monitoring methodology and requirements (Operation Phase of Odour Monitoring) to the EPD was on 29 April 2020, and comments from the EPD were received on 26 May 2020. A revised proposal was submitted on 28 May 2020 and was approved by the EPD on 4 June 2020.

1.1.13 The method statement for the construction of the submarine outfall and diffuser cofferdam was submitted to the EPD on 1 April 2020. Subsequent comments from the EPD were received, and the revised method statement was submitted to the EPD on 13 September 2021. The revised method statement was approved by the EPD on 11 January 2022.

1.1.14 The construction phase and EM&A programme for the Project commenced on 27 May 2019. The operation of the TSTP began on 22 July 2020.

1.2 Scope of this Report

1.2.1 This is the 63rd EM&A Report prepared by Aurecon for the Expansion of Sha Tau Kok Sewage Treatment Works. This report summarizes the monitoring results and audit findings of the EM&A programme in accordance with Condition 3.4 of the Environmental Permit (EP No.: EP-517/2017/A) and the EM&A Manual, covering the reporting period from 1 August 2024 to 31 August 2024.

1.3 Project Organization

1.3.1 The Project Organization structure is shown in **Appendix 1**. The key personnel contact names and numbers are summarized in **Table 1-1**.

Table 1-1 Contact Information of Key Personnel

Party	Position	Name	Telephone
DSD (Drainage Services Department)	Engineer	Mr. Alex Lam	2594 7262
ER (Binnies Hong Kong Limited)	Resident Engineer	Mr. Kendrick Wong	2946 8707
Contractor (Build King – Kum Shing J. V.)	Environmental Officer	Ms. Yoyo Leung	2946 8766
IEC (ANewR Consulting Limited)	Independent Environmental Checker	Mr. James Choi	2618 2836
ET (Aurecon Hong Kong Limited)	Environmental Team Leader	Mr. Kevin Li	3664 6888

1.4 Construction Programme and Activities

1.4.1 The construction phase of the Project under the EP commenced on 27 May 2019. The operation of TSTP was commenced on 22 July 2020.

1.4.2 The main works undertaken during the reporting period as follows:

Sha Tau Kok Sewage Treatment Plant

- Formwork erection and rebar fixing for fence wall
- Concreting works
- Defect rectification works
- ABWF works – plastering and screeding
- Metal works – installation of roller shutter
- Waterproofing works for roof top
- E&M installation
- Manhole construction of EDC
- Bamboo scaffolding

Access road

- Watermain installation
- Manhole construction

Shun Hing Street

- CCTV inspection of sewerage manhole

Tong To Village

- No work activities in reporting month

Choi Yuen Kok

- No work activities in reporting month

1.4.3 Implementation of the key mitigation measures during the reporting period as follows:

Table 1-2 Implementation of mitigation measures

Implementation of key mitigation measures	Implemented locations
All construction plants / machineries should be checked / serviced on a regular basis during the courses of construction to minimize the emission of noise generation and eliminate dark smoke emission	Sha Tau Kok Sewage Treatment Plant
All C&D materials generated should be transported and stored at temporary storage area	Sha Tau Kok Sewage Treatment Plant
Cover should be provided during transportation of dusty materials. Suitable materials should be sorted for reuse on-site. Only non-inert C&D material should be disposed off-site to NENT Landfill	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit
All dump trucks should be equipped with mechanical covers to prevent the dust emission during transportation when necessary	Sha Tau Kok Sewage Treatment Plant
Dust control measures, such as water spraying should be provided when necessary	Sha Tau Kok Sewage Treatment Plant
Maintaining of wet surface on access road and keep slow speed in the site	Sha Tau Kok Sewage Treatment Plant
Wastewater to be treated by wastewater treatment facilities before discharge	Sha Tau Kok Sewage Treatment Plant
Fuelling of equipment should be conducted carefully on-site by mobile tanker to avoid storage of fuel and oil spillage	Sha Tau Kok Sewage Treatment Plant
Provision of drip trays for equipment/ containers likely cause spillage of chemical / fuel, and provide routine maintenance	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit
Application of silent plant. NRMM and noise labels should be displayed on the PME	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit
Provision of chemical/waste management on site	Sha Tau Kok Sewage Treatment Plant
No discharge of wastewater/ drill fluid should be allowed	Sha Tau Kok Sewage Treatment Plant

1.4.4 The Construction Programme is shown in **Appendix 2**.

1.4.5 The general layout plan of the Project site is shown in **Figure 1**.

1.5 Status of Environmental Licences, Notification and Permits

1.5.1 The environmental licenses and permits for the Project and valid in the reporting period are summarized in **Table 1-3**.

Table 1-3 Summary Status of Environmental Licenses, Notification and Permits

Permit/ Notification/ License	Reference No	Valid From	Valid Till
Environmental Permit	EP-517/2017/A	18-Oct-19	-
Wastewater Discharge License	WT00037838-2021	21-Apr-21	30-Apr-26
	WT00041241-2022	31-May-22	31-May-27
	WT00044810-2024	05-Jul-24	31-May-29
Chemical Waste Producer Registration	5213-652-B2548-01	14-Dec-18	Not Applicable
Billing Account	WFG19965	2-Jan-19	Not Applicable
Construction Noise Permit	GW-RN0599-24	30-May-24	29-Oct-24

2 Odour

2.1 Monitoring Requirement

2.1.1 In accordance with the EM&A Manual, a commissioning test for the deodorization facilities of the TSTP was performed on 12 June 2020, exhaust air flow rate, temperature of exhaust and H2S concentration were recorded during the measurement. The measurement details were presented in the odour commissioning test report. The odour commission test report was submitted to EPD on 16 June and re-submitted on 30 September 2020. Further comments from EPD were received on 9 December 2020 and 25 June 2021 and the revised reports were submitted on 12 May 2021 and 27 August 2021 respectively.

2.1.2 In accordance with the EM&A Manual, as there is no non-compliance was recorded during the weekly odour monitoring in the first two months (i.e. August and September 2020), monitoring frequency is recommended to reduce from weekly to monthly in the subsequent four months (i.e. October 2020 to January 2021) and further reduce to quarterly in the remaining six months (i.e. February to July 2021) of the first year of the TSTP operation if no non-compliance is found. As there is no non-compliance was recorded during the quarterly odour monitoring in the first two years (i.e. October 2020 to July 2022), monitoring frequency is further reduce to six months basis in the subsequence years. The 1st year operation odour monitoring was completed in July 2021. The 2nd year operation odour monitoring was completed in July 2022.

2.1.3 Every six-month basis monitoring of odour emission at the exhausts of deodorization facilities (TSTP No.1 and TSTP No.2) is recommended to continue in the subsequent years of the operation (i.e.in between January 2023 to March 2024). Odour monitoring will be performed at the exhaust of operating deodorization facility at TSTP. The approved alternative method for odour monitoring is presented in **Table 2-1**.

Table 2-1 Approved Alternative Odour Monitoring Methodology

Measurement	Parameter	Equipment
At the Exhaust of TSTP No.1 and TSTP No.2	• Exhaust air flow rate • Temperature of exhaust • H_2S Concentration (ppm)	H2S Analyzer Anemometer

2.2 Monitoring Equipment

2.2.1 The model of the air quality monitoring equipment used is summarized in **Table 2-2**.

Table 2-2 Odour Monitoring Equipment

Equipment	Equipment Model
H2S Analyzer	Jerome FTM-1519

2.3 Monitoring Parameters and Frequency

2.3.1 The monitoring parameters, frequency and duration of odour monitoring are summarizes in **Table 2-3**.

Table 2-3 Odour Monitoring Parameters and Frequency

Measurement Parameters	Frequency
15-minute H2S Measurement (every 5 minutes measure one reading) - Average value of the three 5-minute readings will be used. Exhaust air flow rate, ambient temperature, temperature of exhaust, weather condition and wind speed will be recorded.	1st year of TSTP operation • At least once per week in the first two months. (i.e. Aug and Sep 2020) • Monthly in the subsequent four months. (i.e. Oct 2020 to Jan 2021) • Quarterly in the remaining six months. (i.e. in between Feb to Jul 2021) 2nd year of TSTP operation • Quarterly (i.e. in between Aug 2021 to Jul 2022) Subsequent years of TSTP operation • Every six-month basis (in between January 2023 to March 2024)

2.4 Monitoring Locations

2.4.1 As the operation mode of the deodorization system at TSTP shall be one in operation and one in standby. Odour monitoring will be undertaken at the exhaust of operating facility. The odour monitoring locations is summarized in **Table 2-4** and shown in **Figure 2**.

Table 2-4 Odour Monitoring Equipment

Monitoring Station	Location	Operation Mode
TSTP No.1	At the exhaust of TSTP No.1	Standby / Operation
TSTP No.2	At the exhaust of TSTP No.2	Standby / Operation

2.5 Results and Observations

2.5.1 No odour monitoring was conducted in the reporting period.

3 Noise Monitoring

3.1 Monitoring Requirement

3.1.1 In accordance with the EM&A Manuals, Leq (30min) monitoring is conducted at least once a week during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.

3.2 Monitoring Equipment

3.2.1 As referred to the technical memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications were used for carrying out the construction noise monitoring.

3.2.2 Sound level calibrator shall be used for the on-site calibration of the meter. This calibrator complies with the IEC Publication 942 (1988) Class 1 and ANSI S1.40 – 1984. Noise measurements were only accepted to be valid if the calibration levels from before and after the measurement agree to within 1.0 dB(A).

3.2.3 Measurements shall be recorded to the nearest 0.1dB (A). Sound level meters are programmed to measure A-weighted equivalent continuous sound pressure level at 30-minute intervals between 0700 and 1900 on normal weekdays at least once a week when construction activities are underway.

3.2.4 **Table 3-1** summarizes the noise monitoring equipment used during the construction noise monitoring. Calibration certificates for the impact noise monitoring equipment are attached in **Appendix 3**.

Table 3-1 Construction Noise Monitoring Equipment

Equipment	Model (Serial Number)	Calibration Due Date
Sound Level Meter	RION NC-75 Acoustic Calibrator (34724245)	02-Aug-2024
Sound Calibrator	NTi Audio XL2 Digital Sound Level Meter (A2A-09696-E0)	01-Mar-2025

3.3 Parameters and Frequency

3.3.1 **Table 3-2** summarizes the monitoring parameters, duration, and frequency of construction noise monitoring.

Table 3-2 Noise Monitoring Parameter, Frequency and Duration

Parameters	Time	Frequency	Duration
Leq(30-min)	0700 and 1900 hours on normal weekdays	Once every week	Throughout the construction phase

3.4 Monitoring Methodology

3.4.1 The monitoring procedures are as follows:

- Free-field and façade measurements were made at the monitoring locations.
- For free field, the Sound Level Meter was set at a height of 1.2 m above the ground. The battery condition was checked to ensure proper functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - Frequency weighting: A
  - Time weighting: Fast

- Measurement time: 5 minutes ($L_{eq(30mins)}$ would be determined for daytime noise by calculating the logarithmic average of six $L_{eq(5mins)}$ data.)

- Prior to and after each noise measurement, the meter was calibrated using an acoustic calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after recalibration or repair of the equipment.
- Noise measurement should be paused during periods of high intrusive noise if possible and observation shall be recorded when intrusive noise is not avoided.
- At the end of the monitoring period, the L_{eq}, L_{10} and L_{90} shall be recorded. In addition, site conditions and noise sources should be recorded on a standard record sheet.
- Noise monitoring should be conducted with the wind speed not exceeding 5 m/s and no gusts exceeding 10 m/s.

3.5 Maintenance and Calibration

3.5.1 Maintenance and calibration procedures are as follows:

- The microphone head of the sound level meter and calibrator were regularly cleaned with a soft cloth; and
- The sound level meter and acoustic calibrator were calibrated annually by a HOKLAS accredited laboratory or the manufacturer.
- The calibration certificates for noise monitoring equipment are provided in **Appendix 3**.

3.6 Monitoring Locations

3.6.1 According to the approved EM&A Manual, there are 2 monitoring locations for Construction Noise Monitoring. The noise monitoring locations are summarized in **Table 3.3**, and the locations of the noise monitoring stations are shown in **Figure 3**.

Table 3-3 Noise Monitoring Locations

ID No.	Noise Sensitive Receivers	Description	Type of Measurement
NM1‡	NSR6	Block 45, Sha Tau Kok Chuen	Free-field
NM2‡	NSR8	Building along Shun Lung Street	Free-field

Notes: ‡ For Free Field measurement, +3 dB(A) was added to the measured results.

3.7 Monitoring Result and Observations

3.7.1 The schedule of noise monitoring in reporting month is provided in **Appendix 4**.

3.7.2 The noise monitoring results are summarized in **Table 3-4**. The detail monitoring data together with graphical presentations are presented in **Appendices E**.

Table 3-4 Summary of Noise Monitoring Results at 0700 – 1900 hrs on Normal weekdays

Noise Monitoring Station	$L_{eq(30mins)}$, dB(A) (Range)	Baseline Level, dB(A)	Limit Level, dB(A)
NM1‡	56.3 – 58.1	65	75
NM2‡	62.0 – 65.1	65	75

Notes: ‡ For Free Field measurement, +3 dB(A) was added to the measured results.

3.7.3 No raining and wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation. The weather conditions during the monitoring month are provided in **Appendix 9**.

3.7.4 No Action / Limit Level exceedance of location NM1 and NM2 was recorded for construction noise in the reporting month.

3.7.5 During the reporting month, at NM1 and NM2, road traffic noise along Shun Lung Street and human activities were observed. The above factors may affect the monitoring results.

3.7.6 The Event and Action Plan for noise is given in **Appendix 6**.

4 Water Quality

4.1 Monitoring Requirement

4.1.1 In accordance with the EM&A Manual, water quality monitoring is required during the installation, maintenance, and removal of sheet piles, as well as during sediment removal works for the construction of the diffuser.

4.1.2 Water quality monitoring programme for marine construction works of HDD was commenced on 9 November 2020. As informed by DSD, no marine construction work was conducted and the marine water quality monitoring for marine construction works was suspended since 21 December 2020. The marine water quality monitoring was resumed on 20 January 2021.

4.1.3 Water quality monitoring programme for marine construction works of submarine outfall was commenced on 20 January 2021. As informed by DSD, no marine construction work was conducted and the marine water quality monitoring for marine construction works was suspended since 31 December 2022. The marine water quality monitoring will be resumed during the operation phase of STKSTW.

4.2 Monitoring Requirements (1-year Operation phase for TSTP)

4.2.1 In accordance with the EM&A Manual, marine water quality and continuous effluent quality monitoring for first year operation of TSTP were performed and completed in July 2021.

4.2.2 Water quality monitoring programme for operation phase of TSTP was commenced on 22 July 2020 and was completed on 21 July 2021.

4.3 Monitoring Equipment

4.3.1 Water quality monitoring equipment used for in-situ measurement and water sampling during the impact water quality monitoring is summarised in **Table 4-1**.

Table 4-1 In-situ Water Quality Monitoring Equipment for Impact Water Quality Monitoring

Equipment	Model	Serial No.	Parameter	Range	Accuracy
Water Sampler	Wildco 2L Water Sampler with messenger or plastic bucket (used in shallow water depth)	N/A	N/A	N/A	N/A
Multi-functional Water Quality Meter	YSI ProDSS (multi-parameters)	N/A	Dissolved Oxygen (DO)	0 to 500%	• 0 to 200%: ±1% of reading • 200 to 500%: ±8% of reading
				0 to 50 mg/L	• 0 to 20 mg/L: ±0.1 mg/L or 1% of reading, whichever is greater • 20 to 50 mg/L: ±8% of reading
			Temperature	-5 to 50 °C	±0.2 °C
			pH	0 to 14 pH units	±0.2 pH units
			Turbidity	0 to 4000 NTU	• 0 to 999 NTU: 0.3 NTU or ±2% of reading, whichever is greater • 1000 to 4000 NTU: ±5% of reading

Equipment	Model	Serial No.	Parameter	Range	Accuracy
Water Depth Ruler	Garmin ECHO 101	NA*	Water depth	0 – 7 m (Used for water depth less than 1 m)	±0.01 m
Positioning Equipment	Garmin (GPSmap 78s)	N/A	Positioning	N/A	GPS: ±1m

4.4 Equipment Calibration

4.4.1 Multi-functional water quality meters were checked and calibrated before use, and would be subsequently re-calibrated at 3-monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter should be carried out before measurement at each monitoring location. For the on-site calibration of field equipment, the BS 127:1993, Guide to Field and On-Site Test Methods for the Analysis of Water should be observed.

4.4.2 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring is uninterrupted even when some equipment is under maintenance or calibration etc.

4.5 Parameters and Frequency

4.5.1 Detail of water Detail of water quality monitoring and sampling equipment is summarised in **Table 4-2**.

Table 4-2 Summary of Water Quality Parameter and Frequency

	Parameters	Frequency
For Marine Water Quality	**In-situ Measurement**	
	Temperature, ˚C	**1-year Operation phase for TSTP** *Once per day for 3 days per week for 1-year (Water quality monitoring commenced on 22 July 2020 and completed on 21 July 2021)
	pH	
	Salinity, ppt	
	Dissolved Oxygen, mg/L	
	Turbidity, NTU	
	Laboratory Analysis	
	Suspended Solid, mg/L	• **Construction Phase** *Both Mid-Ebb and Mid-Flood tides on the same day
For Continuous Effluent Quality	**Laboratory Analysis**	
	Suspended Solid, mg/L	Daily for 1-year
	Biochemical Oxygen Demand, mg/L	
	Total Phosphorus, mg/L	
	Total Nitrogen, mg/L	
	Ammonia Nitrogen, mg/L	
	Total Inorganic Nitrogen, mg/L	
	E.coli, cfu/100mL	

4.6 Monitoring Procedure

4.6.1 Two consecutive measurements of in-situ water quality monitoring, including pH, salinity, dissolved oxygen (DO), and turbidity, will be recorded at each monitoring location. Separate deployments of

the monitoring instruments and water samplers will be conducted for these consecutive measurements or samplings. The monitoring location, time, water depth, sampling depth, tidal stages, weather conditions, sea condition, and any special phenomena or ongoing nearby work shall also be recorded. If the difference in value between the first and second measurements of DO or turbidity parameters exceeds 25% of the first reading's value, the reading shall be discarded, and additional readings should be taken.

4.6.2 A hand-held digital Global Positioning System (GPS) or another equivalent instrument with similar accuracy shall be provided and used during water quality monitoring to ensure the accuracy of water sampling locations.

4.6.3 When the location and water depth are confirmed, water samples shall be collected at three depths (1 meter below the surface, mid-depth, and 1 meter above the seabed) of the water column at each location. However, if the water depth is less than 6 meters, the mid-depth sample will be omitted, and if the water depth is less than 3 meters, only the mid-depth will be monitored. Duplicate marine samples will be collected during each sampling event. All sampling bottles should be labelled with the sample ID (including the indication of the sampling station), laboratory number, and sampling date. Water samples should be dispatched to the testing laboratory for analysis as soon as possible after sampling. All samples should be stored in a cool box and kept at temperatures below 4°C but not frozen. All water samples must be handled under chain of custody protocols and relinquished to laboratory representatives at locations specified by the laboratory. Laboratory analysis should commence within 24 hours after the collection of water samples.

4.7 Laboratory Measurement / Analysis

4.7.1 The laboratory measurement was carried out by a HOKLAS accredited laboratory (Acumen Laboratory and Testing Limited).

QA/QC Requirements

Decontamination Procedures

4.7.2 Water sampling equipment used during the course of the monitoring process was decontaminated by manual washing and rinsed with distilled water after each sampling event. All of the disposable components/ accessories were discarded after sampling.

Sampling Management and Supervision

4.7.3 All sampling bottles were labelled with the sample ID numbers (including the sampling station), and sampling date. Water samples were dispatched to the testing laboratory for analysis as soon as possible. All the collected samples were stored in a cool box to keep the temperature less than 4 as possible after the sampling. All samples were stored in a cool box and kept at less than 4 °C but without frozen. All water samples were handled under chain of custody protocols and relinquished to the laboratory representatives at locations specified by the laboratory.

Quality Control Measures for Sample Testing

4.7.4 Quality control of laboratory analysis of water samples was performed by Acumen Laboratory and Testing Limited for every batch of 20 samples:

- One method blank; and
- One set of QC sample

4.8 Monitoring Locations

4.8.1 In accordance with the EM&A Manual, marine water quality monitoring stations are summarized in **Table 4-3** and shown in **Figure 4**.

Table 4-3 Water Quality Monitoring Stations

Station	Description	Easting	Northing	1-Year TSTP Operation	Construction Phase

FCZ1A	Sha Tau Kok Fish Culture Zone – East	840892	844241	-	✓
FCZ1B	Sha Tau Kok Fish Culture Zone - West	841565	844299	✓	-
FCZ7	Temporary Relocation Site for Fish Rafts of the Sha Tau Kok Fish Culture Zone	842282	844451	✓	✓
FCZ8	Temporary Relocation Site for Fish Rafts of the Sha Tau Kok Fish Culture Zone	841511	843959	✓	✓
SGA	Seagrass Colony	841064	844580	✓	✓
M1A	Mangrove Stand	840744	844853	✓	✓
H1A	Horseshoe Crab	840645	844398	✓	✓
H4A	Horseshoe Crab	840304	843546	✓	✓
N1	Impact Station of the Expanded STKSTW (Ebb Tide)	842863	845378	✓	✓
N2	Impact Station of the Expanded STKSTW (Flood Tide)	842109	844631	✓	✓
C	Control Station	844690	845886	✓	✓
Effluent	At the effluent discharge point of TSTP	-	-	✓	-

4.9 Monitoring Results and Observation

4.9.1 Emergency Discharge was conducted on 28 July 2024, a follow up marine water quality monitoring was carried out starting between 29 July 2024 and 11 August 2024.

4.9.2 Based on the findings from the last two days, although exceedances were recorded, all identified exceedances were considered non-project related, termination of the emergency discharge follow-up monitoring is deemed appropriate. A proposal for Justification on Termination of Emergency Discharge Follow-up Monitoring is presented in **Appendix 14**.

5 Landscape and Visual

5.1 Site Inspection

5.1.1 The EIA Report has recommended landscape and visual mitigation measures to be conducted for the proposed project of Expansion of Sha Tau Kok Sewage Treatment Works under this Project. The mitigation measure recommended in the EIA Report and EM&A manual as the audit requirements for landscape and visual, including: preservation of existing vegetation, preservation of existing vegetation, control of site construction activities and suitable design of the proposed TSTP.

5.1.2 Bi-weekly landscape and visual site audits were carried out on 2, 16 and 28 August 2024. A summary of the mitigation measures implementation schedule is provided in **Appendix 8**.

5.1.3 No outstanding issues were recorded in this reporting period. The Event and Action Plan for landscape and visual is given in **Appendix 6**.

6 Site Inspection and Audit

6.1 Site Inspection

6.1.1 Site audits were carried out by ET on weekly basis to monitor the implementation of proper environmental management practices and mitigation measures in the Project site.

6.1.2 In the reporting month, 4 site inspections were carried out on 9, 16, 23 and 28 August 2024. The site inspection held on 28 August 2024 was joint inspection with the IEC, ER, the Contractor and the ET during the reporting period.

6.1.3 No outstanding issues were reported during the reporting month. Details of observations recorded during the site inspections are summarized in **Appendix 11**.

6.1.4 The recommended environmental mitigation measures, as proposed in the EIA reports and EM&A Manuals shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.

6.1.5 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:

Air Quality Impact

- No specific observation was identified in the reporting month.

Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- No specific observation was identified in the reporting month.

Chemical and Waste Management

- The contractor was reminded to maintain the site cleanliness.

Landscape and Visual Impact

- No specific observation was identified in the reporting month.

Permit/ Licenses

- The faded NRMM label should be replaced.

7 Waste Management Status

7.1 Advice on the Solid and Liquid Waste Management Status

7.1.1 Auditing of waste management practices during regular site inspections will confirm that the waste generated during construction are properly, stored, handled and disposed of. The construction Contractor(s) will be responsible for the implementation of any mitigation measures to reduce waste or redress issues arising from the waste materials.

7.1.2 The C&D waste under this contract should be disposal of at North East New Territories (NENT) Landfill, Tseung Kwan O Area 137 Fill Bank (TKO137FB) and Tuen Mun Area 38 Fill Bank (TM38FB).

7.1.3 Monthly summary of waste flow table is detailed in **Appendix 7**.

8 Environmental Complaint and Non-Compliance

8.1 Complaints, Notification of Summons and Prosecution

8.1.1 No environmental complaint, notification of summons and successful prosecution were received in the reporting month.

8.1.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix 10**.

8.1.3 No public engagement activities were conducted in the reporting period.

9 Implementation Status of Environmental Mitigation Measure

9.1 Implementation Status

9.1.1 The Contractor had implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix 8**.

10 On-site Time for ET and IEC

10.1.1 According to EP Conditions 2.1 and 2.4, the Environmental Team (ET) and the Independent Environmental Checker (IEC), along with their respective teams, proposed a minimum on-site presence of at least 8 hours per week during office hours to fulfil the duties stipulated in the EP and the EM&A requirements of the project. The on-site time and duties of the ET and IEC are summarized in **Appendix 13**.

11 Future Key Issues

11.1 Construction Programme for the Next Month

Sha Tau Kok Sewage Treatment Plant

- Defect rectification
- Baboo scaffolding
- Concreting work
- E&M installation
- ABWF work – internal wall, floor finish and tiling work
- Metal work – installation of window, door and louver
- Waterproofing works

Access road

- Manhole construction
- Cable duct and water main installation

Shun Hing Street

- Pipe cleaning for CCTV inspection

Tong To Village

- No work in Tong To

Choi Yuen Kok

- No work in Choi Yuen Kok

11.2 Sewerage Construction of sewerage Key Issues for the Coming Month

11.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, waste management and landscape and visual impact issues.

11.3 Monitoring Schedules for the Next Month

11.3.1 The tentative schedule for environmental monitoring in the coming month is provided in **Appendix 4**.

12 Conclusion

12.1.1 Construction noise monitoring was carried out in the reporting month, no Action / Limit Level exceedance was recorded during the period.

12.1.2 Emergency Discharge was conducted on 28 July 2024, a follow up marine water quality monitoring was carried out starting between 29 July 2024 and 11 August 2024. Based on the findings from the last two days, although exceedances were recorded, all identified exceedances were considered non-project related, termination of the emergency discharge follow-up monitoring is deemed appropriate.

12.1.3 Four Environmental site inspections were carried out in the reporting month. Recommendations on mitigation measures for permit/ licenses was given to the Contractor for remediating the deficiencies identified during the site inspections.

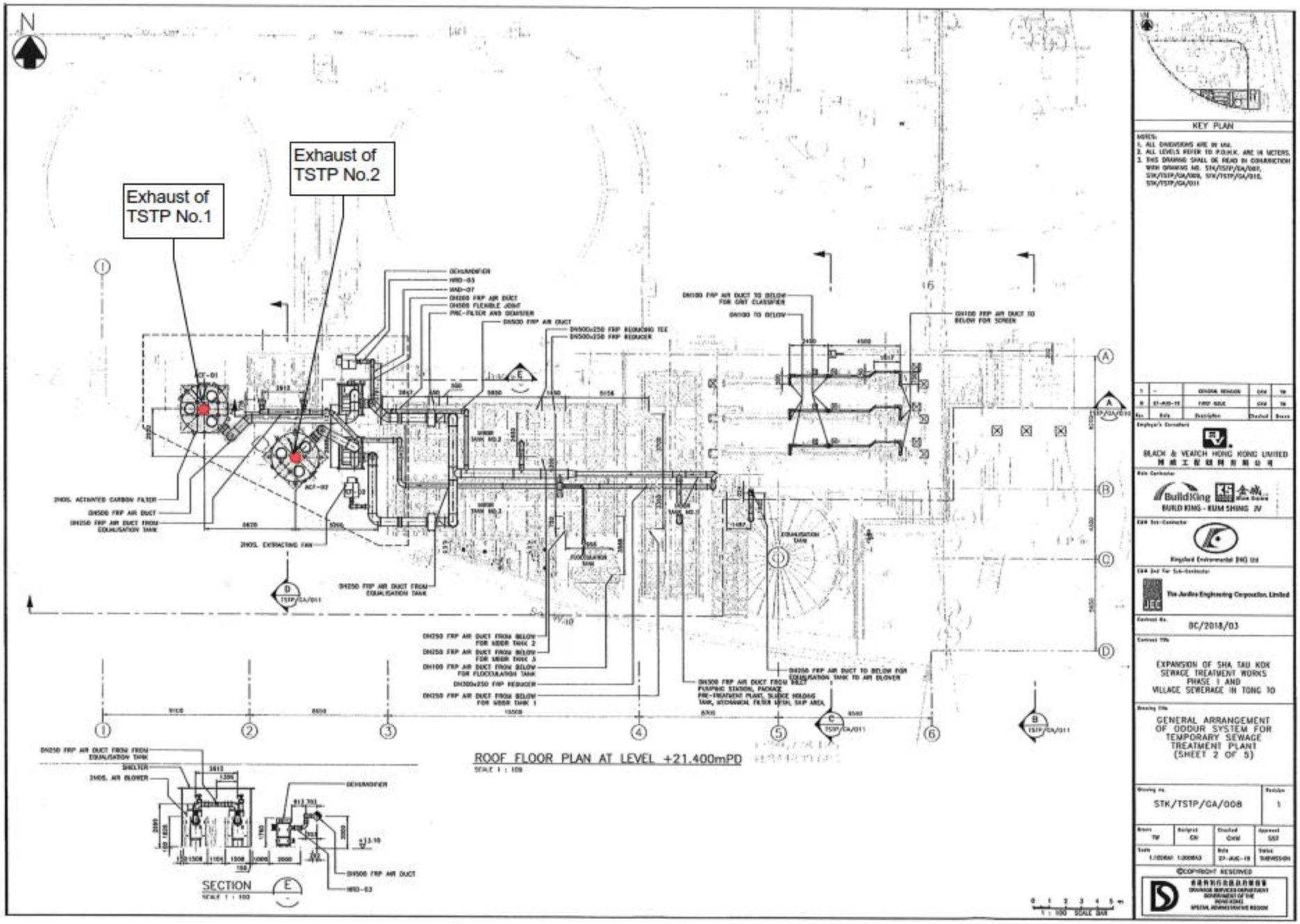
12.1.4 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

Figures

Figure 1 General Layout Plan


841 000 E
842 000 E
N
SHENZHEN
SHA HO ROAD
SHA TAU KOK
沙頭角
SHUN WING STREET
SHA TAU KOK ROAD-SHEK CHUNG AU
SHA TAU KOK
沙頭角
SHATOUJIAO
STARLING INLET
沙頭角海
Sheung Tam Shui Hang
Shan Tsui
Green Castle
Tsiu Hang
Ha Tam Shui Hang
San Tsuen
Muk Min Tau
Nga Yiu Tau
Kong Ha
Tsoi Yuen Kok
Sha Tau Kok Chuen
Sewage Treatment Works
Pier
SHENZHEN SHI
PAK FU SHAN
SHENZHEN
STARLING INLET
LO WU
KUK PO
SHEUNG SHUI
SHA TUA KOK ROAD
PAT SIN LENG COUNTRY PARK
WU KAU TANG
CLOUDY HILL
TING KOK
PLOVER COVE RESERVOIR
SHUEN WAN
FUNG YUEN
TAI PO
KEY PLAN
SCALE 1:80000
LEGEND:
PROJECT BOUNDARY

Figure 2 Odour Monitoring Locations



Locations of Odour monitoring for 1-Year Operation of TSTP

Figure 3 Noise Monitoring Locations

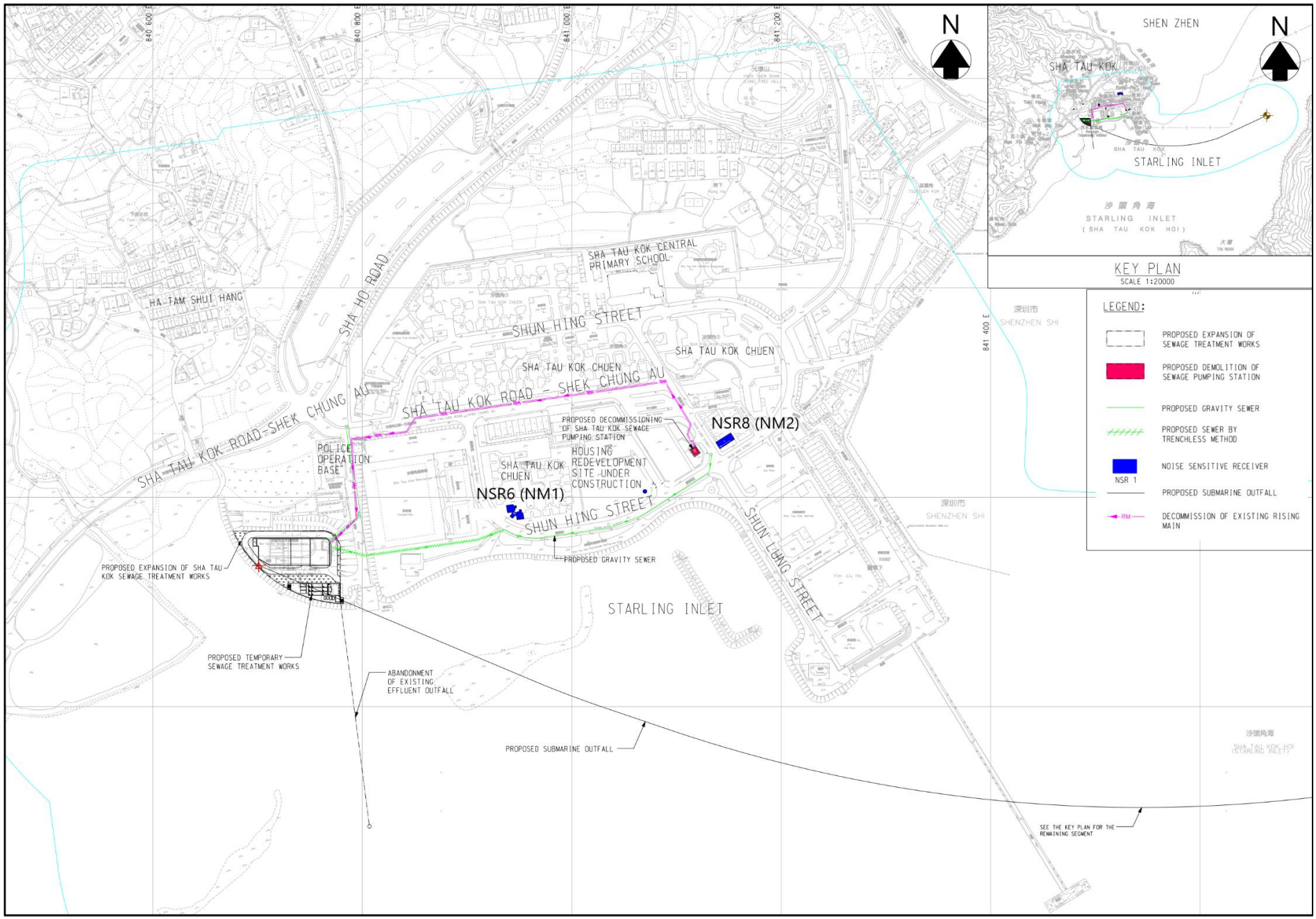
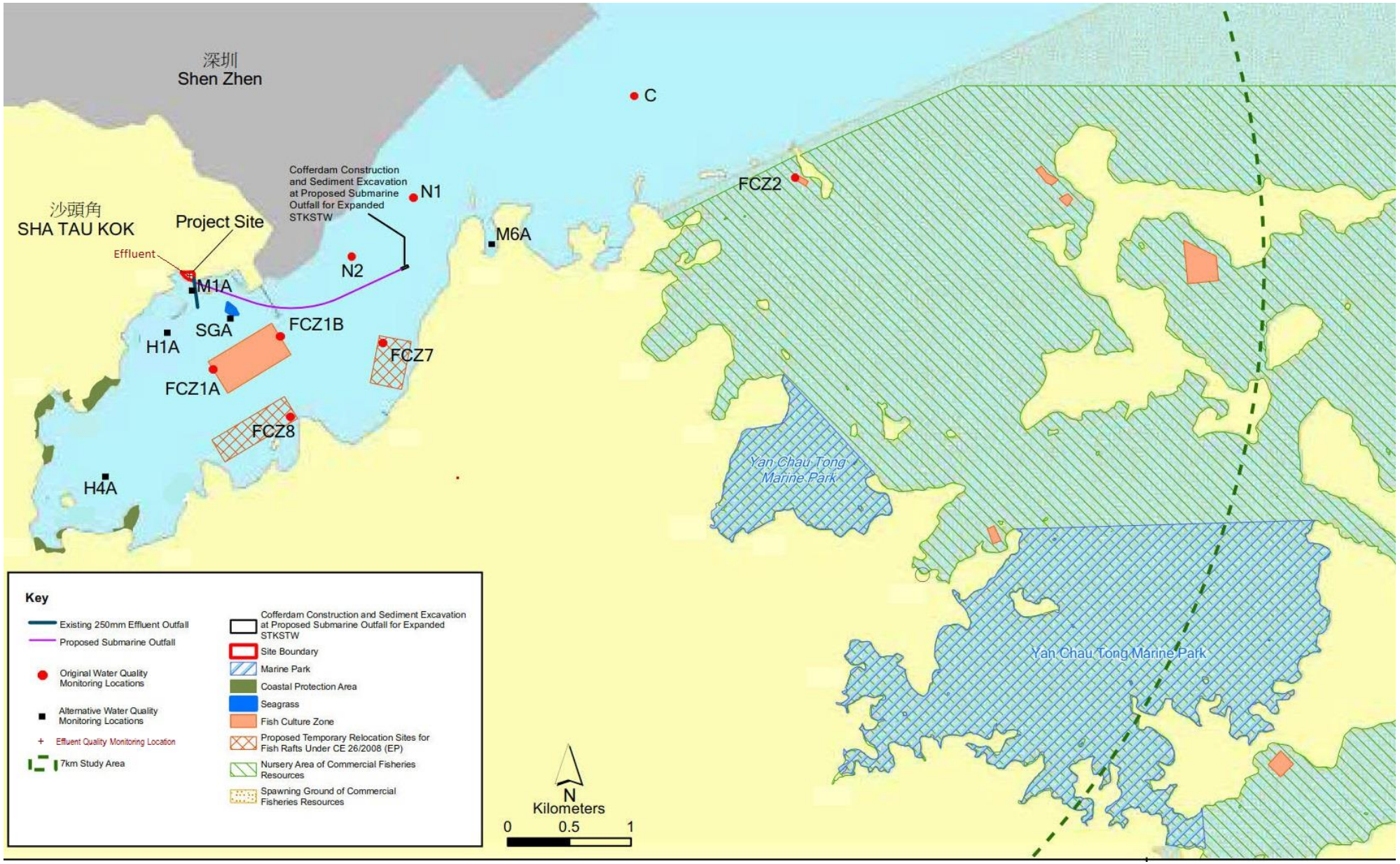

N
840 600 E
840 800 E
841 000 E
841 200 E
841 400 E
SHA HO ROAD
HA TAM SHUI HANG
SHA TAU KOK CENTRAL PRIMARY SCHOOL
SHUN HING STREET
SHA TAU KOK CHUEN
SHA TAU KOK ROAD - SHEK CHUNG AU
SHA TAU KOK ROAD - SHEK CHUNG AU
PROPOSED DECOMMISSIONING OF SHA TAU KOK SEWAGE PUMPING STATION
NSR8 (NM2)
POLICE OPERATION BASE
SHA TAU KOK CHUEN
HOUSING REDEVELOPMENT SITE UNDER CONSTRUCTION
NSR6 (NM1)
SHUN HING STREET
PROPOSED GRAVITY SEWER
SHUN LUNG STREET
深圳市
SHENZHEN SHI
PROPOSED EXPANSION OF SHA TAU KOK SEWAGE TREATMENT WORKS
STARLING INLET
PROPOSED TEMPORARY SEWAGE TREATMENT WORKS
ABANDONMENT OF EXISTING EFFLUENT OUTFALL
PROPOSED SUBMARINE OUTFALL
SEE THE KEY PLAN FOR THE REMAINING SEGMENT
沙頭角海
SHA TAU KOK HOI (STARLING INLET)
SHEN ZHEN
SHA TAU KOK
STARLING INLET
沙頭角海
STARLING INLET
(SHA TAU KOK HOI)
KEY PLAN
SCALE 1:20000
LEGEND:
PROPOSED EXPANSION OF SEWAGE TREATMENT WORKS
PROPOSED DEMOLITION OF SEWAGE PUMPING STATION
PROPOSED GRAVITY SEWER
PROPOSED SEWER BY TRENCHLESS METHOD
NSR 1
NOISE SENSITIVE RECEIVER
PROPOSED SUBMARINE OUTFALL
RM
DECOMMISSION OF EXISTING RISING MAIN

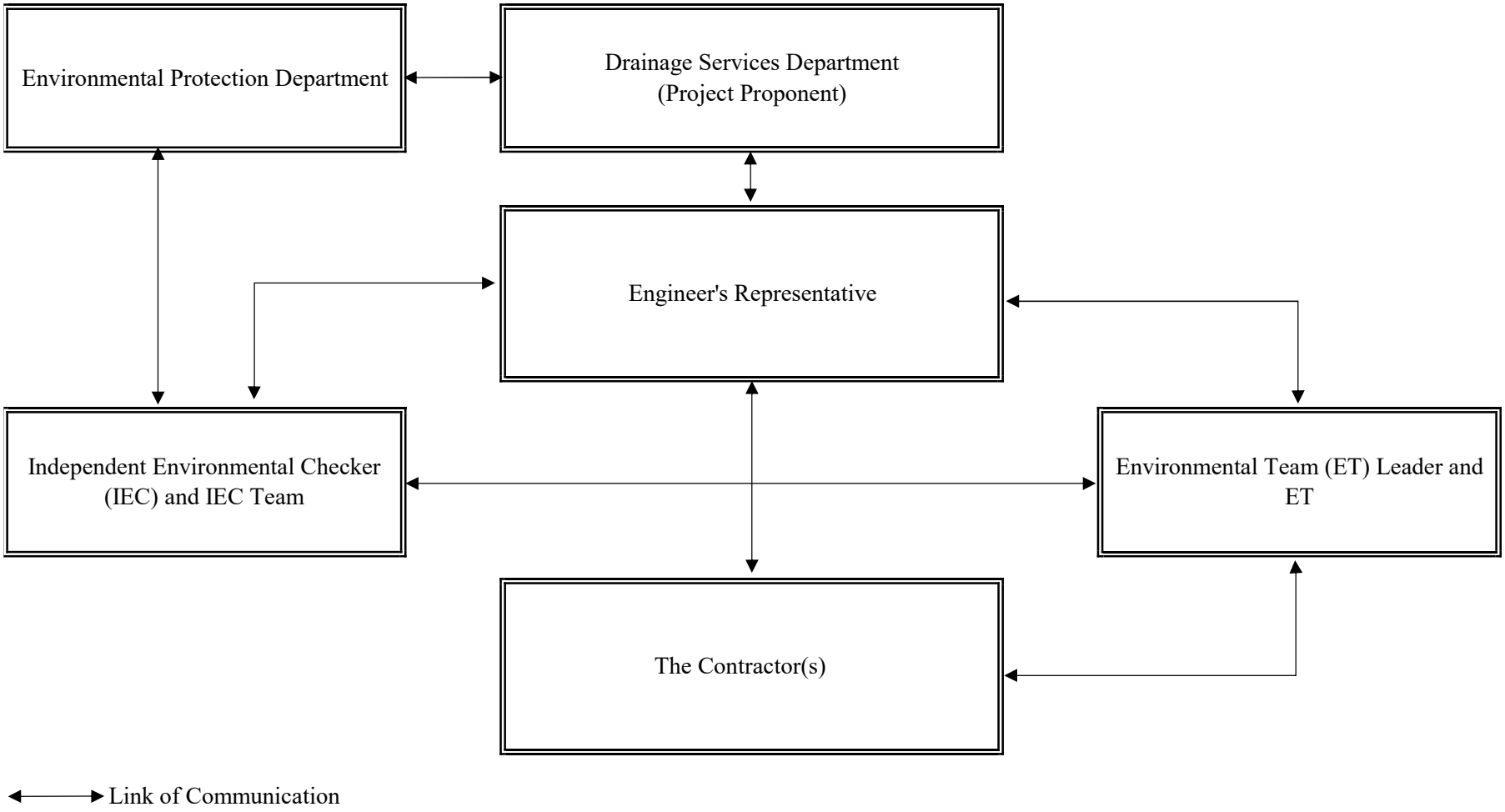
Figure 4 Water Monitoring Locations


深圳
Shen Zhen
沙頭角
SHA TAU KOK
Project Site
Effluent
Cofferdam Construction and Sediment Excavation at Proposed Submarine Outfall for Expanded STKSTW
C
N1
N2
M6A
M1A
SGA
H1A
H4A
FCZ1A
FCZ1B
FCZ7
FCZ8
FCZ2
Yan Chau Tong Marine Park
Yan Chau Tong Marine Park
Key
Existing 250mm Effluent Outfall
Proposed Submarine Outfall
Original Water Quality Monitoring Locations
Alternative Water Quality Monitoring Locations
Effluent Quality Monitoring Location
7km Study Area
Cofferdam Construction and Sediment Excavation at Proposed Submarine Outfall for Expanded STKSTW
Site Boundary
Marine Park
Coastal Protection Area
Seagrass
Fish Culture Zone
Proposed Temporary Relocation Sites for Fish Rafts Under CE 26/2008 (EP)
Nursery Area of Commercial Fisheries Resources
Spawning Ground of Commercial Fisheries Resources
N
Kilometers
0
0.5
1

Appendices

Appendix 1 Project Organization Chart

Project Organization Chart



Appendix 2 Construction Programme

Expansion of Sha Tau Kok Sewage Treatment Works - Construction Programme

STAGE	Activities	2023												2024												2025											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Construction of Temporary Sewage Treatment Plant																																					
1	Ground Investigation																																				
2	Piling																																				
3	Construction of RC Structures																																				
4	E&M Installations																																				
5	Testing & Commissioning																																				
Demolition of the exisitng STKSTW																																					
Construction of Submarine Outfall																																					
1	Casing Installation (Land)																																				
2	Pilot Hole Drilling (Land)																																				
3	Reaming (Land)																																				
4	Casing Installation (Sea)																																				
5	Pilot Hole Drilling (Sea)																																				
6	Reaming (Sea)																																				
7	Smoothening																																				
8	Pipe Installation																																				
9	Construction of Cofferdam at the location of diffuser																																				
10	Dredging of Marine Deposit for Diffuser																																				
11	Backfilling Works (up to Invert of Diffuser)																																				
12	Installation of Diffuser																																				
13	Backfilling and Removal of Sheetpiles																																				
Constrution of the expanded STKSTW																																					
1	Piling																																				
2	Excavation																																				
3	Construction of RC Structures																																				
4	Installation of Precast Segment																																				
5	Constrtuction of retaining wall																																				
6	ABWF Works																																				
7	E&M Installations																																				
8	Testing & Commissioning																																				
9	Landscape Works																																				
Sewer Laying																																					
1	Tong To Village																																				
2	Shun Hing Street																																				
3	Access Road																																				
4	Tsoi Yuen Kok																																				
Operation of TSTP																																					
Operation of STKSTW																																					
Demolition of existing Sha Tau Kok Pump Station																																					
1	Decommissioning of STK PS																																				
2	Demolitionof STK PS																																				
Demcommisioning of TSTP																																					

Appendix 3 Calibration Certificate of Monitoring Equipment

Certificate of Calibration

for

Description:	***Sound Level Meter***
Manufacturer:	***NTi Audio***
Type No.:	***XL2 (Serial No.: A2A-09696-E0)***
Microphone:	***ACO 7052 (Serial No.:73780)***
Preamplifier:	***NTi Audio MA220 (Serial No.:6282)***

Submitted by:

Customer:	*Aurecon Hong Kong Limited*
Address:	*Unit 1608, 16/F, Tower B,*
	Manulife Financial Centre,
	223-231 Wai Yip Street, Kwun Tong,
	Kowloon, Hong Kong.

Upon receipt for calibration, the instrument was found to be:

☑ **Within (31.5Hz – 8kHz)**
☐ **Outside**
the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 28 February 2024

Date of calibration: 02 March 2024

Date of NEXT calibration: 01 March 2025

Calibrated by: _____ ***Certified by:*** _____
Calibration Technician ***Mr. Ng Yan Wa***
Laboratory Manager

Date of issue: **02 March 2024**

Certificate No.: APJ23-146-CC003

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

1. *Calibration Precaution:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Conditions:*

Air Temperature:	22.9 **°C**
Air Pressure:	1005 **hPa**
Relative Humidity:	61.2 **%**

3. *Calibration Equipment:*

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS

4. *Calibration Results*

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	1000	94.1	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	1000	94.1	Ref
			104		104.1	±0.3
			114		114.1	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	1000	94.1	Ref
		Slow			94.1	±0.3

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dB SPL	Fast	94	31.5	94.0	±2.0
				63	94.1	±1.5
				125	94.1	±1.5
				250	94.1	±1.4
				500	94.1	±1.4
				1000	94.1	Ref
				2000	94.4	±1.6
				4000	95.2	±1.6
				8000	94.5	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	31.5	54.6	-39.4 ±2.0
				63	67.9	-26.2 ±1.5
				125	78.0	-16.1 ±1.5
				250	85.4	-8.6 ±1.4
				500	90.9	-3.2 ±1.4
				1000	94.1	Ref
				2000	95.6	+1.2 ±1.6
				4000	96.2	+1.0 ±1.6
				8000	93.4	-1.1+2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBC SPL	Fast	94	31.5	91.0	-3.0 ±2.0
				63	93.3	-0.8 ±1.5
				125	93.9	-0.2 ±1.5
				250	94.1	-0.0 ±1.4
				500	94.2	-0.0 ±1.4
				1000	94.1	Ref
				2000	94.2	-0.2 ±1.6
				4000	94.4	-0.8 ±1.6
				8000	91.5	–3.0 +2.1: –3.1

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

5. *Calibration Results Applied*

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.10
	63 Hz	± 0.05
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:
The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

(A+A)*L Acoustics and Air Testing Laboratory Co. Ltd.
聲學及空氣測試實驗室有限公司

Certificate of Calibration

for

Description:	***Sound Level Calibrator***
Manufacturer:	***RION***
Type No.:	***NC-75***
Serial No.:	***35124527***

Submitted by:

Customer:	*Acuity Sustainability Consulting Limited*
Address:	*Unit E, 12/F, Ford Glory Plaza,* *Nos. 37-39 Wing Hong Street,* *Cheung Sha Wan, Kowloon,* *Hong Kong*

Upon receipt for calibration, the instrument was found to be:

☑ **Within**
☐ **Outside**

the allowable tolerance.

The test equipments used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 19 October 2023

Date of calibration: 27 October 2023

Date of NEXT calibration: 26 October 2024

Calibrated by: _____
Calibration Technician

Certified by: _____
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: *27* **October 2023**

Certificate No.: APJ23-090-CC002

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

1. *Calibration Precautions:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Specifications:*

Calibration check

3. *Calibration Conditions:*

Air Temperature:	24.4 °C
Air Pressure:	1013 hPa
Relative Humidity:	65.4 %

4. *Calibration Equipment:*

Test Equipment	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS
Sound Level Meter	RION NA-28	30721812	AV220120	HOKLAS

5. *Calibration Results*

5.1 Sound Pressure Level

Nominal value dB	Accept lower level dB	Accept upper level dB	Measured value dB
94.0	93.6	94.4	94.0

Note:
The values given in this certification only related to the values measured at the time of the calibration.

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Appendix 4 Environmental Monitoring Schedule

Tentative Impact Monitoring Schedule for Contract No. CM 02/2024
Expansion of Sha Tau Kok Sewage Treatment Works (Version 1.0)

August 2024

Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1	2	3
4	5 Noise monitoring at NM1 and NM2	6	7	8	9	10
11	12	13	14	15	16	17 Noise monitoring at NM1 and NM2
18	19	20	21	22 Noise monitoring at NM1 and NM2	23	24
25	26	27	28 Noise monitoring at NM1 and NM2			

Noise Monitoring Locations:
Noise monitoring stations at Block 45, Sha Tau Kok Chuen: NM1
Noise monitoring stations at Building along Shun Lung Street:: NM2

Odour Monitoring Locations:
H2S monitoring stations at the Exhaust of TSTP No.1 and TSTP No.2

Remarks:
1. The schedule may be changed due to unforeseen circumstances (e.g. adverse weather, etc.)
2. Noise Monitoring (NM): Leq (30 min) during between 0700 - 1900.

Tentative Impact Monitoring Schedule for Contract No. CM 02/2024
Expansion of Sha Tau Kok Sewage Treatment Works (Version 1.0)

September 2024

Sun	Mon	Tue	Wed	Thur	Fri	Sat
1	2	3 Noise monitoring at NM1 and NM2	4	5	6	7
8	9 Noise monitoring at NM1 and NM2	10	11	12	13	14
15	16	17	18	19	20 Noise monitoring at NM1 and NM2	21
22	23	24	25	26 Noise monitoring at NM1 and NM2	27	28
29	30					

Noise Monitoring Locations:
Noise monitoring stations at Block 45, Sha Tau Kok Chuen: NM1
Noise monitoring stations at Building along Shun Lung Street:: NM2

Odour Monitoring Locations:
H2S monitoring stations at the Exhaust of TSTP No.1 and TSTP No.2

Remarks:
1. The schedule may be changed due to unforeseen circumstances (e.g. adverse weather, etc.)
2. Noise Monitoring (NM): Leq (30 min) during between 0700 - 1900.

Appendix 5 Monitoring Results and Graphical Presentations

Noise Monitoring Result for Contract No. CM 02/2024
Expansion of Sha Tau Kok Sewage Treatment Works

NM 1 (Block 45, Sha Tau Lol Chuen)

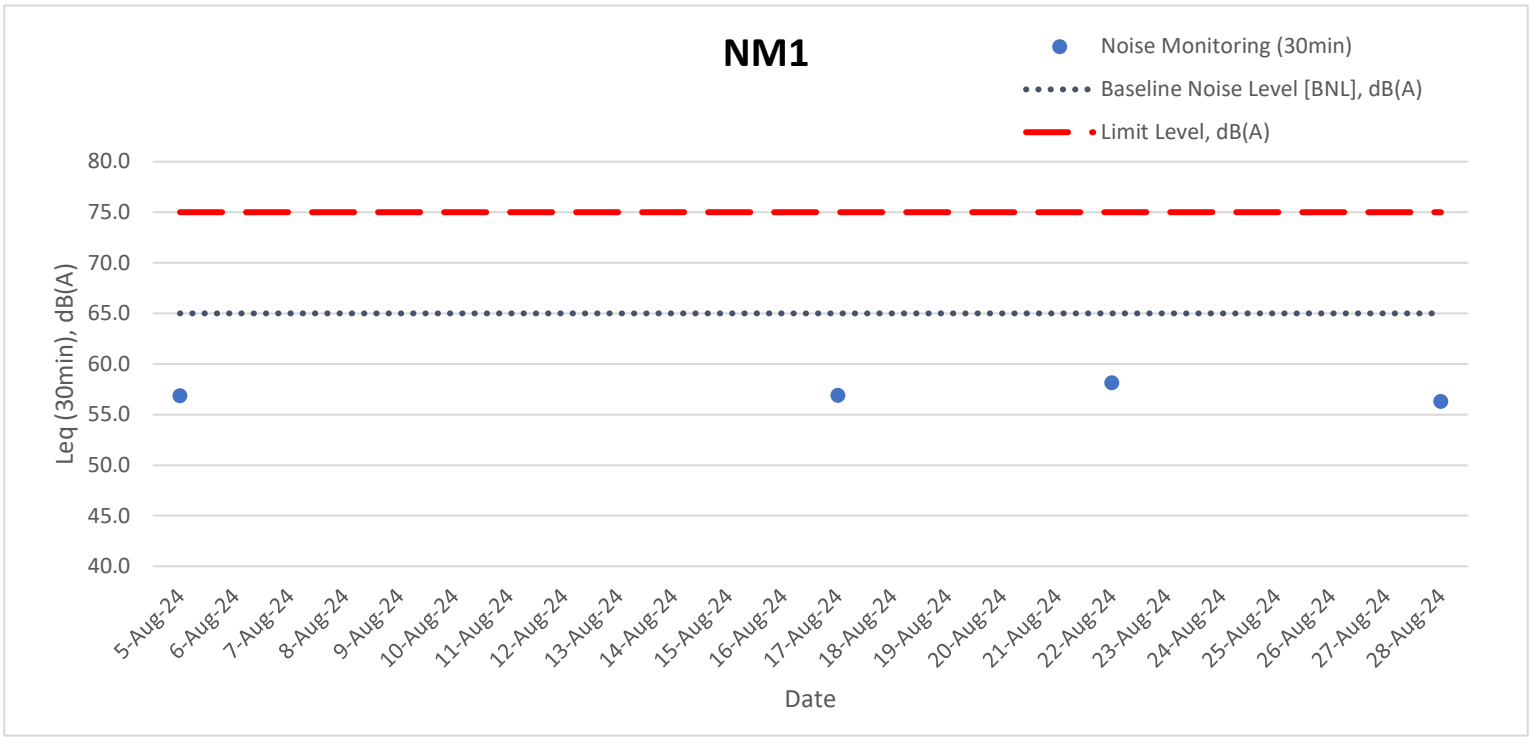
Date	Weather Condition	Wind speed (m/s)	Start time	Noise Monitoring (30min)			Baseline Noise Level [BNL], dB(A)	Construction Noise Level [CNL]#, dB(A)		Limit Level, dB(A)	Exceedance (Y/N)
				Leq dB(A)	L90 dB(A)	L10 dB(A)					
5-Aug-24	Fine	0.5	14:00	56.9	55.1	58.3	65	56.9	≤ Limt Level	75	N
17-Aug-24	Fine	0.3	13:00	56.9	55.1	58.7	65	56.9	≤ Limt Level	75	N
22-Aug-24	Fine	0.3	10:35	58.1	55.7	60.1	65	58.1	≤ Limt Level	75	N
28-Aug-24	Fine	0.4	10:02	56.3	54.2	59.0	65	56.3	≤ Limt Level	75	N

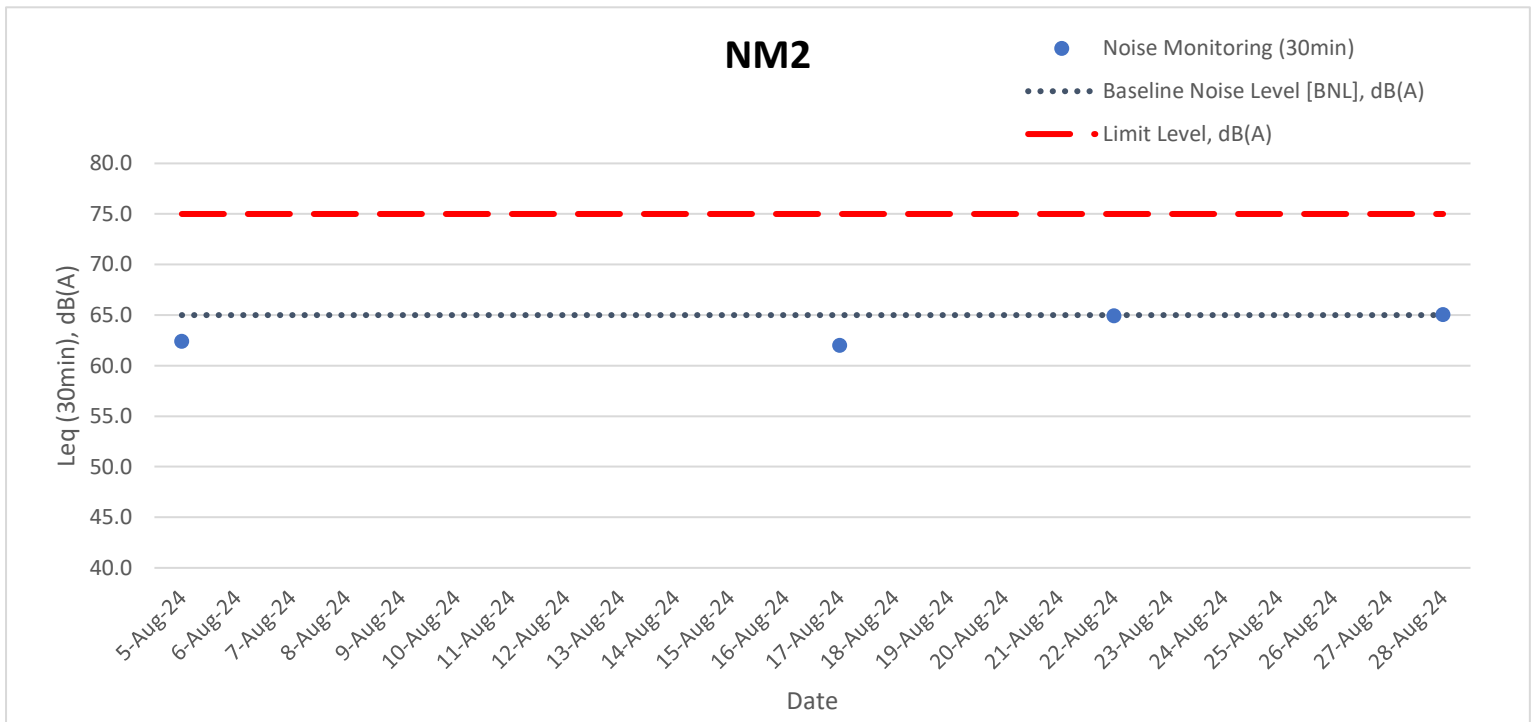
NM 2 (Building along Shun Lung Street)

Date	Weather Condition	Wind speed (m/s)	Start time	Noise Monitoring (30min)			Baseline Noise Level [BNL], dB(A)	Construction Noise Level [CNL]#, dB(A)		Limit Level, dB(A)	Exceedance (Y/N)
				Leq dB(A)	L90 dB(A)	L10 dB(A)					
5-Aug-24	Fine	0.2	13:10	62.4	60.9	64.3	65	62.4	≤ Limt Level	75	N
17-Aug-24	Fine	0.3	11:10	62.0	56.8	64.0	65	62.0	≤ Limt Level	75	N
22-Aug-24	Fine	0.1	10:20	64.9	60.8	67.3	65	64.9	≤ Limt Level	75	N
28-Aug-24	Fine	0.3	9:20	65.1	61.3	67.1	65	65.1	≤ Limt Level	75	N

*A correction of +3 dB(A) was made to the free field measurments.

#If measured noise level (Leq) > limit level, Corrected noise level (CNL) is calculated as: $10\log(10^{MNL/10}-10^{BNL/10})$


NM1
Noise Monitoring (30min)
Baseline Noise Level [BNL], dB(A)
Limit Level, dB(A)
Leq (30min), dB(A)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
5-Aug-24
6-Aug-24
7-Aug-24
8-Aug-24
9-Aug-24
10-Aug-24
11-Aug-24
12-Aug-24
13-Aug-24
14-Aug-24
15-Aug-24
16-Aug-24
17-Aug-24
18-Aug-24
19-Aug-24
20-Aug-24
21-Aug-24
22-Aug-24
23-Aug-24
24-Aug-24
25-Aug-24
26-Aug-24
27-Aug-24
28-Aug-24
Date


NM2
Noise Monitoring (30min)
Baseline Noise Level [BNL], dB(A)
Limit Level, dB(A)
Leq (30min), dB(A)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
5-Aug-24
6-Aug-24
7-Aug-24
8-Aug-24
9-Aug-24
10-Aug-24
11-Aug-24
12-Aug-24
13-Aug-24
14-Aug-24
15-Aug-24
16-Aug-24
17-Aug-24
18-Aug-24
19-Aug-24
20-Aug-24
21-Aug-24
22-Aug-24
23-Aug-24
24-Aug-24
25-Aug-24
26-Aug-24
27-Aug-24
28-Aug-24
Date

Appendix 6 Event and Action Plan

Event and Action Plan for Air Quality (Construction Noise)

Event	Action			
	ET Leader	IEC	ER	Contractor
Action level	1. Carry out investigation to identify the source and cause of the complaint/ exceedance(s); 2. Notify IEC, ER, and Contractor and report the results of investigation to the Contractor, ER and the IEC; 3. Discuss with the Contractor and IEC for remedial measures required; 4. If the complaint is related to the Project, conduct additional monitoring for checking mitigation effectiveness and report the findings and results to the IEC, ER and the Contractor.	1. Review the analyzed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of Notification of Exceedance in writing; 2. Require Contractor to propose remedial measures for the analyzed noise problem; 3. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals, if required, to the IEC and ER; 2. Implement noise mitigation proposals.
Limit Level	1. Carry out investigation to identify the source and cause of the exceedance; 2. Notify IEC, ER, Project Proponent, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Provide investigation report to IEC, ER, EPD and Contractor he causes of the exceedances; 5. If the exceedance is related to the Project, assess effectiveness by additional monitoring; 6. Report the remedial action implemented and the additional monitoring results to IEC, EPD, ER and Contractor; 7. If exceedance stops, cease additional monitoring.	1. Review the analyzed results submitted by the ET 2. Discuss the potential remedial measures with ER, ET Leader and Contractor 3. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 4. Supervise the implementation of remedial measures.	1. Confirm receipt of Notification of Exceedance in writing; 2. Require the Contractor to propose remedial measures for the analyzed noise problem; 3. Ensure remedial measures are properly implemented; 4. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor, in agreement with the Project Proponent, to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant activity of works as determined by the Project Proponent until the exceedance is abated.

Event and Action Plan for Air Quality (Landscape and Visual)

Event	Action			
	ET Leader	IEC	ER	Contractor
Non-conformity on one occasion	1. Inform the Contractor, IEC and ER; 2. Discuss remedial actions with IEC, ER and Contractor; 3. Monitor remedial actions until rectification has been completed.	1. Check inspection report; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures.	1. Identify source and investigate the non-conformity; 2. Implement remedial measures; 3. Amend working methods agreed with ER as appropriate; 4. Rectify damage and undertake any necessary replacement.
Repeated Non-conformity	1. Identify source(s); 2. Inform the Contractor, IEC and ER; 3. Discuss inspection frequency; 4. Discuss remedial actions with IEC, ER and Contractor; 5. Monitor remedial actions until rectification has been completed; 6. If non-conformity stops, cease additional monitoring.	1. Check inspection report; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures.	1. Notify the Contractor; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise implementation of remedial measures.	1. Identify source and investigate the non-conformity; 2. Implement remedial measures; 3. Amend working methods agreed with ER as appropriate; 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by ER until the non-conformity is abated.

Event and Action Plan for Air Quality (Water Quality)

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level being exceeded by one sampling day	1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER.	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD.	1. Confirm receipt of notification of exceedance in writing.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice.
Action Level being exceeded by two or more consecutive sampling days	1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented.	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented; 3. Ensure additional mitigation measures are properly implemented.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Consider changes of working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.
Limit Level being exceeded by one sampling day	1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented.	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented; 4. Request Contractor(s) to critically review the working methods.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.
Limit Level being exceeded by two or more consecutive sampling days	1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented.	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented; 4. Request Contractor(s) to critically review the working methods.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.

Notes:
ET – Environmental Team, IEC – Independent Environmental Checker; ER = Engineering Representatives

Appendix 7 Waste Flow Table

Monthly Summary Waste Flow Table for 2024 (year)

Name of Person completing the record: Yoyo Leung (Environmental Officer)

Project : Expansion of Sha Tau Kok Sewage Treatment Works Phase 1 and Village Sewerage in Tong To Contract No.: DC/2018/03

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m^3)
Jan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.033
Feb	0.047	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.027
Mar	0.216	0.000	0.000	0.000	0.216	0.000	0.000	0.000	0.000	0.000	0.023
Apr	0.024	0.000	0.000	0.000	0.024	0.000	0.000	0.000	0.000	0.000	0.013
May	0.057	0.000	0.000	0.000	0.057	0.000	0.000	0.000	0.000	0.000	0.013
Jun	0.005	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.015
Sub-total	0.349	0.000	0.000	0.000	0.349	0.000	0.000	0.000	0.000	0.000	0.124
Jul	0.016	0.000	0.000	0.000	0.016	0.000	0.000	0.000	0.000	0.000	0.025
Aug	0.115	0.000	0.000	0.000	0.115	0.000	0.000	0.000	0.000	0.000	0.033
Sep											
Oct											
Nov											
Dec											
Total	0.480	0.000	0.000	0.000	0.480	0.000	0.000	0.000	0.000	0.000	0.182
2019	1.787	0.005	0.000	0.000	1.787	0.000	0.000	0.000	0.000	0.000	0.137
2020	3.316	0.000	0.000	0.000	3.321	0.000	0.000	0.000	0.000	0.000	0.703
2021	18.846	0.000	0.000	0.000	18.846	0.000	0.000	0.000	0.000	0.000	0.206
2022	15.129	0.000	0.000	0.000	15.129	0.000	0.000	0.000	0.000	0.000	0.461
2023	1.587	0.000	0.000	0.000	2.324	0.000	0.000	0.000	0.000	0.000	0.635
2024	0.480	0.000	0.000	0.000	0.480	0.000	0.000	0.000	0.000	0.000	0.182
Cumulative	41.145	0.005	0.000	0.000	41.887	0.000	0.000	0.000	0.000	0.000	2.324

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(2) Plastics refer to plastic bottles/containers, plastic sheets/ foam from packaging materials.

(3) Broken concrete for recycling into aggregates.

Appendix 8 Implementation Status of Environment Mitigation Measures

Environmental Mitigation Implementation Schedule

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	Air Quality Impact		
S3.7.1	• Dust control measures stipulated in the Air Pollution Control (Construction Dust) Regulation shall be implemented during the construction of the Project to control potential fugitive dust emissions.	Construction Sites / Construction Phase	Implemented
	• Regular water spraying on exposed area.		Implemented
	• Vehicle wheel-washing and body washing facilities shall be provided at the site entrance.		Implemented
	• Shielding or covering with impervious sheet of stockpiled materials or exposed area when it is not used to reduce dust nuisance		Implemented
	• Site practices such as regular maintenance and checking of the diesel driven PMEs should be adopted to avoid any black smoke emissions and to reduce gaseous emissions		Implemented
	• Open trench construction of the gravity sewers, each work front should be around 20m to 30m in length to control potential dust emission.		N/O
S3.6.1	• The existing sewage pumping station and rising mains should be cleaned and flushed out properly to clear away any remaining potential sources of odour emission, such as sewage sludge from the facilities. The decommissioning including removal of the pumping station and rising mains should take place after the cleaning and flushing out.		N/O
S3.9.1	• Regular site inspections on a weekly basis shall be carried out in order to confirm that the mitigation and control measures are properly implemented and are working effectively to ensure proper control of construction dust and gaseous emissions.		Implemented
S3.7.2	• To minimize odour problem, the sludge tankers for disposal of sludge shall be fully enclosed	TSTP / Operation Phase	Implemented
	• Sludge produced will be thickened and dewatered to 30% dry solids prior to disposal at the landfill.		N/A
	• Deodourizing facility using activated carbon filters and/or bio-trickling filters were equipped for both TSTP.	TSTP / Design Phase / Operation Phase	Implemented
	• The deodorization system would undergo maintenance annually or when the average odour removal efficiency of deodorization facility is smaller than the required odour removal efficiency.		N/A
	• Ventilation system was provided inside the TSTP to ensure adequate air change within the plant.		Implemented
S3.9.2	• A commissioning test is recommended to be performed for the operation phase to ascertain the effectiveness of the deodorization systems at the TSTP. Exhaust air flow rate, temperature of exhaust, odour concentrations at the outlet of the deodorization systems should be monitored during the commissioning test. (completed)	Operation Phase	N/A
	• Weekly monitoring of odour emission at the exhausts at TSTP by taking odour samples is recommended to be conducted in the first two months of the first year of the operation. (i.e. August to September 2020 - completed)		N/A
	• Provided that the monitoring results show no non-compliance on a weekly basis during the first two months, it is recommended to reduce the frequency to monthly in the subsequent four months (i.e. October 2020 to January 2021) and further reduce to quarterly in the remaining six months of the first year if no non-compliance is found. If there is any non-compliance, the operator should inspect the deodorization unit. Frequency of odour monitoring should not be reduced unless no non-compliance is found. Quarterly odour monitoring is also recommended to continue in the second year of the operation (i.e. August 2021 to July 2022). If compliance can be achieved consistently throughout the first two years of operation, the Project Proponent may propose and seek approval with EPD to reduce monitoring frequency to every six month or yearly basis for subsequent years of operation.	TSTP / Operation Phase	Implemented

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
S3.9.2	• Odour patrol is proposed during the period of maintenance or cleaning of the deodorization system for TSTP. It is generally defined as Level 0 to Level 4 in which Level 0 means no odour and Level 4 means unacceptable odour. If Level 3 – 4 is reported and the source of odour is confirmed to be originated from the exhaust of TSTP, the operator should be notified immediately and should investigate and rectify the problem of the cleaning or maintenance works within 24 hours in order to restore the level to below Level 2.	TSTP / Operation Phase	N/A
Noise Impact			
S4.8	• Use of quiet PME / quiet construction method.	Construction Sites / Construction Phase	Implemented
	• Movable noise barriers of 3 m in height with skid footing should be used and located within a few metres of stationary plant and mobile plant such that the line of sight to the NSR is blocked by the barriers. The length of the barrier should be at least five times greater than its height. The noise barrier material should have a superficial surface density of at least 7 kg m-2 and have no openings or gaps. (no demolition works)		Implemented
	• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction phase.		Implemented
	• Silencers or mufflers on construction equipment should be utilised and properly maintained during the construction phase.		Implemented
	• Mobile plant, if any, should be sited as far away from NSRs as possible.		Implemented
	• Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.		Implemented
	• Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.		Implemented
	• Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.		N/O
	• The construction activities should be planned and carried out in sequence rather than simultaneously at each location. Therefore, only one unit of each type of equipment should be operated at any one time.		N/O
	• Open trench construction of the gravity sewers, each work front should be around 20 m to 30 m in length.		N/O
	• Include noise levels specification when ordering new equipment items.		Implemented
	• Develop and implement a regularly scheduled equipment maintenance programme so that equipment items are properly operated and serviced. The programme should be implemented by properly trained personnel.	Construction Sites / Operation Phase	N/A
S4.11	• Designated monitoring stations as defined in EM&A Manual/During construction phase.	NM1 and NM2 / Construction Phase	Implemented
Water Quality Impact			
S5.9.3	• Furthermore, a number of standard measures and good site practices should be implemented to avoid/ minimize the potential impacts from marine construction. These measures include: - All vessels should be well maintained and inspected before use to limit any potential discharges to the marine environment; - All vessels must have a clean ballast system; - No soil waste is allowed to be disposed overboard.	Construction Sites / Construction Phase	Implemented

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
S5.9.3	• No discharge of sewage/grey wastewater should be allowed. Wastewater from potentially contaminated area on working vessels should be minimized and collected. These kinds of wastewater should be brought back to port and discharged at appropriate collection and treatment system.	Construction Sites / Construction Phase	Implemented
EP Clause 2.11	• The submarine outfall in Starling Inlet shall be constructed by trenchless method such as Horizontal Directional Drilling or equivalent such that the seabed (except at the diffuser location) will not be disturbed.	Construction Sites / Construction Phase	Implemented
	• Mitigation/ precaution measures recommended in the method statement of submarine outfall construction should be implemented.		Implemented
	• Cofferdam shall be installed at the receiving pit of the diffuser of submarine outfall. Excavation of sediment and construction of the diffuser shall be conducted in dry condition within the fully drained cofferdam.		N/A
S5.9.4	**General Construction Activities** • Standard site practices outlined in ProPECC PN 2/23 "Construction Site Drainage" should be followed as far as practicable in order to reduce surface runoff, minimize erosion, and also to retain and reduce any SS prior to discharge.	Land Sites and Drainage Sites / Construction Phase	Implemented
	• Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from runoff to meet the requirements of the TM standard under the WPCO. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 2/23.		Implemented
	• All drainage facilities and erosion and sediment control structures should be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be removed regularly.		Implemented
	• Earthworks to form the final surfaces should be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.		Implemented
	• Appropriate surface drainage should be designed and provided where necessary.		Implemented
	• The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94.		Implemented
	• Oil interceptors should be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.		N/O
	• Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge, if any, should be adequately designed for the controlled release of storm flows. The temporary diverted drainage, if any, should be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.		N/O
S5.9.5	• Appropriate infiltration control, such as cofferdam wall, should be adopted to limit groundwater inflow to the excavation works areas in the Project site. Groundwater pumped out from excavation area should be discharged into the storm system via silt removal facilities.		Implemented
S5.9.6	• If needed, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment.		Implemented
S5.9.7	**Spillage of Chemicals** • Site drainage should be well maintained, and good construction practices should be observed to ensure that oil, fuels, solvents and other chemicals are managed, stored and handled properly and do not enter the nearby streams or marine water.		Implemented

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
S5.9.9	• The following design measures are also provided in the TSTP and the expanded STKSTW to avoid the risk of emergency discharge: - Provision of dual power supply and backup generator to eliminate the risk of power failure; - Provision of standby equipment (online and on-shelf) for all treatment units; - Operation of STKSTW is under 24-hour monitoring by Shift Team of Sha Tau Kok (for new STKSTW) and/or Shek Wu Hui STW in order to allow inspection and any necessary repair works by DSD at the earliest possible time; - A remote control and monitoring system (SCADA) will also be installed to allow off-site DSD staff (Shift Team) to monitor the operation of STKSTW; and - Provision of on-site storage of raw sewage up to 6 hours for the TSTP and STKSTW	TSTP / Operation Phase	Implemented
S5.9.10	• Additional measures provided to avoid plant failure associated fine screen include: - 2 duties + 1 standby fine screens would be provided; - Uninstalled spare parts would be provided; - Monitoring equipment of fine screens would be installed; - Routine inspection and scheduled maintenance works would be strengthened and carried out regularly; and - Equipment and necessary measures such as lifting opening would be provided to shorten the time required for replacement of screen.	Operation Phase	N/A
S5.9.12	• To avoid cross-connection of the reclaimed water supply to the potable water supply, the pipes for the reclaimed water will be specially arranged to differentiate them from that of the potable water pipe, e.g. clearly labelled with warning signs and notices, colour-coded, and/or using different pipe size.	Operation Phase	N/A
	• Caution would also be taken to avoid the use of high-pressure jet in cleansing and landscape irrigation to minimize aerosol formation from the reclaimed effluent.		N/A
S5.12.1	• Marine water quality monitoring at selected WSRs is recommended for installation, maintenance and removal of sheetpile and sediment removal works under this Project. Site audit would also be conducted throughout the marine and land-based construction under this Project. Details environmental monitoring procedures and audit requirements are provided in the standalone EM&A manual.	FCZ1A, SGA, M1A, H1A, H4A, N1 & N2 / Construction Phase	Implemented
S5.12.2	• Marine water quality monitoring at selected WSRs is recommended for the first year of (1) interim operation of the TSTP, (2) operation of phase 1 and (3) phase 2 expansion of the STKSTW. Follow-up water quality monitoring should be commenced within 24 hours after an emergency discharge event and continue until the recovery of water quality. Monitoring of effluent quality would also be required for WPCO permit requirement. Detailed environmental monitoring procedures are provided in the standalone EM&A manual. (completed in July 2021)	Operation Phase	N/A
Waste Management and Land Contamination			
S6.6.1	• An Environmental Management Plan (EMP) in accordance with ETWB TCW No. 19/2005 – "Environmental Management on Construction Sites" should be prepared by the main Contractor of each construction contract upon appointment. The EMP should describe the arrangements for avoidance, reduction, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities.	Construction Sites / Construction Phase	Implemented
S6.6.3	• An appropriate person, such as site agent or environmental officer should be nominated, to be responsible for good site practices, arrangement for collection and effective disposal of all wastes generated at the site to an approved facility. Training of construction staff should be undertaken by the Contractor about the concept of site cleanliness and appropriate waste management procedures. Requirements for staff training should be included in the EMP.		Implemented
S6.6.4	• Good planning and site management practices should be employed to eliminate over ordering or mixing of construction materials to reduce wastage. Regular cleaning and maintenance of the waste storage area should be provided.		Implemented

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
S6.6.5	• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be implemented in accordance with DEVB TCW No. 6/2010. In order to monitor the disposal of C&D materials and solid wastes at public ill reception facilities and landfills and to control fly-tipping, a trip-ticket system should be included.	Construction Sites / Construction Phase	Implemented
S6.6.6	• Imported soft fill and rocks, if required, should be sourced from CEDD's fill bank, other projects or other approved sources instead of using new materials. Approval from the Engineer and all other relevant parties should be obtained by the Contractor before importation of the fill materials.	Construction Phase	N/O
S6.6.7	• All waste materials should be segregated into categories covering: - inert C&D materials suitable for public filling facilities; - recyclable materials / waste - remaining non-inert C&D materials for landfill; - spent bentonite for public filling facilities; - chemical waste; and - general refuse for landfill	Construction Sites / Construction Phase	Implemented
S6.6.9	• Proper segregation and disposal of construction waste should be implemented. Separate containers should be provided for inert and non-inert wastes.		Implemented
S6.6.11	• The reuse of inert C&D materials such as soil, rock and broken concrete should be maximised. Waste should be separated into fine, soft and hard materials.		Implemented
S6.6.12	• Prior to export of material from the site, the potential for it to be reused should be assessed. Most C&D materials can easily be reused with minimum processing. Waste separation methods should be followed to ensure that C&D waste is separated at source. Suitable soft materials should be used for landscaping and grading of embankments. Fine material should be separated out and used as topsoil.	Construction Phase	N/A
S6.6.13	• Use of recycled aggregates whenever possible	Design and Construction Phase	N/A
S6.6.14, S6.6.30	• All C&D materials should be sorted on-site into inert and non-inert components by the Contractor. Non-inert C&D materials (C&D waste) such as wood, glass and plastic should be reused and recycled before disposal to a designated landfill as a last resort. Inert C&D materials (public fill) should be reused onsite or in other projects approved by relevant parties before disposed of at public fill reception facilities. Steel and other metals if any should be recovered from C&D materials and recycled.	Construction Sites / Construction Phase	Implemented
S6.6.15	• Good quality reusable topsoil should be stockpiled for later landscaping works. Stockpiles should be less than 2m in height, formed to a safe angle of repose and hydroseeded or covered with tarpaulin to prevent erosion during the rainy season and to minimise dust generation.		Implemented
S6.6.16	• Control measures for temporary stockpiles on-site should be taken in order to minimize the noise, generation of dust, pollution of water and visual impact.		Implemented
S6.6.17	• The public fill to be disposed to public fill reception facilities must consist entirely of inert construction materials. Disposal of C&D waste to landfill must not have more than 50% by weight of inert material. The C&D waste delivered for landfill disposal should contain no free water and the liquid content should not exceed 70% by weight.		Implemented
S6.6.18	• In order to avoid dust or odour impacts, any vehicles leaving a works area carrying C&D waste or public fill should have their load covered up before leaving the construction site.		Implemented

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
S6.6.20	• With reference to the Sediment Quality Report in the EIA, only Category L sediment was identified. In accordance with ETWB TCW No. 34/2002, Type 1 – Open Sea Disposal should be adopted for the disposal of 3,040 m 3 excavated sediment during construction of the proposed outfall diffuser. The location of marine disposal site should be sought with MFC/CEDD. The Contractor shall obtain a Marine Dumping Permit in accordance with the Dumping at Sea Ordinance. The Contractor should provide separate submissions (e.g. Sediment Sampling and Testing Plan / Sediment Quality Report) to EPD / DASO authority when applying for the marine dumping permit under the Dumping at Sea Ordinance.	Construction Sites / Construction Phase	N/A
S6.6.21	• Bentonite slurry used in the drilling works should be treated and recycled at the works area in STKSTW. Any bentonite that is not suitable for recycling should be suitably dewatered before disposed of at public fill reception facilities.		Implemented
S6.6.22 & S6.6.37	• Where the construction/ operation processes produce chemical waste, the Contractor must register with EPD as a chemical waste producer. Wastes classified as chemical wastes are listed in the Waste Disposal (Chemical Waste) (General) Regulation. These wastes are subject to stringent disposal routes. EPD requires information on the particulars of the waste generation processes including the types of waste produced, their location, quantities and generation rates. A nominated contact person must be registered with EPD.	Construction Sites / Construction and Operation Phase	Implemented
S6.6.23 & S6.6.37	• Storage, handling, transport and disposal of chemical waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by EPD, and should be collected by a licensed chemical waste collector.		Implemented
S6.6.24 & S6.6.37	• Suitable containers should be used for specific types of chemical wastes, containers should be properly labelled (English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations), resistance to corrosion, safely stored and securely closed. Stored volume should not be kept more than 450 liters unless the specification has been approved by the EPD. Storage area should be enclosed by three sides by a wall, partition of fence that is at least 2 m height or height of tallest container with adequate ventilation and space.		Implemented
S6.6.25 & S6.6.37	• Hard standing, impermeable surfaces draining via oil interceptors should be provided in works area compounds. Interceptors should be regularly emptied to prevent release of oils and grease into the surface water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain. Oil and fuel bunkers should be bunded and/or enclosed on three sides to prevent discharge due to accidental spillages or breaches of tanks. Bunding should be of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste, whichever is largest. Waste collected from any grease traps should be collected and disposed of by a licensed contractor.		Implemented
S6.6.26 & S6.6.37	• Lubricants, waste oils and other chemical wastes are likely to be generated during the maintenance of vehicles and mechanical equipment. Used lubricants should be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. If possible, such waste should be sent to oil recycling companies, and the empty oil drums collected by appropriate companies for reuse or refill.		Implemented
S6.6.27	• The registered chemical waste producer (i.e. the Contractor has to arrange for the chemical waste to be collected by licensed collectors. The licensed collector should regularly take chemical waste to a licensed chemical waste treatment facility (such as the Chemical Waste Treatment Centre in Tsing Yi). A trip ticket system operates to control the movement of chemical wastes.	Construction Sites / Construction Phase	Implemented
S6.6.28	• No lubricants, oils, solvents or paint products should be allowed to discharge into water courses, either by direct discharge, or as contaminants carried in surface water runoff from the construction site.		Implemented
S6.6.29	• All wooden materials used on-site should be kept separate from other wastes to avoid damage and to facilitate reuse. Timber which cannot be reused should be sorted out from other waste and stored separately from all inert waste before being disposed of to landfill.	Construction Phase	N/A

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
S6.6.32	• General refuse generated on-site should be stored in enclosed bins or skips and collected separately from other construction and chemical wastes and disposed of at designated landfill. A temporary refuse collection point should be set up by the Contractor at the works area to facilitate the collection of refuse by licensed waste collector. The removal of waste from the site should be arranged on a daily or at least on every second day by the Contractor to minimise any potential odour impacts, minimise the presence of pests, vermin and other scavengers and prevent unsightly accumulation of waste.	Construction Sites / Construction Phase	Implemented
S6.6.33	• The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.		Implemented
S6.6.35	• Dewatered sludge should be delivered by sealed sludge tanker for treatment at the Sludge Treatment Facility in Tuen Mun.	Operation Phase	N/A
S6.6.36	• Screenings should be collected and stored in covered containers before disposed of at landfill. Likewise, worn membrane filters and general refuse should be properly stored and disposed of at landfill.		N/A
	Ecology		
S7.7.3	• Erect fences along the boundary of the works area before the commencement of works to prevent vehicle movements and encroachment of personnel onto adjacent areas.	Construction Sites / Construction Phase	Implemented
	• Regularly check the work site boundaries to ensure that they are not breached, and that damage does not occur to surrounding areas.		Implemented
	• Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the surrounding habitats through proper management of waste disposal.		Implemented
	• To avoid/ minimise the potential disturbance on the Night Roosting Site for Great Egret if confirmed to be continuing their usage before the construction activities, major noisy works such as concrete breaking should not be undertaken within an area of 100m from the Night Roosting Site after 16:00 under normal working hours. (i.e. 16:00 to 07:00 of the following day).		N/A
	• Strong artificial lighting should not be used in the area at night to avoid disturbance to the roosting ardeids.		N/A
	Landscape and Visual		
Table 9.6 of EM&A Manual	**<u>Preservation of Existing Vegetation</u>** • Existing trees designated to be retained in-situ should be properly protected. Tree protection measures to be undertake shall be in accordance with DEVB TC(W) 7/2015 on "Tree Preservation" and Guidelines on Tree Preservation during Development" by DEVB. This may include the clear demarcation and fencing-off of tree protection zones, tight site supervision and monitoring to prevent tree damage by construction activities, and periodic arboricultural inspection and maintenance to uphold tree health. A total of around 108 nos. of trees should be retained in-situ within the tree survey area.	Construction Sites / Construction Phase	Implemented
	<u>Preservation of Existing Vegetation (con't)</u> • Under current proposal, no tree is recommended to be transplanted since the trees in conflict with the proposed works are not suitable to be transplanted. However, should transplantation be proposed in the detailed design stage after an update tree survey, the recommended final recipient sites should be adjacent to their current locations. Enough time should be reserved for tree transplantation works to increase the survival rate of the transplanting trees. To ensure the survival of transplanted trees, protection work should be considered. The tree transplantation proposal shall be submitted to relevant authorities for approval together with the formal tree removal application. Tree transplanting works shall be undertaken in accordance with Guidelines on Tree Transplanting by DEVB.		Implemented

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
Table 9.6 of EM&A Manual	**Control of Site Construction Activities** • Construction site controls shall be enforced, where possible, to ensure that the landscape and visual impacts arising from the construction phase activities are minimised. These construction site controls should include but not limited to the following: - Storage of materials should be carefully arranged to minimise potential landscape and visual impact. - The location and appearance of site accommodation should be carefully designed to minimize potential landscape and visual impact. - Site lighting should be carefully designed to prevent light spillage, - Extent of the works area and construction period should be minimised as far as practicable. - Screen hoarding with compatible design to blend into the surrounding natural environmental should be considered (Screen hoarding may not be practicable for works of upgrading existing rising mains due to the spatial constraints of the works area along the Shun Hing Street). - Temporary works areas should be reinstated at the earliest possible opportunity.	Construction Sites / Construction Phase	Implemented
Table 9.7 of EM&A Manual	**Suitable design of the proposed TSTP** • Colour of natural tones and non-reflective building materials shall be used for any outward facing building facades to avoid visual and glare disturbance; • Responsive lighting design. - Directional and full cut off lighting is recommended within the boundaries of STKSTW to minimise light spillage to the surroundings; - Minimise geographical spread of lighting, only applying for safety at the key access points of the STKSTW; and - Limited lighting intensity to meet the minimum safety and operation requirement.	Construction Sites / Design and Construction Phase	Implemented
Cultural Heritage			
S10.3.50	• Undertake trenchless excavation in the vicinity of the Tin Hau Temple and provide a buffer zone of 10m between the works area for the open cut section and the Tin Hau Temple.	Construction Phase	N/O
S10.3.51	• A condition survey and vibration impact assessment should be undertaken and if construction vibration monitoring and structural strengthening measures are required.		N/A
S10.3.52	• Vibration and settlement monitoring should also be undertaken during the construction works to ensure that safe levels of vibration are not exceeded, if it is recommended in the condition survey report.		N/A
S10.3.53	• If the maximum level is exceeded all works must stop and the structure must be examined to determine if it has been damaged. The contractor must also take measures, such as using smaller pneumatic drills to ensure that the levels are reduced to acceptable limits.		N/A
S10.3.54	• If at any time during the construction period, the foundation of the structure is affected by the works; the works shall be immediately suspended and the AMO notified. If the works cause any damage to the structures, the proponent should be responsible for the restoration and repair at their own cost. A method statement should be submitted to AMO for comment and the works should be under AMO's supervision.		N/O
S10.3.55	• Protective covering should be provided as an additional mitigation measure to the Tin Hau Temple.		N/O

Note:
*N/A = Not applicable at current stage
N/O = Not observed in the site walk
Implemented = Compliance
Not Implemented = Non-compliance

Appendix 9 Weather and Meteorological Conditions

August 2024 Weather

Station: Hong Kong Observatory

Date	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)		
August 2024						
1	1008.2	32.9	30.2	28.2	79.0	2.3
2	1007.8	31.5	29.8	28.2	81.0	0.4
3	1008.7	33.3	30.4	28.7	76.0	0.0
4	1007.8	34.2	30.7	28.3	76.0	0.0
5	1005.7	35.4	31.8	29.3	76.0	0.0
6	1005.4	34.9	30.6	26.6	78.0	10.3
7	1006.5	33.7	30.7	28.6	79.0	0.0
8	1006.7	33.2	30.7	29.3	77.0	0.0
9	1005.6	33.0	30.4	28.7	76.0	0.0
10	1004.1	32.7	30.5	29.0	79.0	Trace
11	1003.1	32.0	30.3	29.2	81.0	0.0
12	1004.1	31.8	29.2	26.0	85.0	20.9
13	1006.0	33.4	29.7	28.0	82.0	5.0
14	1006.3	30.5	29.2	28.2	82.0	0.1
15	1005.2	29.9	27.7	26.0	88.0	8.0
16	1005.1	29.5	27.7	26.5	84.0	0.4
17	1006.7	28.8	27.3	25.2	92.0	116.2
18	1006.1	30.3	28.3	25.8	87.0	32.5
19	1004.5	28.8	28.0	26.9	88.0	19.3
20	1006.3	28.5	27.5	25.6	89.0	11.4
21	1009.8	28.2	27.1	26.3	87.0	3.9
22	1010.4	32.0	28.9	26.6	83.0	0.0
23	1010.5	31.4	29.3	28.0	82.0	0.0
24	1009.3	34.3	30.2	28.1	77.0	0.0
25	1008.0	33.7	30.1	28.0	75.0	0.0
26	1006.7	33.8	30.3	28.4	75.0	0.0
27	1005.4	34.1	30.6	28.5	74.0	0.0
28	1003.5	34.8	30.7	27.6	75.0	Trace
29	1004.6	33.6	30.5	28.3	76.0	Trace
30	1006.9	33.7	30.3	27.9	82.0	23.3
31	1008.2	32.2	29.6	27.8	84.0	7.5

Note (From Hong Kong Observatory):
Trace means rainfall less than 0.05 mm

Source: Hong Kong Observatory

Appendix 10 Cumulative statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

Environmental Complaints Log

Reference	Date of Complaint	Received From	Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	1	0	1
Noise	2	0	2
Water	0	0	0
Waste Management	3	0	3

Cumulative Statistics on Notification of Summons and Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste Management	0	0	0

Appendix 11 Summary of Site Audit

Summary of Site Environmental Audit in the Reporting Month

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	NA		
Noise	NA		
Water Quality	NA		
Chemical and Waste Management	NA		
Land Contamination	NA		
Ecological Impact	NA		
Landscape and Visual Impact	NA		
Permit / Licenses	28/08/2024	Reminder 1: The faded NRMM label should be replaced.	NA
Others	NA		

Contract no. CM 02/2024
Expansion of Sha Tau Kok Sewage Treatment Works
Photo Record for Environmental Site Walk

Observed on 28 August 2024
Reminder(s)
Reminder 1
The faded NRMM label should be replaced.


Appendix 12 Outstanding Issues and Deficiencies

Summary of Outstanding Issues and Deficiencies in the Reporting Month

Parameters	Outstanding Issues	Deficiencies
Air Quality	NA	Any items of deficiencies can be referred to **Appendix 11**.
Noise	NA	
Water Quality	NA	
Chemical and Waste Management	NA	
Land Contamination	NA	
Landscape and Visual Impact	NA	
Permit / Licenses	NA	
Others	NA	

Appendix 13 The on-site time & duties of ET and IEC

On-site Time & duties for the Team of ET and IEC

On-site Time & duties for the Team ET of during the reporting month		
Works to be carried on-site	**Purposes**	**Actual Man-hour per week**
Environmental site inspection (3, 10, 17, 24 & 29 May 2024)	• To audit and assess the effectiveness of the Contractor's site practice and work methodologies regarding on environmental and landscape & visual mitigation measures as stipulated in the EM&A Manual. • To take pro-active actions to pre-empt environmental problems. • To audit compliance with the intended aims of the measures implemented by the Contractor. • The findings will notify to the Contractor at the time of inspection to enable the rapid resolution of identified non- conformities. • To carry out the follow-up actions if non-conformities identified during the site inspection.	3 hours per week
Keeping and logging records in the log-ook	• To keep a contemporaneous log-book of any such instance or circumstance or change of circumstances.	1 hours per week
Impact noise monitoring (3, 10, 17, 24 & 29 May 2024)	• To carry out impact noise monitoring at each station at 0700-1900 hours on normal weekdays; per week when construction activities are underway. • To check the performance of monitoring and to track the varying environmental impact. • To carry out remedial actions described in the Event/Action Plans of the EM&A Manual in accordance with the time frame set out in the Event/ Action Plans in case where specified criteria in the EM&A Manual are exceeded.	3 hours per week
Meeting with the ER, IEC, and contractor (3, 10, 17, 24 & 29 May 2024)	• To discuss with ER, IEC and Contractor any observations that improvement works is required to enhance the overall environmental performance; liaise with Contractor on any environmental non-compliance identified and follow up actions taken. • To liaise with the Project Proponent, IEC, RSS and other individuals or parties concerning other environmental issues deemed to be relevant to the construction/ operation process. • To review the complaint issue with ER, IEC and Contractor to prevent further complaints.	2 hours per week
Additional Monitoring for Critical work activities (recommended)	**Purposes**	**Additional minimum on-site time**
<u>Construction Phase</u>		
Monitoring of decommission of existing rising main and demolition of sewage pumping station inside the close area of Sha Tau Kok Chuen	• To audit the Contractor's site practice and work methodologies regarding environmental mitigation measures contained in the EM&A Manual. • To check any non-compliance with the construction methodology, mitigation measures and environmental monitoring and audit requirements recommended in the approved Method Statement submitted by the Contractor. • To take pro-active actions to pre-empt environmental problems.	Such work has not yet commenced.

Operation Phase		
Marine Water quality monitoring during the first year of the TSTP	• To obtain water samples from the Water Quality Monitoring Stations as stipulated in the Table 5.3 of EM&A Manual. • To check the monitoring parameter against the Action and Limit Levels stipulated in the Table 4.3 of Baseline Environmental Monitoring Report (Water).	Completed
Continuous monitoring of treated sewage effluent from the TSTP	• To obtain 24-hour flow-weighted composite effluent sample for subsequent chemical analysis and testing. • To check the monitoring parameter against the Action and Limit Levels stipulated in the Table 5.4 of EM&A Manual. • To notify the plant operator for the non-compliance and to identify the cause for the non-compliance if any noncompliance.	Completed
Testing & Commissioning for the TSTP	• To ascertain the effectiveness of the deodorization systems as required in the EM&A at the TSTP and STKSTW during the operation phase.	Completed
Monitoring of odour emission at the exhausts at TSTP	• To check any non-compliance with the monitoring parameter as stipulated in the EM&A Manual	1 hour per six months
Odour patrol during the period of maintenance of the deodorization system for TSTP	• To patrol and sniff along an odour patrol route at the existing STKSTW site boundary. • To carry out the follow-up actions if any exceedance of the Action or Limit Level occurs actions in accordance with the Event/Action Plan presented in Table 3.5 of EM&A Manual should be carried out.	No maintenance of deodorization system for TSTP in the reporting month.

On-site Time & duties for the Team of IEC during the reporting month		
Works to be carried on-site	**Purposes**	**Actual Man-hour per week**
General site inspection or Monthly site inspection	• To ensure the EIA recommendations and EP requirements are complied with. • To review the effectiveness of environmental mitigation measures and environmental mitigation measures and environmental performance of the Project. • To identify any environmental deficiency needs to be improved. • To identify in any environmental non-compliance.	2 x 2 hours general site inspection or 1 x 4 hours monthly site inspection
Inspection of on-site ET Logbook	• To inspect and audit the on-site logbook kept by the ET.	1 hours per week
Audit of Monitoring Works by the ET	• To check, audit and verify the environmental monitoring equipment, procedures, data and results of the environmental monitoring works carried out by the ET.	1.5 hours per week
Meeting with the ER, ET and contractor.	• To discuss with ER, ET and Contractor any observations that improvement works is required to enhance the overall environmental performance. • To discuss with ET, ET and Contractor any environmental non-compliance identified and follow up actions required.	1.5 hours per week
Additional Monitoring for Critical work activities (recommended)	**Purposes**	**Additional minimum on-site time**
<u>Construction Phase</u>		
Monitoring construction works of Submarine Outfall	• To ensure the EIA recommendations and EP requirements are complied with. • To review the effectiveness of environmental mitigation measures and environmental mitigation measures and environmental performance of the Project. • To identify any environmental deficiency needs to be improved. • To identify in any environmental non-compliance.	Completed

Appendix 14 The proposal for Justification on Termination of Emergency Discharge Follow-up Monitoring

Expansion of Sha Tau Kok Sewage Treatment Works (Contract No. CM 02/2024)

Proposal for Justification on Termination of Emergency Discharge Follow-up Monitoring

Drainage Services Department

Revision: 1

2024-09-11

aurecon

Bringing ideas to life

ANEWR

Drainage Services Department
42/F, Revenue Tower
5 Gloucester Road
Wan Chai
Hong Kong

Your reference:

Our reference: HKDSD206/50/109983

Date: 16 September 2024

Attention: Mr Lam Tack Ho, Alex

BY EMAIL & POST
(email: thlam@dsd.gov.hk)

Dear Sirs

Agreement No.: CM 14/2018
Independent Environmental Checker Services for
Expansion of Sha Tau Kok Sewage Treatment Works
Verification of Proposal for Justification on
Termination of Emergency Discharge Follow-up Monitoring

We refer to the emails of 9 and 11 September 2024 from Aurecon Hong Kong Limited, attaching the Proposal for Justification on Termination of Emergency Discharge Follow-up Monitoring.

We have no comment and hereby verify the captioned Proposal in accordance with Section 5.2.22 of the EM&A Manual under EP-517/2017/A.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Alex Chan at 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/CYCA/thy

cc DSD – Mr Alex Leung (email: alexleung_dsd@dc1803.com.hk)
Binnies – Mr Alaster Chan (email: are_em2@dc1803.com.hk)
Aurecon – Mr Kevin Li (email: kevin.li@aurecongroup.com)

ANewR Consulting Limited
Unit 1813, 1815-16, 18/F, Tower A, Regent Centre
63 Wo Yi Hop Road, Kwai Chung, Hong Kong
Tel: (852) 2618 2831 Fax: (852) 3007 8648
Email: info@anewr.com
Web: www.anewr.com

ISO 9001 : 2015
Certificate No.: CC 3988

Document control record

Document prepared by:

Aurecon Hong Kong Limited

Unit 1608, 16/F, Tower B, Manulife Financial Centre,
223 – 231 Wai Yip Street, Kwun Tong, Kowloon
Hong Kong S. A. R.

T +852 3664 6888
F +852 3664 6999
E hongkong@aurecongroup.com
W aurecongroup.com

Document control						aurecon
Report title		Proposal for Justification on Termination of Emergency Discharge Follow-up Monitoring				
Document code		PJTEDFM-01	**Project number**		P526333	
File path						
Client		Drainage Services Department				
Client contact			**Client reference**			
Rev	**Date**	**Revision details/status**	**Author**	**Reviewer**	**Verifier** (if required)	**Approver**
0	2024-09-05	Submitted to IEC	Toby Wan	Ray Yan		Kevin Li
1	2024-09-11	Revised According to Comments	Toby Wan	Ray Yan		Kevin Li
Current revision		**1**				

Approval			
Author signature		Certified by	
Name	Toby Wan	Name	Kevin Li
Title	Environmental Team Consultant	Title	Environmental Team Leader

Content

Figure

Appendix

1 Introduction

1.1 Background

1.1.1 The Project is to expand the treatment capacity of the existing Sha Tau Kok Sewage Treatment Works (STKSTW) from 1,660 m^3/day to 10,000 m^3/day in 2 phases. The works for this Project in Sha Tau Kok mainly comprises of the following items:

- Increase the treatment capacity of Sha Tau Kok Sewage Treatment Works (STKSTW) to 5,000 m^3/day at Average Dry Weather Flow (ADWF) by in Phase 1, with suitable allowance to cater for a further increase of treatment capacity to 10,000 m^3/day at ADWF after 2030 in Phase 2;
- Construct a temporary sewage treatment plant (TSTP);
- Demolish the existing Sha Tau Kok Sewage Pumping Station (STKSPS) and decommission the rising main between STKSPS and STKSTW;
- Construct a new gravity sewer; and
- Decommission the existing submarine outfall and construct a new one.

1.1.2 The project site will be located within the existing STKSTW, while the construction of the gravity sewers and the demolition of STKSPS will take place in Sha Tau Kok Town. The proposed submarine outfall is to be constructed using the Horizontal Directional Drilling (HDD) method beneath the seabed of Starling Inlet.

1.1.3 The Environmental Impact Assessment (EIA) Report for the Expansion of Sha Tau Kok Sewage Treatment Works (Register No: AEIAR-207/2017) was approved on 14 February 2017. A variation of an Environmental Permit (EP) (Permit No.EP-517/2017/A) was issued on 18 October 2019, which is the current permit for the project.

1.2 Purpose of this Justification

1.2.1 Emergency Discharge was conducted on 28 July 2024, a follow-up marine water quality monitoring was carried out starting from 29 July 2024.

1.2.2 The purpose of this proposal is to substantiate the termination of the follow-up emergency discharge monitoring in accordance with the EM&A requirements for water quality, as detailed in the EM&A Manual.

2 Emergency Discharge Follow-up Monitoring

2.1 Monitoring Requirement

2.1.1 According to the Section 5.2.22 of the EM&A Manual, after the emergency discharge from the TSTP or the expanded STKSTW, a follow-up water quality monitoring exercise shall be commenced within 24 hours after the start of the emergency discharge. The monitoring exercise shall be repeated on the next day until no further exceedance of the Action and Limit Levels at all monitoring stations is recorded for 2 consecutive days. Aurecon is justifying the termination of the Follow-up Emergency Discharge Monitoring.

2.2 Water Quality Parameters

2.1.2 According to the Section 5.2.1 and Table 5.1 of the EM&A Manual, when emergency discharge, the parameters to be measured during follow-up monitoring are listed in **Table 2.1**.

Table 2.1 Parameters Measured in the Emergency Discharge Follow-up Monitoring

Parameters	Unit
***In situ* measurements**	
Dissolved Oxygen	mg/L
Temperature	°C
pH	-
Turbidity	NTU
Salinity	‰
Laboratory measurements	
Suspended Solids	mg/L
Biochemical Oxygen Demand	mg/L
Total Phosphorus	mg/L
Total Nitrogen	mg/L
Ammonia Nitrogen	mg/L
Total Inorganic Nitrogen	mg/L
E. coli	CFU/100 mL

2.3 Water Quality Locations

2.1.3 According to the Section 5.2.8 and Table 5.3 of the EM&A Manual, emergency discharge follow-up monitoring stations are summarized in **Table 2.2** and **Figure 1**.

Table 2.2 Emergency Discharge Follow-up Monitoring Stations

Station	Description	Easting	Northing
FCZ1A	Sha Tau Kok Fish Culture Zone – East	840892	844241
FCZ2	Ap Chau Fish Culture Zone	845701	845691
FCZ7	Temporary Relocation Site for Fish Rafts of the Sha Tau Kok Fish Culture Zone	842282	844451
FCZ8	Temporary Relocation Site for Fish Rafts of the Sha Tau Kok Fish Culture Zone	841511	843959
SGA*	Seagrass Colony	841064	844580
M6A*	Mangrove Stand	843220	845130
H4A*	Horseshoe Crab	840304	843546
N1	Impact Station of the Expanded STKSTW (Ebb Tide)	842863	845378
N2	Impact Station of the Expanded STKSTW (Flood Tide)	842109	844631
C	Control Station	844690	845886

*Remark: Relocation was proposal during the baseline monitoring.

2.4 Monitoring Results and Observation

2.1.4 The water quality monitoring results are summarized in **Table 2.3**. Detailed monitoring data and graphical presentation are presented in **Appendix A**. The Action and Limit Level are presented in **Appendix B**.

2.1.5 The calibration certification for water quality monitoring equipment are provided in **Appendix C**.

Table 2.3 Exceedance Summary of the Emergency Discharge Follow-up Monitoring

	29-Jul	30-Jul	31-Jul	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug
FCZ1A	Turb TN *E.coli* DO (S&M)	TP *E. coli* DO (S&M)	TP DO (S &M)	TP TN DO (S&M)	TSS		DO (S&M)								
FCZ2	TP		TP	TP *E.coli*		TN	TN				BOD5				
FCZ7	TP TN TIN *E. coli*	TSS TP TN *E. coli* DO (B)	TP TN DO (S &M) DO(B)	TP TN DO (B)	TN		TN DO (B)				TP				DO (B)
FCZ8	TN *E.coli*	Turb TSS TIN *E. coli*			TSS									Turb	
SGA	Turb TN *E. coli* DO (S &M)	Turb TSS *E. coli* DO (S &M)	TP DO (S&M)	DO (S&M)				Turb		DO (S&M)					
M6A	TN *E. coli*	TN *E. coli*	TN	TN	TN	TN									

	29-Jul	30-Jul	31-Jul	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug
H4A	Turb TSS TN *E. coli* DO (S&M)	TSS *E. coli*	Turb TN DO (S&M)	DO (S&M)								Turb			
N1	TSS TP TN *E. coli* DO (B)	TSS TP TN *E.coli* DO (B)	TP DO (S&M) DO (B)	DO (B)			TN DO (B)		DO (B)			DO (B)	DO (B)	DO (B)	DO (B)
N2	TP TN *E.coli*	TP TN *E. coli* DO (B)	TP TN DO (S&M) DO (B)	TSS TN DO (S&M) DO (B)			TN DO (B)	DO (B)	DO (B)	DO (S&M) DO (B)					DO (B)

Note: Turbidity (Turb), Total Suspended Solids (TSS), Total Phosphorus (TP), Total Nitrogen (TN), Total Inorganic Nitrogen (TIN), Dissolved Oxygen (Surface and Middle) (DO (S&M)) and Dissolved Oxygen (Bottom) (DO (B)).

2.1.6 The trends of the monitored parameters during the monitoring period are detailed in **Appendix A**. The trend for Turbidity, Suspended Solids, Total Phosphorus, Total Nitrogen, Total Inorganic Nitrogen, *E. coli* began to decline after 2 August 2024.

2.1.7 Considering that the monitoring exercise shall be repeated on the following day until no further exceedance of the Action and Limit Levels at all monitoring stations is recorded for two consecutive days, the monitoring results of the last two days shall be reviewed. Termination of the follow-up monitoring is proposed due to the following reasons:

- On 11 August 2024, one turbidity exceedance and one dissolved oxygen exceedance were recorded at FCZ8 and N1, respectively. For the turbidity exceedance recorded at FCZ8, monitoring stations SGA and FCZ1A were closer to the effluent outfall compared to FCZ8, but no exceedance was recorded at SGA and FCZ1A. Therefore, the turbidity exceedance recorded at FCZ8 should be considered non-project related. For the dissolved oxygen exceedance recorded at N1, the location of N1 was very far from the effluent outfall, and no exceedance was recorded at monitoring station N2, which is situated between the effluent outfall and N1. Hence, the dissolved oxygen exceedance recorded at N1 shall be considered non-project related.
- On 12 August 2024, three dissolved oxygen (DO) exceedances were recorded at FCZ7, N1, and N2. On the monitoring date, the DO level measured at the bottom depth of the control station (C) was very low (2.4 mg/L). The DO levels measured at the bottom depth of FCZ7 (4.6 mg/L) and N2 (3.7 mg/L) were higher than those at the control station, suggesting that the low DO levels measured at FCZ7 and N2 were due to environmental variation. For the DO level measured at N1 (1.9 mg/L), the DO level at N1 was lower than that at the control station, but other closer monitoring stations (e.g. SGA and FCZ1) measured higher DO levels (7.6 mg/L). Thus, the low DO level measured at N1 should not be attributed to the effluent outfall. Consequently, the DO exceedance recorded at N1 was considered non-project related.

3 Conclusion

3.1 Conclusion

3.1.1 Based on the findings from the last two days, although exceedances were recorded, all identified exceedances were considered non-project related, termination of the emergency discharge follow-up monitoring is deemed appropriate

Figure 1 Water Quality Monitoring Locations

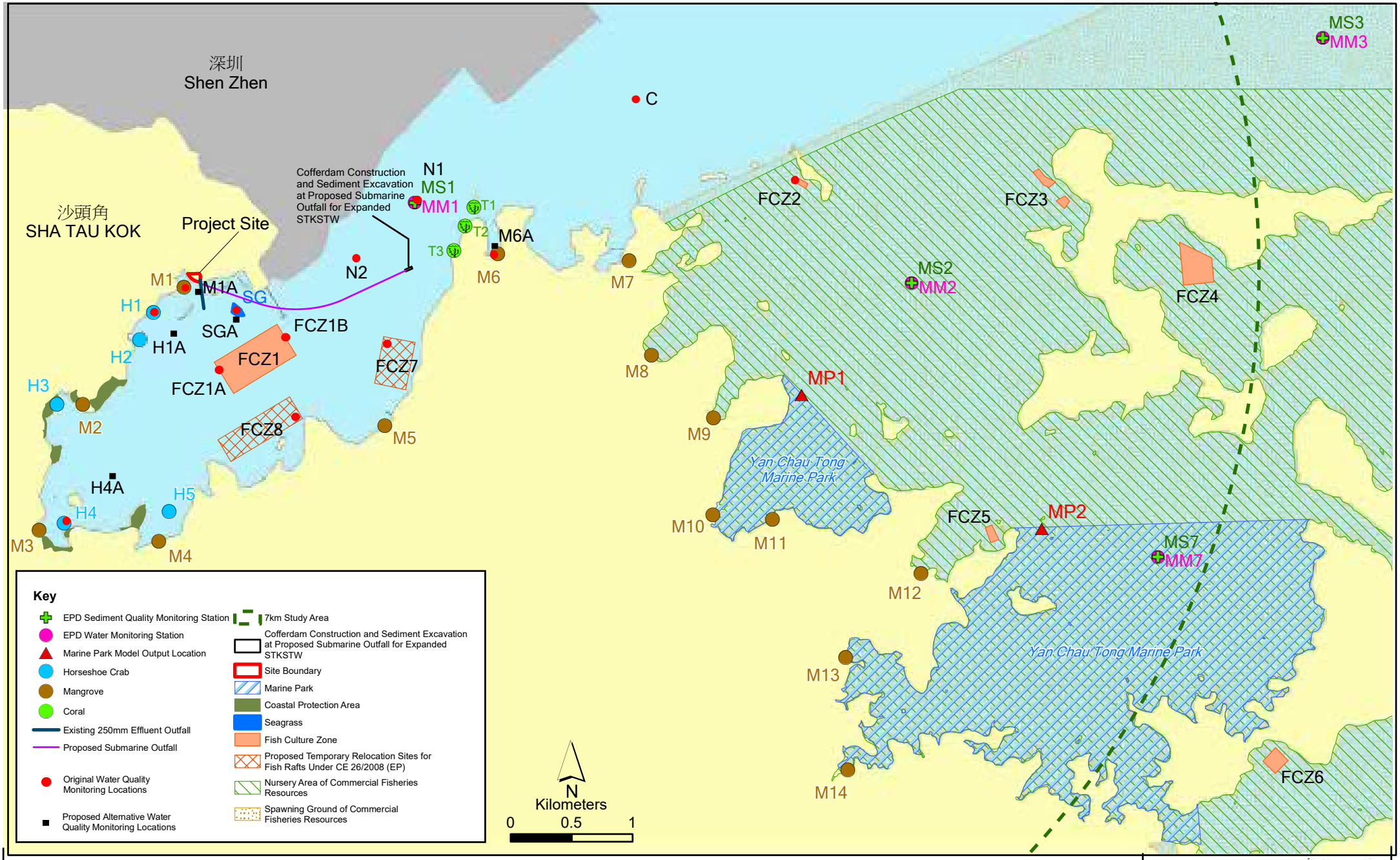


Figure 1

(Edited from EM&A Manual Figure 5.1)

Water Quaity Monitoring Locations

Appendix A The Monitoring Results

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	29/07/2024	Rainy	Moderate	14:38	1.5	M	0.8	1	7.9	7.9	25.2	25.2	27.6	27.6	56.8	56.8	3.89	3.9	15.8	15.7	5	5.5	2	2.0	0.03	0.03	0.70	0.70	0.08	0.09	0.38	0.39	1200	1300
FCZ1A	29/07/2024	Rainy	Moderate	14:38	1.5	M	0.8	2	7.9		25.2		27.6		56.8		3.89		15.6		6		2		0.03		0.70		0.09		0.39		1400	
FCZ2	29/07/2024	Rainy	Moderate	12:47	4.2	S	1.0	1	8.0	8.0	25.3	25.3	27.6	27.6	113.4	113.4	7.76	7.8	1.2	1.3	2	2.0	2	2.0	0.01	0.01	0.50	0.50	0.01	0.01	0.18	0.18	41	51
FCZ2	29/07/2024	Rainy	Moderate	12:47	4.2	S	1.0	2	8.0		25.3		27.6		113.3		7.76		1.2		2		2		0.02		0.60		0.01		0.18		37	
FCZ2	29/07/2024	Rainy	Moderate	12:48	4.2	B	3.2	1	8.0	8.0	26.8	26.8	27.2	27.2	85.9	86.0	5.87	5.9	1.5		2		2		0.01		0.40		0.01		0.17		65	
FCZ2	29/07/2024	Rainy	Moderate	12:48	4.2	B	3.2	2	8.0		26.8		27.2		86.0		5.88		1.5		2		2		0.01		0.50		0.01		0.18		59	
FCZ7	29/07/2024	Rainy	Moderate	14:02	4.2	S	1.0	1	8.1	8.1	23.8	23.8	27.4	27.4	100.7	100.7	6.97	7.0	2.8	2.3	4	4.0	2	2.0	0.03	0.03	0.70	0.68	0.08	0.08	0.38	0.36	2200	1875
FCZ7	29/07/2024	Rainy	Moderate	14:02	4.2	S	1.0	2	8.1		23.7		27.4		100.7		6.97		2.9		4		2		0.02		0.60		0.08		0.37		1400	
FCZ7	29/07/2024	Rainy	Moderate	14:03	4.2	B	3.2	1	8.1	8.1	25.5	25.4	27.2	27.2	91.5	90.7	6.28	6.2	1.4		4		2		0.03		0.70		0.07		0.34		2100	
FCZ7	29/07/2024	Rainy	Moderate	14:03	4.2	B	3.2	2	8.0		25.3		27.2		89.9		6.17		2.0		4		2		0.02		0.70		0.07		0.35		1800	
FCZ8	29/07/2024	Rainy	Moderate	14:14	3.0	S	1.0	1	8.1	8.1	22.6	22.7	27.5	27.5	104.7	104.6	7.29	7.3	3.6	2.9	4	5.0	2	2.0	0.02	0.03	0.70	0.68	0.08	0.08	0.37	0.37	2000	1700
FCZ8	29/07/2024	Rainy	Moderate	14:14	3.0	S	1.0	2	8.1		22.8		27.5		104.5		7.28		3.6		6		2		0.03		0.70		0.09		0.37		1600	
FCZ8	29/07/2024	Rainy	Moderate	14:15	3.0	B	2.0	1	8.0	7.9	25.5	25.5	27.4	27.4	64.2	63.6	4.40	4.4	2.1		5		2		0.03		0.70		0.08		0.36		1500	
FCZ8	29/07/2024	Rainy	Moderate	14:15	3.0	B	2.0	2	7.9		25.5		27.4		63.0		4.32		2.3		5		2		0.02		0.60		0.08		0.36		1700	
SGA	29/07/2024	Rainy	Moderate	14:44	1.1	M	1.0	1	8.0	8.0	24.6	24.6	27.8	27.8	76.5	75.5	5.24	5.2	23.9	23.7	6	6.0	2	2.0	0.03	0.03	0.70	0.70	0.10	0.10	0.40	0.40	2500	2050
SGA	29/07/2024	Rainy	Moderate	14:44	1.1	M	1.0	2	8.0		24.6		27.7		74.5		5.11		23.4		6		2		0.03		0.70		0.10		0.39		1600	
M6A	29/07/2024	Rainy	Moderate	13:19	3.8	S	1.0	1	8.1	8.1	24.6	24.7	27.6	27.6	101.8	100.1	6.99	6.9	3.5	4.4	2	2.0	2	2.0	0.02	0.02	0.60	0.55	0.05	0.04	0.29	0.27	1700	1263
M6A	29/07/2024	Rainy	Moderate	13:19	3.8	S	1.0	2	8.1		24.7		27.6		98.3		6.75		3.5		2		2		0.02		0.60		0.04		0.29		1400	
M6A	29/07/2024	Rainy	Moderate	13:19	3.8	B	2.8	1	8.1	8.1	26.9	26.9	27.0	27.0	79.2	78.8	5.43	5.4	5.3		2		2		0.02		0.50		0.04		0.24		950	
M6A	29/07/2024	Rainy	Moderate	13:19	3.8	B	2.8	2	8.1		27.0		26.9		78.4		5.38		5.4		2		2		0.02		0.50		0.04		0.26		1000	
H4A	29/07/2024	Rainy	Moderate	14:29	1.3	M	0.7	1	7.8	7.8	24.3	24.3	27.7	27.7	87.8	88.0	3.19	3.2	18.9	19.4	18	19.0	2	2.0	0.04	0.04	0.70	0.70	0.13	0.13	0.39	0.40	1600	1800
H4A	29/07/2024	Rainy	Moderate	14:29	1.3	M	0.7	2	7.8		24.3		27.7		88.2		3.19		19.8		20		2		0.04		0.70		0.13		0.40		2000	
N1	29/07/2024	Rainy	Moderate	13:29	5.4	S	1.0	1	8.1	8.1	24.6	24.6	27.5	27.5	103.3	96.5	7.13	6.6	2.8	3.6	2	5.7	2	2.0	0.02	0.02	0.60	0.55	0.04	0.06	0.28	0.28	1100	642
N1	29/07/2024	Rainy	Moderate	13:29	5.4	S	1.0	2	8.1		24.6		27.5		103.6		7.11		2.4		2		2		0.01		0.50		0.04		0.29		1200	
N1	29/07/2024	Rainy	Moderate	13:30	5.4	M	2.7	1	8.1	8.1	25.8	25.8	27.4	27.4	89.2		6.11		1.9		2		2		0.01		0.50		0.04		0.26		340	
N1	29/07/2024	Rainy	Moderate	13:30	5.4	M	2.7	2	8.1		25.7		27.4		89.7		6.15		1.8		2		2		0.01		0.50		0.04		0.24		390	
N1	29/07/2024	Rainy	Moderate	13:30	5.4	B	4.4	1	7.9	7.9	28.1	28.1	27.0	27.0	52.3	52.7	3.56	3.6	6.5		14		2		0.04		0.60		0.11		0.29		440	
N1	29/07/2024	Rainy	Moderate	13:30	5.4	B	4.4	2	7.9		28.1		27.0		53.0		3.61		6.0		12		2		0.05		0.60		0.10		0.29		380	
N2	29/07/2024	Rainy	Moderate	13:45	3.4	S	1.0	1	8.1	8.1	24.2	24.2	27.5	27.5	101.0	101.0	6.97	7.0	2.4	1.7	4	2.8	2	2.0	0.03	0.02	0.70	0.60	0.06	0.06	0.34	0.32	1900	1650
N2	29/07/2024	Rainy	Moderate	13:45	3.4	S	1.0	2	8.1		24.2		27.4		100.9		6.97		2.3		3		2		0.02		0.60		0.07		0.34		2500	
N2	29/07/2024	Rainy	Moderate	13:47	3.4	B	2.4	1	8.1	8.1	25.4	25.4	27.4	27.4	91.8	91.9	6.30	6.3	1.1		2		2		0.02		0.50		0.05		0.30		1000	
N2	29/07/2024	Rainy	Moderate	13:47	3.4	B	2.4	2	8.1		25.4		27.4		91.9		6.31		1.1		2		2		0.02		0.60		0.05		0.30		1200	
C	29/07/2024	Rainy	Moderate	13:02	7.6	S	1.0	1	8.1	8.1	25.0	25.0	27.6	27.6	108.4	98.5	7.43	6.7	1.1	3.3	2	2.0	2	2.0	0.02	0.02	0.50	0.50	0.03	0.03	0.22	0.22	1100	632
C	29/07/2024	Rainy	Moderate	13:02	7.6	S	1.0	2	8.1		25.0		27.6		108.3		7.43		1.1		2		2		0.01		0.50		0.02		0.22		1300	
C	29/07/2024	Rainy	Moderate	13:03	7.6	M	3.8	1	8.1	8.1	26.3	26.3	27.3	27.3	88.6		6.06		1.1		2		2		0.01		0.50		0.02		0.20		380	
C	29/07/2024	Rainy	Moderate	13:03	7.6	M	3.8	2	8.1		26.3		27.3		88.7		6.06		1.1		2		2		0.01		0.50		0.02		0.21		410	
C	29/07/2024	Rainy	Moderate	13:03	7.6	B	6.6	1	7.8	7.8	29.9	29.9	26.0	26.0	33.2	33.1	2.28	2.3	7.8		2		2		0.02		0.50		0.06		0.23		270	
C	29/07/2024	Rainy	Moderate	13:03	7.6	B	6.6	2	7.8		29.9		26.0		32.9		2.26		7.8		2		2		0.02		0.50		0.04		0.22		330	

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis													
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	30/07/2024	Cloudy	Moderate	13:55	1.5	M	0.8	1	7.9	7.9	23.7	23.6	27.6	27.6	67.5	68.1	4.66	4.7	7.2	7.2	10	11.0	2	2.0	0.04	0.04	0.60	0.60	0.01	0.01	0.26	0.26	1300	2000
FCZ1A	30/07/2024	Cloudy	Moderate	13:55	1.5	M	0.8	2	7.9		23.6		27.6		68.6		4.74		7.2		12		2		0.03		0.60		0.01		0.25		2700	
FCZ2	30/07/2024	Cloudy	Moderate	12:27	4.0	S	1.0	1	8.2	8.2	23.7	23.6	27.9	28.0	110.2	114.8	8.19	8.2	1.5	1.1	3	2.3	2	2.0	0.01	0.01	0.40	0.40	0.01	0.01	0.15	0.14	11	10
FCZ2	30/07/2024	Cloudy	Moderate	12:27	4.0	S	1.0	2	8.2		23.6		28.0		119.4		8.20		1.6		2		2		0.01		0.40		0.01		0.14		8	
FCZ2	30/07/2024	Cloudy	Moderate	12:27	4.0	B	3.0	1	8.2	8.2	26.0	26.0	27.5	27.5	114.2	114.2	7.81	7.8	0.7		2		2		0.01		0.40		0.01		0.14		9	
FCZ2	30/07/2024	Cloudy	Moderate	12:27	4.0	B	3.0	2	8.2		26.0		27.5		114.2		7.81		0.7		2		2		0.01		0.40		0.01		0.14		11	
FCZ7	30/07/2024	Cloudy	Moderate	13:24	4.0	S	1.0	1	8.1	8.1	22.7	22.7	27.5	27.5	105.8	103.8	7.36	7.2	3.6	4.4	8	8.3	2	2.0	0.02	0.02	0.70	0.68	0.04	0.04	0.32	0.33	2400	2300
FCZ7	30/07/2024	Cloudy	Moderate	13:24	4.0	S	1.0	2	8.1		22.8		27.5		101.7		7.08		3.1		8		2		0.02		0.70		0.04		0.32		1900	
FCZ7	30/07/2024	Cloudy	Moderate	13:24	4.0	B	3.0	1	8.0	8.0	26.1	26.2	27.4	27.4	64.1	63.9	4.39	4.4	5.2		8		2		0.02		0.60		0.04		0.32		2600	
FCZ7	30/07/2024	Cloudy	Moderate	13:28	4.0	B	3.0	2	8.0		26.3		27.3		63.6		4.35		5.5		9		2		0.03		0.70		0.04		0.34		2300	
FCZ8	30/07/2024	Cloudy	Moderate	13:34	3.0	S	1.0	1	8.1	8.1	20.1	21.0	27.8	27.8	112.5	111.7	7.90	7.8	7.8	6.1	12	12.0	2	2.0	0.04	0.03	0.60	0.60	0.01	0.01	0.24	0.24	3500	2025
FCZ8	30/07/2024	Cloudy	Moderate	13:34	3.0	S	1.0	2	8.1		22.0		27.7		110.9		7.78		3.6		12		2		0.03		0.60		0.01		0.24		2900	
FCZ8	30/07/2024	Cloudy	Moderate	13:34	3.0	B	2.0	1	8.0	8.0	25.2	25.1	27.5	27.5	65.8	65.4	4.51	4.5	8.0		12		2		0.03		0.60		0.01		0.26		900	
FCZ8	30/07/2024	Cloudy	Moderate	12:35	3.0	B	2.0	2	8.0		25.0		27.5		65.0		4.47		5.1		12		2		0.03		0.60		0.01		0.23		800	
SGA	30/07/2024	Cloudy	Moderate	13:59	1.2	M	0.6	1	8.0	8.0	22.9	22.9	27.6	27.6	78.0	78.0	5.41	5.4	15.1	15.3	12	12.0	2	2.0	0.03	0.03	0.60	0.60	0.01	0.01	0.24	0.24	3400	3150
SGA	30/07/2024	Cloudy	Moderate	13:59	1.2	M	0.6	2	8.0		22.9		27.6		78.0		5.41		15.6		12		2		0.03		0.60		0.01		0.24		2900	
M6A	30/07/2024	Cloudy	Moderate	12:54	3.3	S	1.0	1	8.1	8.1	24.3	24.3	27.7	27.7	101.5	101.5	6.98	7.0	1.8	1.3	5	5.3	2	2.0	0.02	0.02	0.60	0.60	0.06	0.06	0.33	0.33	1100	1175
M6A	30/07/2024	Cloudy	Moderate	12:54	3.3	S	1.0	2	8.1		24.3		27.7		101.4		6.97		1.7		5		2		0.01		0.60		0.06		0.31		1200	
M6A	30/07/2024	Cloudy	Moderate	12:54	3.3	B	2.3	1	8.1	8.1	26.4	26.4	27.2	27.2	77.6	77.6	5.31	5.3	1.0		5		2		0.02		0.60		0.06		0.34		1000	
M6A	30/07/2024	Cloudy	Moderate	12:54	3.3	B	2.3	2	8.1		26.4		27.2		77.6		5.31		1.0		6		2		0.02		0.60		0.06		0.33		1400	
H4A	30/07/2024	Cloudy	Moderate	13:41	1.2	M	0.6	1	8.0	8.0	23.5	23.5	27.5	27.5	88.9	89.2	6.16	6.2	2.2	2.3	11	11.5	2	2.0	0.03	0.04	0.60	0.60	0.01	0.01	0.19	0.19	420	465
H4A	30/07/2024	Cloudy	Moderate	13:41	1.2	M	0.6	2	8.0		23.5		27.5		89.5		6.20		2.4		12		2		0.04		0.60		0.01		0.19		510	
N1	30/07/2024	Cloudy	Moderate	13:01	5.3	S	1.0	1	8.1	8.1	22.9	22.8	27.7	27.7	102.8	97.5	7.11	6.7	5.1	2.8	9	8.8	2	2.0	0.02	0.03	0.70	0.67	0.05	0.05	0.30	0.30	1400	2000
N1	30/07/2024	Cloudy	Moderate	13:01	5.4	S	1.0	2	8.1		22.8		27.7		102.5		7.10		4.9		9		2		0.03		0.70		0.05		0.30		1600	
N1	30/07/2024	Cloudy	Moderate	13:01	5.4	M	3.0	1	8.1	8.1	25.4	25.4	27.5	27.5	92.4		6.33		1.7		9		2		0.03		0.70		0.05		0.30		2900	
N1	30/07/2024	Cloudy	Moderate	13:01	5.4	M	3.0	2	8.1		25.4		27.5		92.2		6.31		1.7		8		2		0.02		0.70		0.05		0.30		2300	
N1	30/07/2024	Cloudy	Moderate	13:02	5.4	B	4.4	1	8.0	8.0	27.1	27.3	27.0	27.0	56.9	57.0	3.89	3.9	1.7		9		2		0.03		0.60		0.05		0.30		1700	
N1	30/07/2024	Cloudy	Moderate	13:02	5.4	B	4.4	2	8.0		27.4		26.9		57.1		3.91		1.7		9		2		0.02		0.60		0.05		0.30		2100	
N2	30/07/2024	Cloudy	Moderate	13:11	4.4	S	1.0	1	8.1	8.1	23.2	23.2	27.4	27.4	106.8	106.9	7.42	7.4	2.1	3.4	9	8.3	2	2.0	0.03	0.02	0.60	0.63	0.03	0.03	0.28	0.28	1200	1725
N2	30/07/2024	Cloudy	Moderate	13:11	4.4	S	1.0	2	8.1		23.2		27.4		107.0		7.43		2.0		9		2		0.02		0.60		0.03		0.27		1400	
N2	30/07/2024	Cloudy	Moderate	13:11	4.4	B	3.4	1	8.0	8.0	26.0	26.0	27.4	27.4	70.9	70.9	4.85	4.9	4.2		7		2		0.02		0.60		0.03		0.27		1900	
N2	30/07/2024	Cloudy	Moderate	13:11	4.4	B	3.4	2	8.0		26.0		27.4		70.9		4.85		5.4		8		2		0.02		0.70		0.03		0.28		2400	
C	30/07/2024	Cloudy	Moderate	12:46	7.2	S	1.0	1	8.2	8.2	24.3	24.3	27.7	27.7	113.7	109.7	7.82	7.5	0.8	0.7	3	3.0	2	2.0	0.01	0.01	0.50	0.53	0.03	0.03	0.21	0.21	38	43
C	30/07/2024	Cloudy	Moderate	12:47	7.2	S	1.0	2	8.2		24.3		27.7		113.7		7.82		0.8		3		2		0.01		0.50		0.03		0.21		43	
C	30/07/2024	Cloudy	Moderate	12:48	7.2	M	3.6	1	8.2	8.2	25.7	25.7	27.5	27.5	108.0		7.40		0.7		2		2		0.01		0.50		0.03		0.21		35	
C	30/07/2024	Cloudy	Moderate	12:48	7.2	M	3.6	2	8.2		25.6		27.5		103.5		7.08		0.6		3		2		0.01		0.60		0.04		0.22		41	
C	30/07/2024	Cloudy	Moderate	12:50	7.2	B	6.2	1	8.0	8.0	28.1	28.1	26.3	26.3	68.2	68.1	4.69	4.7	0.7		4		2		0.01		0.50		0.03		0.21		47	
C	30/07/2024	Cloudy	Moderate	12:50	7.2	B	6.2	2	8.0		28.1		26.3		68.0		4.68		0.7		3		2		0.01		0.60		0.03		0.21		53	

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	31/07/2024	Rainy	Moderate	13:50	1.3	M	0.7	1	7.8	7.8	25.7	25.7	27.6	27.6	49.8	49.8	3.4	3.4	4.7	4.7	6	6.0	2	2.0	0.04	0.04	0.70	0.65	0.06	0.06	0.29	0.28	41	39
FCZ1A	31/07/2024	Rainy	Moderate	13:50	1.3	M	0.7	2	7.8		25.7		27.5		49.7		3.4		4.8		6		2		0.04		0.60		0.05		0.27		36	
FCZ2	31/07/2024	Rainy	Moderate	12:18	4.4	S	1.0	1	8.2	8.2	25.5	25.5	27.9	27.9	123.6	123.5	8.4	8.4	1.2	1.0	3	2.5	2	2.0	0.02	0.02	0.60	0.58	0.01	0.01	0.24	0.23	38	35
FCZ2	31/07/2024	Rainy	Moderate	12:18	4.4	S	1.0	2	8.2		25.5		27.9		123.4		8.4		1.1		3		2		0.02		0.60		0.01		0.24		40	
FCZ2	31/07/2024	Rainy	Moderate	12:19	4.4	B	3.4	1	8.0	8.0	28.8	28.8	26.2	26.2	76.3	76.1	5.2	5.2	0.9		2		2		0.02		0.50		0.01		0.22		27	
FCZ2	31/07/2024	Rainy	Moderate	12:19	4.4	B	3.4	2	8.0		28.8		26.2		75.9		5.2		0.9		2		2		0.02		0.60		0.01		0.22		33	
FCZ7	31/07/2024	Rainy	Moderate	13:17	3.8	S	1.0	1	8.0	8.0	25.4	25.4	27.6	27.6	63.3	63.2	4.3	4.3	2.7	3.3	5	4.8	2	2.0	0.03	0.06	0.60	0.60	0.04	0.04	0.28	0.29	43	43
FCZ7	31/07/2024	Rainy	Moderate	13:17	3.8	S	1.0	2	8.0		25.4		27.6		63.1		4.3		2.6		4		2		0.03		0.60		0.04		0.28		37	
FCZ7	31/07/2024	Rainy	Moderate	13:17	3.8	B	2.8	1	7.8	7.8	28.6	28.7	26.3	26.3	35.2	35.0	2.4	2.4	3.9		5		2		0.08		0.60		0.04		0.31		42	
FCZ7	31/07/2024	Rainy	Moderate	12:17	3.8	B	2.8	2	7.8		28.7		26.3		34.7		2.4		3.9		5		2		0.08		0.60		0.04		0.30		49	
FCZ8	31/07/2024	Rainy	Moderate	13:28	2.6	S	1.0	1	8.0	8.0	24.5	24.6	28.0	28.0	94.4	92.5	6.4	6.3	3.3	4.6	5	6.0	2	2.0	0.03	0.03	0.60	0.60	0.01	0.03	0.18	0.20	57	46
FCZ8	31/07/2024	Rainy	Moderate	13:28	2.6	S	1.0	2	8.0		24.7		27.9		90.5		6.2		3.4		5		2		0.03		0.60		0.01		0.19		53	
FCZ8	31/07/2024	Rainy	Moderate	13:29	2.6	B	1.6	1	7.9	7.9	27.3	27.3	27.0	27.0	50.0	49.8	3.4	3.4	5.7		7		2		0.03		0.60		0.05		0.20		39	
FCZ8	31/07/2024	Rainy	Moderate	13:29	2.6	B	1.6	2	7.9		27.4		27.0		49.6		3.4		5.8		7		2		0.03		0.60		0.04		0.22		35	
SGA	31/07/2024	Rainy	Moderate	13:54	1.1	M	0.6	1	7.8	7.8	25.2	25.2	27.9	27.9	47.1	47.1	3.2	3.2	4.2	4.2	6	6.0	2	2.0	0.04	0.04	0.60	0.60	0.06	0.06	0.31	0.31	47	46
SGA	31/07/2024	Rainy	Moderate	13:55	1.1	M	0.6	2	7.8		25.2		27.8		47.0		3.2		4.3		6		2		0.04		0.60		0.06		0.31		44	
M6A	31/07/2024	Rainy	Moderate	12:44	3.6	S	1.0	1	8.1	8.1	25.1	25.2	27.6	27.6	90.8	90.8	6.2	6.2	1.6	2.1	4	3.8	2	2.0	0.02	0.02	0.50	0.55	0.02	0.02	0.26	0.26	48	46
M6A	31/07/2024	Rainy	Moderate	12:44	3.6	S	1.0	2	8.1		25.3		27.5		90.8		6.2		1.5		4		2		0.02		0.60		0.02		0.27		51	
M6A	31/07/2024	Rainy	Moderate	12:44	3.6	B	2.6	1	8.0	8.0	28.3	28.3	26.3	26.3	71.2	71.0	4.9	4.9	2.6		3		2		0.02		0.60		0.01		0.26		39	
M6A	31/07/2024	Rainy	Moderate	12:44	3.6	B	2.6	2	8.0		28.4		26.2		70.8		4.9		2.8		4		2		0.02		0.50		0.01		0.25		45	
H4A	31/07/2024	Rainy	Moderate	13:40	1.5	M	0.7	1	7.9	7.9	25.9	25.9	27.5	27.5	50.0	50.0	3.4	3.4	8.8	8.8	6	6.0	2	2.0	0.04	0.04	0.60	0.65	0.02	0.03	0.18	0.19	48	50
H4A	31/07/2024	Rainy	Moderate	13:40	1.5	M	0.7	2	7.9		26.0		27.5		50.0		3.4		8.8		6		2		0.04		0.70		0.03		0.20		51	
N1	31/07/2024	Rainy	Moderate	12:55	4.7	S	1.0	1	8.0	8.0	25.1	25.2	27.6	27.6	74.4	73.3	5.1	2.5	2.3	2.0	4	3.2	2	1.3	0.03	0.02	0.60	0.40	0.03	0.03	0.29	0.20	59	35
N1	31/07/2024	Rainy	Moderate	12:55	4.7	S	1.0	2	8.0		25.2		27.6		72.2		4.9		2.4		4		2		0.03		0.60		0.03		0.30		63	
N1	31/07/2024	Rainy	Moderate	12:56	4.7	B	3.7	1	7.9	7.9	29.0	29.0	26.0	26.0	41.2	41.1	2.8	2.8	3.6		5		2		0.03		0.60		0.06		0.31		42	
N1	31/07/2024	Rainy	Moderate	12:56	4.7	B	3.7	2	7.9		29.1		26.0		40.9		2.8		3.6		6		2		0.04		0.60		0.07		0.32		47	
N2	31/07/2024	Rainy	Moderate	13:06	3.8	S	1.0	1	8.0	8.0	25.5	25.5	27.6	27.6	70.5	70.6	4.8	4.8	2.6	3.6	6	5.0	2	2.0	0.03	0.03	0.60	0.60	0.05	0.06	0.33	0.32	47	64
N2	31/07/2024	Rainy	Moderate	13:06	3.8	S	1.0	2	8.0		25.6		27.6		70.6		4.8		2.5		6		2		0.03		0.60		0.05		0.32		62	
N2	31/07/2024	Rainy	Moderate	13:06	3.8	B	2.8	1	8.0	8.0	28.6	28.8	26.4	26.2	53.9	52.9	3.7	3.6	4.6		4		2		0.03		0.60		0.06		0.30		77	
N2	31/07/2024	Rainy	Moderate	13:06	3.8	B	2.8	2	7.9		28.9		26.0		51.9		3.6		4.7		4		2		0.03		0.60		0.06		0.32		69	
C	31/07/2024	Rainy	Moderate	12:30	7.2	S	1.0	1	8.2	8.2	25.5	25.5	27.6	27.6	102.6	102.2	7.0	6.5	1.0	1.1	4	2.8	2	2.0	0.02	0.02	0.60	0.52	0.01	0.01	0.28	0.27	51	58
C	31/07/2024	Rainy	Moderate	12:30	7.2	S	1.0	2	8.2		25.5		27.6		101.7		7.0		1.1		3		2		0.02		0.60		0.01		0.28		48	
C	31/07/2024	Rainy	Moderate	12:31	7.2	M	3.6	1	8.1	8.1	27.3	27.4	26.8	26.8	86.8	86.4	6.0		0.8		3		2		0.02		0.50		0.01		0.27		76	
C	31/07/2024	Rainy	Moderate	12:31	7.2	M	3.6	2	8.1		27.5		26.7		85.9		5.9		0.8		3		2		0.02		0.50		0.01		0.27		64	
C	31/07/2024	Rainy	Moderate	12:32	7.2	B	6.2	1	8.0	8.0	29.6	29.6	25.7	25.7	63.2	63.4	4.4	4.4	1.4		2		2		0.02		0.50		0.01		0.28		58	
C	31/07/2024	Rainy	Moderate	12:32	7.2	B	6.2	2	8.0		29.6		25.7		63.5		4.4		1.2		2		2		0.02		0.40		0.01		0.26		53	

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	1/08/2024	Sunny	Moderate	12:30	1.4	M	0.7	1	7.9	7.9	27.6	27.7	26.9	27.0	51	51.8	3.48	3.5	5.0	5.0	8	8.0	2	2.0	0.04	0.04	0.70	0.70	0.03	0.03	0.27	0.27	130	150
FCZ1A	1/08/2024	Sunny	Moderate	12:31	1.4	M	0.7	2	7.9		27.7		27.0		52.6		3.59		5.0		8		2		0.04		0.70		0.03		0.26		170	
FCZ2	1/08/2024	Sunny	Moderate	11:28	4.4	S	1.0	1	8.2	8.2	26.0	26.0	27.9	27.9	120.4	119.2	8.17	8.1	0.9	0.7	4	3.8	2	2.3	0.02	0.02	0.60	0.63	0.01	0.01	0.15	0.15	820	795
FCZ2	1/08/2024	Sunny	Moderate	11:28	4.4	S	1.0	2	8.2		26.0		27.9		117.9		7.99		0.9		3		2		0.02		0.60		0.01		0.15		850	
FCZ2	1/08/2024	Sunny	Moderate	11:28	4.4	B	3.4	1	8.0	8.0	29.3	29.3	26.1	26.1	80.7	80.5	5.55	5.5	0.4		4		3		0.02		0.70		0.01		0.15		790	
FCZ2	1/08/2024	Sunny	Moderate	11:28	4.4	B	3.4	2	8.0		29.3		26.1		80.3		5.51		0.5		4		2		0.02		0.60		0.01		0.15		720	
FCZ7	1/08/2024	Sunny	Moderate	12:12	3.6	S	1.0	1	8.1	8.1	26.7	26.7	27.4	27.4	91.2	90.6	6.21	6.2	1.9	2.4	5	5.3	2	2.0	0.01	0.01	0.60	0.60	0.01	0.01	0.10	0.09	36	35
FCZ7	1/08/2024	Sunny	Moderate	12:12	3.6	S	1.0	2	8.1		26.8		27.4		90		6.15		1.9		5		2		0.01		0.70		0.01		0.09		31	
FCZ7	1/08/2024	Sunny	Moderate	12:12	3.7	B	2.7	1	7.9	7.9	27.9	28.0	26.6	26.6	59.1	58.9	4.08	4.1	2.9		5		2		0.01		0.60		0.01		0.09		35	
FCZ7	1/08/2024	Sunny	Moderate	12:12	3.7	B	2.7	2	7.9		28.0		26.6		58.6		4.02		3.0		6		2		0.01		0.50		0.01		0.09		37	
FCZ8	1/08/2024	Sunny	Moderate	12:19	2.7	S	1.0	1	8.0	8.0	26.7	26.8	27.0	27.0	88.8	86.8	6.1	6.0	3.7	5.0	6	6.0	2	2.0	0.01	0.02	0.60	0.60	0.01	0.01	0.12	0.13	59	54
FCZ8	1/08/2024	Sunny	Moderate	12:19	2.7	S	1.0	2	8.0		26.9		26.9		84.7		5.82		3.7		6		2		0.01		0.60		0.01		0.14		64	
FCZ8	1/08/2024	Sunny	Moderate	12:19	2.7	B	1.7	1	7.9	7.9	28.8	28.8	26.2	26.2	52	52.0	3.57	3.6	6.3		6		2		0.03		0.60		0.01		0.13		48	
FCZ8	1/08/2024	Sunny	Moderate	12:19	2.7	B	1.7	2	7.9		28.8		26.2		51.9		3.57		6.4		6		2		0.03		0.60		0.01		0.14		45	
SGA	1/08/2024	Sunny	Moderate	12:35	1.3	M	0.6	1	7.9	7.9	27.2	27.2	27.2	27.2	53.1	52.1	3.62	3.6	3.3	3.3	8	7.5	2	2.0	0.02	0.02	0.60	0.55	0.02	0.02	0.21	0.21	82	86
SGA	1/08/2024	Sunny	Moderate	12:36	1.3	M	0.6	2	7.9		27.2		27.2		51.1		3.48		3.3		7		2		0.02		0.50		0.02		0.21		89	
M6A	1/08/2024	Sunny	Moderate	11:48	4.7	S	1.0	1	8.1	8.1	26.9	26.9	27.1	27.1	90.9	90.6	6.22	6.2	1.0	1.3	3	3.5	2	2.0	0.01	0.01	0.60	0.60	0.01	0.01	0.16	0.16	77	59
M6A	1/08/2024	Sunny	Moderate	11:48	4.7	S	1.0	2	8.1		26.9		27.1		90.3		6.18		1.0		3		2		0.01		0.60		0.01		0.15		74	
M6A	1/08/2024	Sunny	Moderate	11:48	4.7	B	3.7	1	8.1	8.1	28.8	28.9	26.3	26.3	80.6	80.6	5.53	5.5	1.5		4		2		0.01		0.60		0.01		0.16		39	
M6A	1/08/2024	Sunny	Moderate	11:48	4.7	B	3.7	2	8.1		29.0		26.2		80.5		5.52		1.6		4		2		0.01		0.60		0.01		0.15		44	
H4A	1/08/2024	Sunny	Moderate	12:26	1.4	M	0.7	1	7.9	7.9	26.7	27.1	27.0	27.0	83.2	83.4	5.69	5.8	3.8	3.8	6	6.5	2	2.0	0.03	0.03	0.60	0.55	0.03	0.03	0.20	0.20	61	58
H4A	1/08/2024	Sunny	Moderate	12:58	1.4	M	0.7	2	7.9		27.6		26.9		83.5		5.84		3.9		7		2		0.02		0.50		0.02		0.20		55	
N1	1/08/2024	Sunny	Moderate	11:54	4.9	S	1.0	1	8.1	8.1	27.1	27.1	27.0	27.0	119	119.0	8.17	8.2	2.3	2.2	7	4.7	2	1.3	0.02	0.01	0.50	0.37	0.01	0.01	0.06	0.04	29	29
N1	1/08/2024	Sunny	Moderate	11:54	4.9	S	1.0	2	8.1		27.1		27.0		119		8.14		2.3		7		2		0.01		0.50		0.01		0.05		34	
N1	1/08/2024	Sunny	Moderate	11:55	4.9	B	3.9	1	7.9	7.9	29.1	29.2	26.0	26.0	47.3	46.8	3.26	3.2	4.2		7		2		0.01		0.60		0.01		0.06		57	
N1	1/08/2024	Sunny	Moderate	11:55	4.9	B	3.9	2	7.9		29.2		25.9		46.3		3.19		4.6		7		2		0.02		0.60		0.01		0.07		52	
N2	1/08/2024	Sunny	Moderate	12:04	4.1	S	1.0	1	8.0	8.0	26.0	26.0	27.5	27.5	68.3	67.9	4.66	4.6	1.7	3.0	6	6.0	2	2.0	0.01	0.01	0.60	0.55	0.01	0.01	0.09	0.10	350	220
N2	1/08/2024	Sunny	Moderate	12:04	4.1	S	1.0	2	8.0		26.1		27.5		67.5		4.61		1.6		6		2		0.01		0.50		0.01		0.10		390	
N2	1/08/2024	Sunny	Moderate	12:05	4.1	B	3.1	1	7.9	7.9	29.2	29.2	25.9	25.9	55.1	55.1	3.8	3.8	4.2		6		2		0.01		0.60		0.01		0.10		72	
N2	1/08/2024	Sunny	Moderate	12:05	4.1	B	3.1	2	7.9		29.2		25.9		55		3.79		4.3		6		2		0.01		0.50		0.01		0.10		69	
C	1/08/2024	Sunny	Moderate	11:37	7.9	S	1.0	1	8.1	8.1	26.5	26.5	27.4	27.4	104.1	102.8	7.1	6.3	1.3	2.0	3	3.8	2	2.0	0.01	0.01	0.40	0.53	0.01	0.01	0.16	0.16	4900	1765
C	1/08/2024	Sunny	Moderate	11:38	7.9	S	1.0	2	8.1		26.6		27.4		101.4		6.91		1.3		3		2		0.01		0.40		0.01		0.16		5400	
C	1/08/2024	Sunny	Moderate	11:38	7.9	M	3.9	1	8.0	8.0	29.1	29.2	26.1	26.1	78.2	79.9	5.38		0.4		3		2		0.01		0.60		0.01		0.16		64	
C	1/08/2024	Sunny	Moderate	11:38	7.9	M	3.9	2	8.0		29.2		26.1		81.5		5.61		0.4		4		2		0.01		0.60		0.01		0.15		69	
C	1/08/2024	Sunny	Moderate	11:39	7.9	B	6.9	1	7.9	7.9	30.9	30.9	24.9	24.9	49.9	49.5	3.46	3.4	4.3		5		2		0.02		0.60		0.01		0.16		83	
C	1/08/2024	Sunny	Moderate	11:39	7.9	B	6.9	2	7.9		30.9		24.9		49.1		3.41		4.5		5		2		0.01		0.60		0.01		0.14		76	

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis													
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	2/08/2024	Sunny	Moderate	13:28	2.5	M	1	1	8.3	8.3	24.4	24.8	29.4	29.3	146.6	147.2	9.8	9.9	3.7	3.8	14	15.0	2	2.0	0.03	0.03	0.50	0.55	0.01	0.01	0.19	0.20	20	22
FCZ1A	2/08/2024	Sunny	Moderate	13:22	2.5	M	1	2	8.3		25.2		29.1		147.7		9.9		3.9		16		2		0.03		0.60		0.01		0.21		24	
FCZ2	2/08/2024	Sunny	Moderate	12:17	4.3	S	1	1	8.3	8.3	26.7	26.6	28.5	28.5	141.2	141.1	9.5	9.5	0.5	0.6	3	2.5	2	2.0	0.01	0.01	0.60	0.53	0.01	0.02	0.26	0.26	13	19
FCZ2	2/08/2024	Sunny	Moderate	12:17	4.3	S	1	2	8.3		26.6		28.5		141.0		9.4		0.6		3		2		0.01		0.40		0.02		0.28		17	
FCZ2	2/08/2024	Sunny	Moderate	12:17	4.3	B	3	1	8.3	8.3	26.5	26.5	28.6	28.6	142.0	142.0	9.5	9.5	0.6		2		2		0.01		0.40		0.01		0.24		24	
FCZ2	2/08/2024	Sunny	Moderate	12:17	4.3	B	3	2	8.3		26.5		28.6		141.9		9.5		0.6		2		2		0.01		0.70		0.02		0.26		21	
FCZ7	2/08/2024	Sunny	Moderate	13:06	4.4	S	1	1	8.3	8.3	26.1	26.5	28.1	27.9	150.6	150.8	10.2	10.2	2.0	1.8	3	3.3	2	2.0	0.01	0.01	0.60	0.55	0.01	0.01	0.26	0.27	26	28
FCZ7	2/08/2024	Sunny	Moderate	13:06	4.4	S	1	2	8.3		26.9		27.7		151.0		10.2		1.8		3		2		0.01		0.60		0.01		0.28		29	
FCZ7	2/08/2024	Sunny	Moderate	13:06	4.4	B	3	1	8.3	8.3	27.0	27.0	27.6	27.4	128.2	128.7	8.7	8.8	1.6		3		2		0.01		0.50		0.01		0.25		31	
FCZ7	2/08/2024	Sunny	Moderate	13:06	4.4	B	3	2	8.2		26.9		27.2		129.2		8.8		1.6		4		2		0.01		0.50		0.02		0.27		25	
FCZ8	2/08/2024	Sunny	Moderate	13:13	3.5	S	1	1	8.4	8.4	24.8	24.7	28.9	28.9	173.5	171.5	11.7	11.6	2.0	5.1	3	9.8	2	2.0	0.02	0.02	0.50	0.55	0.01	0.01	0.25	0.25	18	18
FCZ8	2/08/2024	Sunny	Moderate	13:13	3.5	S	1	2	8.4		24.6		28.9		169.4		11.4		2.1		4		2		0.01		0.50		0.01		0.24		16	
FCZ8	2/08/2024	Sunny	Moderate	13:13	3.5	B	3	1	8.1	8.1	26.9	26.9	27.7	27.7	106.0	106.1	7.2	7.2	8.0		16		2		0.03		0.60		0.01		0.24		17	
FCZ8	2/08/2024	Sunny	Moderate	13:13	3.5	B	3	2	8.1		26.9		27.7		106.1		7.2		8.1		16		2		0.02		0.60		0.01		0.26		21	
SGA	2/08/2024	Sunny	Moderate	13:33	2.5	M	1	1	8.3	8.3	26.0	26.1	28.3	28.3	156.3	156.4	10.5	10.5	2.7	2.9	4	4.5	2	2.0	0.02	0.02	0.50	0.50	0.01	0.01	0.27	0.28	15	17
SGA	2/08/2024	Sunny	Moderate	13:33	2.5	M	1	2	8.3		26.2		28.3		156.4		10.5		3.0		5		2		0.02		0.50		0.01		0.28		19	
M6A	2/08/2024	Sunny	Moderate	12:46	4.5	S	1	1	8.3	8.3	24.9	24.9	28.6	28.6	141.3	141.2	9.5	9.4	0.9	2.6	3	2.8	2	2.0	0.01	0.01	0.50	0.55	0.01	0.01	0.28	0.29	14	10
M6A	2/08/2024	Sunny	Moderate	12:46	4.5	S	1	2	8.3		24.9		28.6		141		9.3		0.7		4		2		0.01		0.50		0.01		0.28		10	
M6A	2/08/2024	Sunny	Moderate	12:46	4.5	B	4	1	8.1	8.1	28.1	28.2	26.7	26.7	94.7	92.5	6.5	6.4	4.3		2		2		0.01		0.60		0.01		0.29		9	
M6A	2/08/2024	Sunny	Moderate	12:46	4.5	B	4	2	8.1		28.2		26.7		90.3		6.2		4.5		2		2		0.01		0.60		0.01		0.30		7	
H4A	2/08/2024	Sunny	Moderate	13:22	2.2	M	1	1	8.3	8.3	23.7	23.7	29.7	29.8	158.3	157.7	10.2	10.4	1.7	1.7	3	3.0	3	3.0	0.02	0.02	0.50	0.50	0.01	0.01	0.08	0.08	14	13
H4A	2/08/2024	Sunny	Moderate	13:22	2.2	M	1	2	8.3		23.7		29.8		157.0		10.5		1.6		3		3		0.02		0.50		0.01		0.08		11	
N1	2/08/2024	Sunny	Moderate	12:51	5.7	S	1	1	8.3	8.3	26.3	26.5	28.2	28.3	147.9	148.7	10.0	10.1	0.7	2.2	2	2.0	2	1.3	0.01	0.01	0.50	0.33	0.01	0.01	0.23	0.16	26	18
N1	2/08/2024	Sunny	Moderate	12:51	5.7	S	1	2	8.3		26.6		28.3		149.4		10.2		0.9		2		2		0.01		0.50		0.01		0.23		22	
N1	2/08/2024	Sunny	Moderate	12:51	5.7	B	5	1	7.9	7.9	28.0	28.0	26.7	26.7	80.8	81.9	5.57	5.6	5.9		4		2		0.01		0.50		0.01		0.24		30	
N1	2/08/2024	Sunny	Moderate	12:51	5.7	B	5	2	7.9		28.0		26.7		82.9		5.58		5.4		4		2		0.01		0.50		0.01		0.24		28	
N2	2/08/2024	Sunny	Moderate	12:59	5.0	S	1	1	8.3	8.3	25.7	25.7	28.2	28.3	151.5	151.6	10.2	10.2	0.9	1.9	3	2.8	2	2.0	0.01	0.01	0.50	0.50	0.01	0.01	0.27	0.27	19	20
N2	2/08/2024	Sunny	Moderate	12:59	5.0	S	1	2	8.3		25.6		28.4		151.6		10.2		0.9		3		2		0.01		0.50		0.01		0.27		17	
N2	2/08/2024	Sunny	Moderate	12:59	5.0	B	4	1	7.9	8.0	27.5	27.6	27.1	27.1	82.1	81.5	5.6	5.6	2.9		3		2		0.01		0.50		0.01		0.26		21	
N2	2/08/2024	Sunny	Moderate	12:59	5.0	B	4	2	8.0		27.7		27.0		80.9		5.5		3.0		2		2		0.01		0.50		0.01		0.26		24	
C	2/08/2024	Sunny	Moderate	12:31	8.4	S	1	1	8.3	8.3	27.2	27.2	28.2	28.2	142.9	143.1	9.6	8.9	0.5	1.4	2	3.0	2	2.2	0.01	0.01	0.40	0.53	0.01	0.01	0.20	0.24	32	44
C	2/08/2024	Sunny	Moderate	12:31	8.4	S	1	2	8.3		27.2		28.2		143.2		9.6		0.5		2		2		0.01		0.40		0.01		0.22		35	
C	2/08/2024	Sunny	Moderate	12:31	8.4	M	4	1	8.2	8.2	28.1	28.0	27.3	27.4	125.6	121.7	8.5		0.3		2		2		0.01		0.60		0.01		0.21		42	
C	2/08/2024	Sunny	Moderate	12:31	8.4	M	4	2	8.2		27.9		27.4		117.7		8.0		0.3		3		3		0.01		0.60		0.01		0.21		47	
C	2/08/2024	Sunny	Moderate	12:31	8.4	B	7	1	7.9	7.9	30.6	30.7	25.1	25.1	49.8	49.7	3.5	3.5	3.6		4		2		0.01		0.60		0.02		0.30		53	
C	2/08/2024	Sunny	Moderate	12:31	8.4	B	7	2	7.9		30.7		25.1		49.5		3.4		3.3		5		2		0.01		0.60		0.02		0.29		56	

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	3/08/2024	Sunny	Moderate	9:42	2.5	M	1.3	1	8.3	8.3	26.5	26.6	28.3	28.3	147.6	147.9	9.91	9.9	1.1	1.1	2	2.0	2	2.0	0.02	0.02	0.50	0.55	0.01	0.02	0.10	0.11	29	29
FCZ1A	3/08/2024	Sunny	Moderate	9:42	2.5	M	1.3	2	8.3		26.6		28.3		148.2		9.96		1.1		2		2		0.02		0.60		0.02		0.11		28	
FCZ2	3/08/2024	Sunny	Moderate	8:49	4.3	S	2.2	1	8.1	8.2	26.3	26.4	28.7	28.7	136.0	135.7	9.09	9.1	0.5	0.5	2	2.0	2	2.0	0.01	0.01	0.80	0.70	0.02	0.02	0.11	0.10	91	78
FCZ2	3/08/2024	Sunny	Moderate	8:49	4.3	S	2.2	2	8.2		26.5		28.6		135.3		9.04		0.5		2		2		0.01		0.80		0.02		0.13		84	
FCZ2	3/08/2024	Sunny	Moderate	8:49	4.3	B	2.2	1	8.6	8.6	27.6	27.7	27.6	27.6	126.8	126.5	8.56	8.5	0.5		2		2		0.01		0.60		0.01		0.09		66	
FCZ2	3/08/2024	Sunny	Moderate	8:49	4.3	B	2.2	2	8.6		27.7		27.6		126.1		8.52		0.6		2		2		0.01		0.60		0.01		0.08		72	
FCZ7	3/08/2024	Sunny	Moderate	9:24	4.4	S	2.2	1	8.3	8.3	26.0	25.9	28.8	28.9	149.3	150.4	9.98	10.1	0.6	0.7	2	2.0	2	2.0	0.01	0.01	0.40	0.40	0.04	0.03	0.11	0.10	21	22
FCZ7	3/08/2024	Sunny	Moderate	9:24	4.4	S	2.2	2	8.3		25.8		28.9		151.4		10.12		0.6		2		2		0.01		0.40		0.03		0.10		24	
FCZ7	3/08/2024	Sunny	Moderate	9:24	4.4	B	2.2	1	8.2	8.2	27.4	27.4	27.5	27.5	123.9	123.1	8.40	8.4	0.7		2		2		0.01		0.40		0.02		0.08		19	
FCZ7	3/08/2024	Sunny	Moderate	9:24	4.4	B	2.2	2	8.2		27.4		27.4		122.3		8.30		0.7		2		2		0.01		0.40		0.02		0.09		25	
FCZ8	3/08/2024	Sunny	Moderate	9:31	3.5	S	1.8	1	8.3	8.3	26.3	26.3	28.9	29.0	139.1	139.5	9.26	9.3	0.5	0.5	2	2.0	2	2.0	0.02	0.02	0.40	0.40	0.02	0.02	0.10	0.09	18	31
FCZ8	3/08/2024	Sunny	Moderate	9:31	3.5	S	1.8	2	8.3		26.2		29.0		139.9		9.31		0.5		2		2		0.02		0.40		0.02		0.09		25	
FCZ8	3/08/2024	Sunny	Moderate	9:31	3.5	B	1.8	1	8.3	8.3	27.0	27.0	28.2	28.2	138.1	138.5	9.00	9.0	0.5		2		2		0.01		0.40		0.01		0.08		39	
FCZ8	3/08/2024	Sunny	Moderate	9:31	3.5	B	1.8	2	8.3		27.0		28.1		138.9		9.00		0.5		2		2		0.01		0.40		0.01		0.08		42	
SGA	3/08/2024	Sunny	Moderate	9:46	2.5	M	1.3	1	8.3	8.3	26.2	26.2	28.6	28.7	150.5	151.8	10.05	10.2	1.0	1.0	2	2.0	2	2.0	0.01	0.01	0.40	0.40	0.01	0.01	0.07	0.07	51	49
SGA	3/08/2024	Sunny	Moderate	9:46	2.5	M	1.3	2	8.3		26.1		28.7		153.1		10.25		1.0		2		2		0.01		0.40		0.01		0.06		47	
M6A	3/08/2024	Sunny	Moderate	9:06	4.5	S	2.3	1	8.3	8.3	26.2	26.2	29.2	29.2	140.5	140.7	9.32	9.3	0.6	0.6	2	2.0	2	2.0	0.01	0.01	0.60	0.55	0.02	0.01	0.08	0.07	28	29
M6A	3/08/2024	Sunny	Moderate	9:06	4.5	S	2.3	2	8.3		26.2		29.2		140.8		9.34		0.6		2		2		0.01		0.60		0.01		0.07		34	
M6A	3/08/2024	Sunny	Moderate	9:06	4.5	B	2.3	1	8.3	8.3	26.9	26.9	28.7	28.7	138.1	138.1	9.20	9.2	0.6		2		2		0.01		0.50		0.01		0.06		26	
M6A	3/08/2024	Sunny	Moderate	9:06	4.5	B	2.3	2	8.3		26.9		28.7		138.1		9.20		0.6		2		2		0.01		0.50		0.01		0.06		29	
H4A	3/08/2024	Sunny	Moderate	9:38	2.2	M	1.1	1	8.3	8.3	26.6	26.6	28.3	28.3	150.5	150.5	10.11	10.1	0.7	0.7	2	2.0	2	2.0	0.03	0.03	0.40	0.45	0.01	0.01	0.08	0.08	27	32
H4A	3/08/2024	Sunny	Moderate	9:38	2.2	M	1.1	2	8.3		26.6		28.3		150.4		10.11		0.7		2		2		0.02		0.50		0.01		0.08		36	
N1	3/08/2024	Sunny	Moderate	9:11	5.5	S	2.8	1	8.3	8.3	25.8	25.9	28.7	28.7	150.9	151.9	10.11	10.2	0.7	0.7	2	2.0	2	2.0	0.01	0.01	0.50	0.45	0.01	0.01	0.06	0.06	22	34
N1	3/08/2024	Sunny	Moderate	9:11	5.5	S	2.8	2	8.3		26.0		28.6		152.9		10.26		0.8		2		2		0.01		0.50		0.02		0.07		29	
N1	3/08/2024	Sunny	Moderate	9:11	5.5	B	2.8	1	8.1	8.1	27.8	27.8	27.1	27.1	98.3	98.7	6.68	6.7	0.6		2		2		0.01		0.40		0.01		0.06		40	
N1	3/08/2024	Sunny	Moderate	9:11	5.5	B	2.8	2	8.1		27.8		27.1		99.1		6.75		0.6		2		2		0.01		0.40		0.01		0.05		45	
N2	3/08/2024	Sunny	Moderate	9:18	5.1	S	2.6	1	8.3	8.3	26.5	26.5	29.2	29.2	140.4	140.8	9.30	9.3	0.6	0.5	2	2.0	2	2.0	0.01	0.01	0.40	0.40	0.01	0.01	0.08	0.08	34	26
N2	3/08/2024	Sunny	Moderate	9:18	5.1	S	2.6	2	8.3		26.4		29.1		141.1		9.36		0.5		2		2		0.02		0.40		0.01		0.10		28	
N2	3/08/2024	Sunny	Moderate	9:18	5.1	B	2.6	1	8.2	8.2	27.5	27.5	27.6	27.6	128.0	125.3	8.32	8.3	0.5		2		2		0.01		0.40		0.01		0.07		17	
N2	3/08/2024	Sunny	Moderate	9:18	5.1	B	2.6	2	8.2		27.5		27.6		122.5		8.28		0.4		2		2		0.01		0.40		0.01		0.08		25	
C	3/08/2024	Sunny	Moderate	8:57	8.5	S	4.3	1	8.3	8.3	25.8	25.9	29.0	29.0	139.2	139.6	9.29	8.7	0.6	1.0	2	2.0	2	2.0	0.01	0.01	0.60	0.55	0.02	0.01	0.10	0.09	63	57
C	3/08/2024	Sunny	Moderate	8:57	8.5	S	4.3	2	8.3		26.0		28.9		139.9		9.33		0.6		2		2		0.01		0.60		0.02		0.09		59	
C	3/08/2024	Sunny	Moderate	8:57	8.5	M	4.3	1	8.2	8.2	27.8	27.8	27.4	27.4	120.6	119.8	8.17		0.3		2		2		0.01		0.50		0.01		0.09		26	
C	3/08/2024	Sunny	Moderate	8:57	8.5	M	4.3	2	8.2		27.8		27.3		119.0		8.07		0.3		2		2		0.01		0.50		0.01		0.08		30	
C	3/08/2024	Sunny	Moderate	8:57	8.5	B	4.3	1	7.6	7.7	31.9	34.2	24.1	24.1	38.8	38.6	2.72	2.7	2.0		2		2		0.01		0.50		0.01		0.09		77	
C	3/08/2024	Sunny	Moderate	8:57	8.5	B	4.3	2	7.8		36.4		24.1		38.3		2.71		2.2		2		2		0.02		0.60		0.01		0.09		84	

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	4/08/2024	Sunny	Moderate	12:18	2.9	M	2	1	8.0	8.0	30.0	30.0	26.1	26.1	68.8	68.3	4.70	4.7	6.2	6.3	3	3.5	2	2.0	0.02	0.02	0.60	0.6	0.05	0.06	0.11	0.1	27	25
FCZ1A	4/08/2024	Sunny	Moderate	12:18	2.9	M	2	2	8.0		30.0		26.1		67.7		4.63		6.3		4		2		0.01		0.50		0.06		0.14		22	
FCZ2	4/08/2024	Sunny	Moderate	11:10	5.8	S	1	1	8.2	8.2	27.0	27.0	28.7	28.7	136.5	136.3	9.10	9.1	0.7	0.9	2	2.0	2	2.3	0.01	0.01	0.80	0.7	0.08	0.08	0.14	0.1	11	11
FCZ2	4/08/2024	Sunny	Moderate	11:10	5.8	S	1	2	8.2		27.0		28.6		136.1		9.07		0.7		2		3		0.01		0.90		0.10		0.15		15	
FCZ2	4/08/2024	Sunny	Moderate	11:10	5.8	B	5	1	7.9	7.9	31.1	31.1	25.0	25.0	57.5	57.5	3.98	4.0	1.1		2		2		0.01		0.60		0.07		0.13		9	
FCZ2	4/08/2024	Sunny	Moderate	11:10	5.8	B	5	2	7.9		31.1		25.0		57.4		3.98		1.2		2		2		0.01		0.60		0.06		0.10		7	
FCZ7	4/08/2024	Sunny	Moderate	11:59	5.8	S	1	1	8.3	8.3	26.6	26.6	29.4	29.4	137.4	137.4	9.06	9.1	1.2	2.8	2	3.0	2	2.0	0.01	0.01	0.40	0.5	0.03	0.04	0.09	0.1	21	24
FCZ7	4/08/2024	Sunny	Moderate	11:59	5.8	S	1	2	8.3		26.6		29.4		137.4		9.06		1.2		2		2		0.01		0.50		0.04		0.09		19	
FCZ7	4/08/2024	Sunny	Moderate	11:59	5.8	B	5	1	7.9	7.9	31.5	31.5	24.7	24.7	39.6	39.3	2.75	2.7	4.4		4		2		0.01		0.60		0.04		0.17		27	
FCZ7	4/08/2024	Sunny	Moderate	11:59	5.8	B	5	2	7.9		31.5		24.7		38.9		2.71		4.4		4		2		0.01		0.60		0.04		0.16		30	
FCZ8	4/08/2024	Sunny	Moderate	12:07	4.8	S	1	1	8.3	8.3	27.7	27.7	28.0	28.0	129.0	129.7	8.70	8.7	0.7	1.3	3	2.8	2	2.0	0.01	0.01	0.40	0.5	0.02	0.03	0.07	0.1	16	13
FCZ8	4/08/2024	Sunny	Moderate	12:07	4.8	S	1	2	8.3		27.7		28.0		130.3		8.75		0.8		3		2		0.01		0.50		0.03		0.09		15	
FCZ8	4/08/2024	Sunny	Moderate	12:07	4.8	B	4	1	7.8	7.9	30.6	30.6	25.5	25.5	65.8	65.9	4.53	4.6	1.7		3		2		0.01		0.60		0.02		0.10		10	
FCZ8	4/08/2024	Sunny	Moderate	12:07	4.8	B	4	2	7.9		30.5		25.5		66.0		4.59		1.8		2		2		0.01		0.60		0.04		0.13		12	
SGA	4/08/2024	Sunny	Moderate	12:24	2.8	M	1	1	8.1	8.1	29.2	29.3	26.8	26.8	100.3	100.1	6.81	6.8	1.0	1.0	3	2.5	2	2.0	0.01	0.01	0.50	0.5	0.04	0.04	0.11	0.1	24	23
SGA	4/08/2024	Sunny	Moderate	12:24	2.8	M	1	2	8.1		29.3		26.7		99.9		6.79		1.0		2		2		0.01		0.50		0.04		0.11		21	
M6A	4/08/2024	Sunny	Moderate	11:30	5.9	S	1	1	8.2	8.2	28.4	28.3	27.5	27.4	111.7	112.0	7.53	7.5	1.2	1.9	2	3.3	2	2.0	0.01	0.01	0.50	0.5	0.05	0.04	0.11	0.1	19	26
M6A	4/08/2024	Sunny	Moderate	11:30	5.9	S	1	2	8.2		28.2		27.3		112.2		7.56		1.1		2		2		0.01		0.50		0.05		0.13		25	
M6A	4/08/2024	Sunny	Moderate	11:30	5.9	B	5	1	8.0	8.0	30.4	30.4	25.7	25.7	73.8	72.2	5.07	5.1	2.8		5		2		0.01		0.50		0.03		0.17		27	
M6A	4/08/2024	Sunny	Moderate	11:30	5.9	B	5	2	8.0		30.4		25.6		70.6		5.04		2.5		4		2		0.01		0.50		0.02		0.16		34	
H4A	4/08/2024	Sunny	Moderate	12:16	3.3	S	1	1	8.1	8.1	29.2	29.2	26.7	26.7	92.2	92.3	6.27	6.3	1.2	3.7	2	3.0	2	2.0	0.01	0.01	0.50	0.5	0.04	0.04	0.11	0.1	24	28
H4A	4/08/2024	Sunny	Moderate	12:16	3.3	S	1	2	8.1		29.1		26.7		92.4		6.28		1.1		2		2		0.01		0.60		0.03		0.10		28	
H4A	4/08/2024	Sunny	Moderate	12:16	3.3	B	2	1	8.0	8.0	30.0	30.0	26.1	26.1	68.8	68.3	4.70	4.7	6.2		4		2		0.01		0.50		0.05		0.14		33	
H4A	4/08/2024	Sunny	Moderate	12:16	3.3	B	2	2	8.0		30.0		26.1		67.7		4.63		6.3		4		2		0.01		0.50		0.04		0.13		27	
N1	4/08/2024	Sunny	Moderate	11:37	7.3	S	1	1	8.3	8.3	25.9	25.9	29.3	29.3	143.1	143.1	9.49	7.1	0.9	1.5	2	2.3	2	2.0	0.01	0.01	0.60	0.6	0.04	0.04	0.09	0.2	21	25
N1	4/08/2024	Sunny	Moderate	11:37	7.3	S	1	2	8.3		25.9		29.3		143.1		9.49		0.9		2		2		0.01		0.50		0.05		0.10		29	
N1	4/08/2024	Sunny	Moderate	11:37	7.3	M	4	1	8.0	8.0	30.8	30.8	25.3	25.3	68.6	67.7	4.68		1.2		2		2		0.01		0.60		0.04		0.15		31	
N1	4/08/2024	Sunny	Moderate	11:37	7.3	M	4	2	8.0		30.8		25.3		66.8		4.62		1.2		2		2		0.01		0.70		0.04		0.15		26	
N1	4/08/2024	Sunny	Moderate	11:37	7.3	B	6	1	7.9	7.9	31.6	31.6	24.5	24.5	42.2	41.2	2.94	2.9	2.4		3		2		0.02		0.60		0.03		0.21		19	
N1	4/08/2024	Sunny	Moderate	11:37	7.3	B	6	2	7.9		31.6		24.4		40.1		2.92		2.6		3		2		0.02		0.60		0.03		0.21		24	
N2	4/08/2024	Sunny	Moderate	11:49	6.2	S	1	1	8.3	8.3	26.7	26.7	29.2	29.2	133.7	133.8	8.84	8.8	0.9	1.6	4	3.3	2	2.0	0.01	0.01	0.60	0.6	0.06	0.06	0.16	0.2	23	30
N2	4/08/2024	Sunny	Moderate	11:49	6.2	S	1	2	8.3		26.7		29.2		133.8		8.85		0.9		4		2		0.01		0.60		0.06		0.15		27	
N2	4/08/2024	Sunny	Moderate	11:49	6.2	B	5	1	7.9	7.9	31.6	31.6	24.5	24.6	43.8	44.1	3.05	3.1	2.5		3		2		0.02		0.60		0.06		0.18		39	
N2	4/08/2024	Sunny	Moderate	11:49	6.2	B	5	2	7.9		31.5		24.6		44.3		3.08		1.9		2		2		0.01		0.60		0.05		0.17		32	
C	4/08/2024	Sunny	Moderate	11:21	10.4	S	1	1	8.2	8.2	27.0	26.9	28.6	28.8	129.3	130.1	8.63	6.6	0.8	1.4	4	3.2	2	2.0	0.01	0.01	0.60	0.6	0.05	0.04	0.13	0.1	34	45
C	4/08/2024	Sunny	Moderate	11:21	10.4	S	1	2	8.2		26.7		28.9		130.9		8.71		0.8		4		2		0.01		0.60		0.06		0.14		40	
C	4/08/2024	Sunny	Moderate	11:21	10.4	M	5	1	8.0	8.0	30.8	30.8	25.2	25.3	66.8	67.0	4.61		1.0		3		2		0.01		0.50		0.03		0.11		46	
C	4/08/2024	Sunny	Moderate	11:21	10.4	M	5	2	8.0		30.7		25.3		67.2		4.63		1.1		3		2		0.01		0.60		0.03		0.10		51	
C	4/08/2024	Sunny	Moderate	11:21	10.4	B	9	1	7.8	7.8	32.7	32.7	23.6	23.6	24.9	24.8	1.75	1.7	2.2		3		2		0.02		0.60		0.04		0.20		47.0	
C	4/08/2024	Sunny	Moderate	11:21	10.4	B	9	2	7.8		32.7		23.6		24.6		1.73		2.2		2		2		0.02		0.50		0.03		0.20		49.0	

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	5/08/2024	Sunny	Moderate	11:38	2.7	M	1	1	8.3	8.3	29.4	29.4	27.0	27.0	141.0	141.0	9.52	9.5	1.1	1.1	2	2.0	2	2.0	0.01	0.01	0.5	0.5	0.01	0.01	0.04	0.04	9	8
FCZ1A	5/08/2024	Sunny	Moderate	11:38	2.7	M	1	2	8.3		29.4		27.0		141.0		9.52		1.1		2		2		0.01		0.5		0.01		0.04		6	
FCZ2	5/08/2024	Sunny	Moderate	10:34	5.6	S	1	1	8.4	8.4	27.3	27.3	29.7	29.7	144.0	143.9	9.40	9.4	0.6	1.0	2	2.0	2	2.0	0.01	0.01	0.4	0.5	0.01	0.01	0.04	0.04	5	5
FCZ2	5/08/2024	Sunny	Moderate	10:34	5.6	S	1	2	8.4		27.3		29.6		143.7		9.41		0.6		2		2		0.01		0.4		0.01		0.04		7	
FCZ2	5/08/2024	Sunny	Moderate	10:34	5.6	B	5	1	8.1	8.1	31.1	31.1	25.3	25.3	74.0	74.1	5.10	5.1	1.3		2		2		0.01		0.5		0.01		0.03		4	
FCZ2	5/08/2024	Sunny	Moderate	10:34	5.6	B	5	2	8.1		31.1		25.3		74.2		5.11		1.3		2		2		0.01		0.6		0.01		0.03		3	
FCZ7	5/08/2024	Sunny	Moderate	11:15	5.9	S	1	1	8.3	8.3	27.9	27.9	28.6	28.6	142.1	142.3	9.43	9.4	1.1	1.8	2	2.0	2	2.0	0.01	0.01	0.4	0.5	0.01	0.01	0.03	0.04	2	4
FCZ7	5/08/2024	Sunny	Moderate	11:15	5.9	S	1	2	8.3		27.9		28.6		142.5		9.45		1.1		2		2		0.01		0.5		0.01		0.04		3	
FCZ7	5/08/2024	Sunny	Moderate	11:15	5.9	B	5	1	8.0	8.0	30.7	30.4	25.8	25.8	83.2	83.1	5.70	5.7	2.4		2		2		0.01		0.5		0.01		0.03		7	
FCZ7	5/08/2024	Sunny	Moderate	11:15	5.9	B	5	2	8.0		30.0		25.7		83.0		5.66		2.4		2		2		0.01		0.5		0.01		0.04		5	
FCZ8	5/08/2024	Sunny	Moderate	11:24	4.8	S	1	1	8.3	8.3	28.3	28.3	28.3	28.3	139.8	139.8	9.30	9.3	1.1	2.1	3	2.8	2	2.0	0.01	0.01	0.5	0.5	0.01	0.01	0.04	0.04	17	14
FCZ8	5/08/2024	Sunny	Moderate	11:24	4.8	S	1	2	8.3		28.3		28.3		139.7		9.30		1.1		3		2		0.01		0.5		0.01		0.04		15	
FCZ8	5/08/2024	Sunny	Moderate	11:24	4.8	B	4	1	8.0	8.0	30.6	30.7	25.9	25.8	82.8	81.9	5.66	5.6	3.1		2		2		0.02		0.5		0.02		0.04		11	
FCZ8	5/08/2024	Sunny	Moderate	11:24	4.8	B	4	2	8.0		30.7		25.7		81.0		5.55		3.1		3		2		0.01		0.5		0.01		0.03		14	
SGA	5/08/2024	Sunny	Moderate	11:41	2.8	M	1	1	8.2	8.2	29.6	29.6	26.8	26.8	132.2	132.5	8.95	9.0	12.5	12.5	2	2.0	2	2.0	0.01	0.01	0.5	0.5	0.01	0.01	0.03	0.03	9	12
SGA	5/08/2024	Sunny	Moderate	11:41	2.8	M	1	2	8.2		29.6		26.8		132.7		8.97		12.5		2		2		0.01		0.5		0.01		0.03		15	
M6A	5/08/2024	Sunny	Moderate	10:53	5.7	S	1	1	8.3	8.3	27.6	27.6	29.6	29.6	139.8	140.0	9.15	9.2	0.9	1.1	2	2.0	2	2.0	0.01	0.01	0.5	0.5	0.01	0.01	0.03	0.03	10	19
M6A	5/08/2024	Sunny	Moderate	10:53	5.7	S	1	2	8.3		27.6		29.6		140.1		9.16		0.9		2		2		0.01		0.4		0.01		0.03		13	
M6A	5/08/2024	Sunny	Moderate	10:53	5.7	B	5	1	8.1	8.1	30.6	30.7	25.8	25.8	90.6	90.0	6.20	6.2	1.3		2		2		0.01		0.5		0.01		0.03		25	
M6A	5/08/2024	Sunny	Moderate	10:53	5.7	B	5	2	8.1		30.7		25.7		89.3		6.12		1.3		2		2		0.01		0.5		0.01		0.04		28	
H4A	5/08/2024	Sunny	Moderate	11:31	3.7	S	1	1	8.3	8.3	29.1	29.1	27.4	27.4	143.4	143.3	9.60	9.6	1.1	1.1	2	2.0	2	2.0	0.01	0.01	0.5	0.5	0.01	0.01	0.03	0.04	18	25
H4A	5/08/2024	Sunny	Moderate	11:31	3.7	S	1	2	8.3		29.1		27.4		143.2		9.63		1.1		2		2		0.02		0.5		0.01		0.03		17	
H4A	5/08/2024	Sunny	Moderate	11:31	3.7	B	3	1	8.1	8.1	29.8	29.9	26.7	26.6	122	123.0	8.27	8.3	1.8	1.9	3	2.5	2		0.01		0.5		0.01		0.04		29	
H4A	5/08/2024	Sunny	Moderate	11:31	3.7	B	3	2	8.1		30.0		26.5		123.9		8.31		2.0		2		2		0.01		0.5		0.01		0.04		34	
N1	5/08/2024	Sunny	Moderate	11:00	7.2	S	1	1	8.3	8.3	27.1	27.1	29.6	29.6	140.9	141.1	9.20	7.3	1.2	1.6	2	2.0	2	2.0	0.01	0.01	0.4	0.5	0.01	0.01	0.03	0.04	11	17
N1	5/08/2024	Sunny	Moderate	11:00	7.2	S	1	2	8.3		27.1		29.6		141.2		9.26		1.2		2		2		0.01		0.5		0.01		0.04		8	
N1	5/08/2024	Sunny	Moderate	11:00	7.2	M	4	1	8.1	8.1	31.0	31.0	25.3	25.3	77.8	77.7	5.36		1.1		2		2		0.01		0.5		0.01		0.03		22	
N1	5/08/2024	Sunny	Moderate	11:00	7.2	M	4	2	8.1		31.0		25.3		77.6		5.35		1.1		2		2		0.01		0.5		0.01		0.03		24	
N1	5/08/2024	Sunny	Moderate	11:00	7.2	B	6	1	7.9	7.9	31.5	31.5	24.9	24.9	44.4	44.4	3.08	3.1	2.5		2		2		0.01		0.5		0.01		0.04		16	
N1	5/08/2024	Sunny	Moderate	11:00	7.2	B	6	2	7.9		31.5		24.9		44.3		3.07		2.4		2		2		0.01		0.5		0.01		0.04		19	
N2	5/08/2024	Sunny	Moderate	11:10	6.2	S	1	1	8.3	8.3	27.7	27.7	28.9	28.9	141.4	141.4	9.40	9.4	1.2	1.6	2	2.3	2	2.0	0.01	0.01	0.5	0.5	0.01	0.01	0.04	0.04	31	35
N2	5/08/2024	Sunny	Moderate	11:10	6.2	S	1	2	8.3		27.7		28.9		141.4		9.36		1.2		2		2		0.01		0.5		0.01		0.03		37	
N2	5/08/2024	Sunny	Moderate	11:10	6.2	B	5	1	8.0	8.0	31.0	31.0	25.4	25.4	74.3	74.2	5.11	5.1	1.9		2		2		0.01		0.5		0.01		0.04		34	
N2	5/08/2024	Sunny	Moderate	11:10	6.2	B	5	2	8.0		31.0		25.4		74.1		5.10		1.9		3		2		0.01		0.5		0.01		0.04		37	
C	5/08/2024	Sunny	Moderate	10:44	11.1	S	1	1	8.3	8.3	28.5	28.5	28.3	28.3	133.6	134.0	8.88	7.7	0.9	1.5	2	2.0	2	2.0	0.01	0.01	0.4	0.4	0.01	0.01	0.03	0.03	41	44
C	5/08/2024	Sunny	Moderate	10:44	11.1	S	1	2	8.3		28.5		28.2		134.3		8.94		1.0		2		2		0.01		0.4		0.01		0.03		35	
C	5/08/2024	Sunny	Moderate	10:44	11.1	M	6	1	8.1	8.1	30.7	30.8	25.4	25.4	93.2	93.1	6.45		1.2		2		2		0.01		0.4		0.01		0.03		39	
C	5/08/2024	Sunny	Moderate	10:44	11.1	M	6	2	8.1		30.8		25.3		93.0		6.41		1.3		2		2		0.01		0.4		0.01		0.03		42	
C	5/08/2024	Sunny	Moderate	10:44	11.1	B	10	1	7.9	7.9	32.4	32.4	24.0	24.0	30.4	30.4	2.13	2.1	2.2		2		2		0.01		0.4		0.01		0.03		51.0	
C	5/08/2024	Sunny	Moderate	10:44	11.1	B	10	2	7.9		32.4		24.0		30.4		2.13		2.1		2		2		0.01		0.4		0.01		0.03		56.0	

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	6/08/2024	Sunny	Moderate	12:04	2.7	M	1	1	8.1	8.1	29.6	29.6	27.8	27.9	113.6	111.6	7.56	7.4	3.6	3.5	2	2.0	2	2.0	0.01	0.02	0.5	0.5	0.01	0.01	0.20	0.21	12	13
FCZ1A	6/08/2024	Sunny	Moderate	12:04	2.7	M	1	2	8.1		29.6		27.9		109.6		7.30		3.4		2		2		0.02		0.5		0.01		0.21		13	
FCZ2	6/08/2024	Sunny	Moderate	11:16	5.6	S	1	1	8.3	8.3	29.3	29.3	28.0	28.0	143.8	143.6	9.56	9.5	1.0	1.2	2	2.0	2	2.0	0.01	0.01	0.4	0.5	0.01	0.01	0.21	0.21	3	3
FCZ2	6/08/2024	Sunny	Moderate	11:16	5.6	S	1	2	8.3		29.3		28.0		143.3		9.53		1.1		2		2		0.01		0.6		0.01		0.19		4	
FCZ2	6/08/2024	Sunny	Moderate	11:16	5.6	B	5	1	8.2	8.2	31.1	31.1	25.6	25.6	100.0	99.9	6.85	6.8	1.3		2		2		0.01		0.4		0.01		0.21		1	
FCZ2	6/08/2024	Sunny	Moderate	11:16	5.6	B	5	2	8.2		31.1		25.6		99.8		6.84		1.3		2		2		0.01		0.6		0.01		0.21		2	
FCZ7	6/08/2024	Sunny	Moderate	11:48	5.9	S	1	1	8.2	8.2	28.6	28.6	28.9	28.9	139.7	139.3	9.19	9.2	2.1	2.0	2	2.5	2	2.0	0.01	0.01	0.4	0.4	0.01	0.01	0.21	0.21	14	9
FCZ7	6/08/2024	Sunny	Moderate	11:48	5.9	S	1	2	8.2		28.6		28.9		138.8		9.13		2.2		3		2		0.01		0.4		0.01		0.20		17	
FCZ7	6/08/2024	Sunny	Moderate	11:48	5.9	B	5	1	7.9	8.0	31.6	31.6	24.9	24.9	79.2	78.8	5.50	5.5	1.8		2		2		0.01		0.4		0.01		0.21		3	
FCZ7	6/08/2024	Sunny	Moderate	11:48	5.9	B	5	2	8.0		31.6		24.9		78.3		5.41		1.7		3		2		0.01		0.4		0.01		0.21		2	
FCZ8	6/08/2024	Sunny	Moderate	11:53	4.8	S	1	1	8.2	8.2	29.1	29.1	28.4	28.5	136.7	136.6	9.03	9.0	2.5	2.1	3	3.3	2	2.0	0.01	0.01	0.5	0.5	0.01	0.01	0.21	0.20	6	10
FCZ8	6/08/2024	Sunny	Moderate	11:53	4.8	S	1	2	8.2		29.1		28.5		136.5		9.02		2.5		4		2		0.01		0.5		0.01		0.20		7	
FCZ8	6/08/2024	Sunny	Moderate	11:53	4.8	B	4	1	8.0	8.0	31.6	31.6	24.9	24.9	68.1	68.2	4.71	4.7	1.7		3		2		0.01		0.4		0.01		0.21		12	
FCZ8	6/08/2024	Sunny	Moderate	11:53	4.8	B	4	2	8.0		31.6		24.9		68.2		4.72		1.6		3		2		0.01		0.5		0.01		0.18		15	
SGA	6/08/2024	Sunny	Moderate	12:08	2.8	M	1	1	8.2	8.2	29.7	29.8	27.2	27.2	130.3	71.7	8.75	8.8	1.2	1.3	4	3.5	2	2.0	0.02	0.02	0.5	0.5	0.01	0.01	0.21	0.21	14	12
SGA	6/08/2024	Sunny	Moderate	12:08	2.8	M	1	2	8.2		29.8		27.2		13.01		8.75		1.3		3		2		0.02		0.5		0.01		0.21		10	
M6A	6/08/2024	Sunny	Moderate	11:33	5.7	S	1	1	8.3	8.3	29.3	29.3	27.9	27.9	143.1	142.7	9.53	9.5	1.4	1.4	4	3.0	3	2.3	0.01	0.01	0.5	0.5	0.01	0.01	0.21	0.21	7	7
M6A	6/08/2024	Sunny	Moderate	11:33	5.7	S	1	2	8.3		29.3		27.8		142.3		9.50		1.4		3		2		0.01		0.5		0.01		0.21		8	
M6A	6/08/2024	Sunny	Moderate	11:33	5.7	B	5	1	8.0	8.0	31.9	31.9	24.6	24.6	61.9	61.8	4.30	4.3	1.4		3		2		0.01		0.6		0.01		0.21		6	
M6A	6/08/2024	Sunny	Moderate	11:33	5.7	B	5	2	8.0		31.9		24.6		61.6		4.30		1.5		2		2		0.01		0.3		0.01		0.21		5	
H4A	6/08/2024	Sunny	Moderate	12:00	2.9	M	2	1	8.2	8.2	29.2	29.2	28.3	28.3	141.6	141.6	9.37	9.4	2.6	2.6	2	2.5	2	2.0	0.02	0.02	0.5	0.5	0.01	0.01	0.21	0.2	2	3
H4A	6/08/2024	Sunny	Moderate	12:00	2.9	M	2	2	8.2		29.2		28.3		141.6		9.37		2.6		3		2		0.02		0.5		0.01		0.18		3	
N1	6/08/2024	Sunny	Moderate	11:38	5.9	S	1	1	8.3	8.3	29.5	29.6	27.4	27.4	139.0	138.6	9.32	9.3	1.3	0.9	3	2.3	2	1.3	0.02	0.01	0.6	0.4	0.01	0.01	0.21	0.1	19	13
N1	6/08/2024	Sunny	Moderate	11:38	5.9	S	1	2	8.3		29.7		27.3		138.1		9.27		1.4		4		2		0.02		0.5		0.01		0.21		17	
N1	6/08/2024	Sunny	Moderate	11:38	5.9	B	5	1	7.9	7.9	32.1	32.1	24.1	24.1	73.7	72.5	5.20	5.1	1.5		3		2		0.01		0.5		0.01		0.21		18	
N1	6/08/2024	Sunny	Moderate	11:38	5.9	B	5	2	7.9		32.1		24.1		71.2		4.98		1.4		4		2		0.02		0.5		0.01		0.21		22	
N2	6/08/2024	Sunny	Moderate	11:44	5.3	S	1	1	8.3	8.3	28.5	28.6	28.9	28.9	156.0	155.8	10.30	10.3	1.5	1.5	3	3.0	2	2.0	0.01	0.01	0.5	0.5	0.01	0.01	0.22	0.21	5	10
N2	6/08/2024	Sunny	Moderate	11:44	5.3	S	1	2	8.3		28.6		28.8		155.5		10.24		1.5		4		2		0.01		0.4		0.01		0.21		8	
N2	6/08/2024	Sunny	Moderate	11:44	5.3	B	4	1	7.9	7.9	32.2	32.2	24.2	24.2	49.8	49.7	3.48	3.5	1.5		2		2		0.01		0.5		0.01		0.21		15	
N2	6/08/2024	Sunny	Moderate	11:44	5.3	B	4	2	7.9		32.2		24.2		49.6		3.46		1.5		3		2		0.01		0.5		0.01		0.21		12	
C	6/08/2024	Sunny	Moderate	11:24	10.8	S	1	1	8.3	8.3	30.0	30.1	27.0	27.0	117.1	116.3	7.88	7.8	1.2	1.5	2	2.7	2	2.3	0.01	0.01	0.4	0.5	0.01	0.01	0.21	0.20	8	11
C	6/08/2024	Sunny	Moderate	11:24	10.8	S	1	2	8.2		30.2		26.9		115.5		7.79		1.3		2		2		0.01		0.4		0.01		0.19		13	
C	6/08/2024	Sunny	Moderate	11:24	10.8	M	5	1	8.2	8.2	30.2	30.2	26.8	26.9	114.4	113.9	7.72		1.3		3		2		0.01		0.4		0.01		0.20		11	
C	6/08/2024	Sunny	Moderate	11:24	10.8	M	5	2	8.2		30.2		26.9		113.3		7.63		1.4		3		2		0.01		0.4		0.01		0.21		15	
C	6/08/2024	Sunny	Moderate	11:24	10.8	B	10	1	7.9	7.9	32.5	32.5	23.9	23.9	36.0	36.0	2.52	2.5	1.8		3		3		0.01		0.6		0.01		0.20		9	
C	6/08/2024	Sunny	Moderate	11:24	10.8	B	10	2	7.9		32.5		23.9		36.0		2.52		1.8		3		3		0.01		0.5		0.01		0.21		7	

Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	7/08/2024	Sunny	Moderate	11:42	2.6	M	1	1	8.3	8.3	30.5	30.4	26.3	26.4	87.5	88.1	5.95	6.0	2.5	2.5	3	2.5	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.17	0.2	0	1
FCZ1A	7/08/2024	Sunny	Moderate	11:42	2.6	M	1	2	8.3		30.2		26.5		88.7		6.02		2.4		2		2		0.02		0.4		0.01		0.17		1	
FCZ2	7/08/2024	Sunny	Moderate	10:53	5.6	S	1	1	8.4	8.4	28.9	28.9	28.2	28.2	113.6	113.6	7.55	7.6	0.3	0.7	2	2.3	2	2.0	0.01	0.01	0.5	0.4	0.01	0.01	0.18	0.2	2	2
FCZ2	7/08/2024	Sunny	Moderate	10:53	5.6	S	1	2	8.4		28.9		28.1		113.5		7.55		0.3		3		2		0.01		0.4		0.01		0.18		3	
FCZ2	7/08/2024	Sunny	Moderate	10:53	5.6	B	5	1	8.2	8.2	31.8	31.8	24.6	24.6	58.5	58.3	4.07	4.1	1.1		2		2		0.01		0.4		0.01		0.17		1	
FCZ2	7/08/2024	Sunny	Moderate	10:53	5.6	B	5	2	8.2		31.8		24.5		58.0		4.03		1.1		2		2		0.01		0.4		0.01		0.17		1	
FCZ7	7/08/2024	Sunny	Moderate	11:23	5.9	S	1	1	8.4	8.4	28.9	28.8	28.1	28.3	119.1	119.0	7.94	7.9	0.9	1.0	2	2.8	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.17	0.2	0	0
FCZ7	7/08/2024	Sunny	Moderate	11:23	5.9	S	1	2	8.4		28.7		28.4		118.9		7.88		0.8		2		2		0.02		0.4		0.01		0.17		0	
FCZ7	7/08/2024	Sunny	Moderate	11:23	5.9	B	5	1	8.3	8.3	31.0	31.0	25.4	25.4	98.0	97.9	6.70	6.7	1.1		3		2		0.02		0.4		0.01		0.16		0	
FCZ7	7/08/2024	Sunny	Moderate	11:23	5.9	B	5	2	8.3		31.0		25.4		97.8		6.73		1.1		4		2		0.02		0.4		0.01		0.17		0	
FCZ8	7/08/2024	Sunny	Moderate	11:28	4.8	S	1	1	8.4	8.4	30.0	29.9	26.7	26.9	114.4	114.0	7.75	7.7	1.2	1.3	3	3.0	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.17	0.2	0	1
FCZ8	7/08/2024	Sunny	Moderate	11:28	4.8	S	1	2	8.4		29.7		27.1		113.5		7.68		1.1		3		2		0.02		0.4		0.01		0.18		0	
FCZ8	7/08/2024	Sunny	Moderate	11:28	4.8	B	4	1	8.3	8.3	31.3	31.3	24.7	24.7	86.1	86.0	5.98	6.0	1.4		3		2		0.02		0.4		0.01		0.16		2	
FCZ8	7/08/2024	Sunny	Moderate	11:28	4.8	B	4	2	8.3		31.3		24.7		85.9		5.97		1.3		3		2		0.02		0.4		0.01		0.17		3	
SGA	7/08/2024	Sunny	Moderate	11:43	2.5	M	1	1	8.2	8.2	30.2	30.2	26.7	26.7	80.7	80.5	5.46	5.4	1.4	1.4	4	3.5	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.17	0.2	5	6
SGA	7/08/2024	Sunny	Moderate	11:43	2.5	M	1	2	8.2		30.2		26.6		80.2		5.43		1.4		3		2		0.02		0.4		0.01		0.17		6	
M6A	7/08/2024	Sunny	Moderate	11:06	5.7	S	1	1	8.4	8.4	29.1	29.2	27.7	27.6	114.6	114.5	7.66	7.7	0.5	1.0	3	3.0	2	2.0	0.01	0.02	0.4	0.5	0.01	0.01	0.17	0.1	3	4
M6A	7/08/2024	Sunny	Moderate	11:06	5.7	S	1	2	8.4		29.3		27.5		114.4		7.67		0.6		3		2		0.02		0.5		0.01		0.17		2	
M6A	7/08/2024	Sunny	Moderate	11:06	5.7	B	5	1	8.3	8.3	31.0	31.1	25.2	25.2	75.5	75.7	5.22	5.2	1.5		3		2		0.02		0.5		0.01		0.10		4	
M6A	7/08/2024	Sunny	Moderate	11:06	5.7	B	5	2	8.3		31.1		25.1		75.8		5.24		1.5		3		2		0.02		0.5		0.01		0.11		5	
H4A	7/08/2024	Sunny	Moderate	11:36	3.1	S	1	1	8.3	8.3	30.3	30.3	26.4	26.4	100	100.0	6.79	6.8	1.7	1.3	3	3.5	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.10	0.1	0	0
H4A	7/08/2024	Sunny	Moderate	11:36	3.1	S	1	2	8.3		30.3		26.4		100		6.80		1.7		4		2		0.02		0.4		0.01		0.12		0	
H4A	7/08/2024	Sunny	Moderate	11:36	3.1	B	2	1	8.3	8.3	30.9	30.9	25.2	25.2	97	97.2	6.70	6.7	1.0		3		2		0.02		0.4		0.01		0.10		0	
H4A	7/08/2024	Sunny	Moderate	11:36	3.1	B	2	2	8.3		30.9		25.2		97.3		6.72		1.0		4		2		0.02		0.4		0.01		0.11		0	
N1	7/08/2024	Sunny	Moderate	11:12	7.1	S	1	1	8.4	8.4	28.6	29.0	28.2	27.7	115.9	115.9	7.70	6.9	0.6	1.1	3	2.5	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.11	0.1	21	24
N1	7/08/2024	Sunny	Moderate	11:12	7.1	S	1	2	8.4		29.4		27.2		115.8		7.80		0.8		2		2		0.02		0.4		0.01		0.11		25	
N1	7/08/2024	Sunny	Moderate	11:12	7.1	M	4	1	8.2	8.2	29.8	29.9	26.4	26.4	90.8	90.7	6.05		1.0		3		2		0.02		0.4		0.01		0.10		22	
N1	7/08/2024	Sunny	Moderate	11:12	7.1	M	4	2	8.2		29.9		26.3		90.6		6.01		0.9		2		2		0.02		0.4		0.01		0.11		29	
N1	7/08/2024	Sunny	Moderate	11:12	7.1	B	6	1	8.2	8.3	31.5	31.5	24.7	24.7	77.2	77.3	5.36	5.4	1.7		3		2		0.02		0.4		0.01		0.10		21	
N1	7/08/2024	Sunny	Moderate	11:12	7.1	B	6	2	8.3		31.5		24.7		77.3		5.37		1.8		2		2		0.02		0.5		0.01		0.10		28	
N2	7/08/2024	Sunny	Moderate	11:14	5.3	S	1	1	8.2	8.2	31.8	31.8	24.0	24.0	46.9	47.2	3.29	3.3	1.6	1.4	2	2.3	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.11	0.1	3	3
N2	7/08/2024	Sunny	Moderate	11:14	5.3	S	1	2	8.2		31.8		24.0		47.4		3.32		1.6		2		2		0.02		0.5		0.01		0.11		5	
N2	7/08/2024	Sunny	Moderate	11:14	5.3	B	4	1	8.3	8.3	31.4	31.4	24.7	24.7	77.7	77.6	5.40	5.4	1.1		2		2		0.02		0.4		0.01		0.11		2	
N2	7/08/2024	Sunny	Moderate	11:14	5.3	B	4	2	8.3		31.4		24.6		77.5		5.39		1.1		3		2		0.02		0.4		0.01		0.11		3	
C	7/08/2024	Sunny	Moderate	10:59	11.0	S	1	1	8.4	8.4	30.1	30.1	26.8	26.8	105.6	105.7	7.14	5.7	0.7	1.4	3	2.3	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.11	0.1	6	5
C	7/08/2024	Sunny	Moderate	10:59	11.0	S	1	2	8.3		30.1		26.8		105.7		7.14		0.7		2		2		0.02		0.4		0.01		0.11		3	
C	7/08/2024	Sunny	Moderate	10:59	11.0	M	6	1	8.2	8.2	31.6	31.7	24.5	24.5	60.6	60.7	4.22		1.6		2		2		0.02		0.4		0.01		0.10		7	
C	7/08/2024	Sunny	Moderate	10:59	11.0	M	6	2	8.2		31.7		24.5		60.8		4.23		1.6		2		2		0.02		0.4		0.01		0.10		5	
C	7/08/2024	Sunny	Moderate	10:59	11.0	B	10	1	8.1	8.1	32.6	32.6	23.2	23.2	26.0	25.9	1.84	1.8	1.8		2		2		0.01		0.4		0.01		0.10		4.0	
C	7/08/2024	Sunny	Moderate	10:59	11.0	B	10	2	8.1		32.6		23.2		25.7		1.82		1.8		3		2		0.02		0.4		0.01		0.11		2.0	

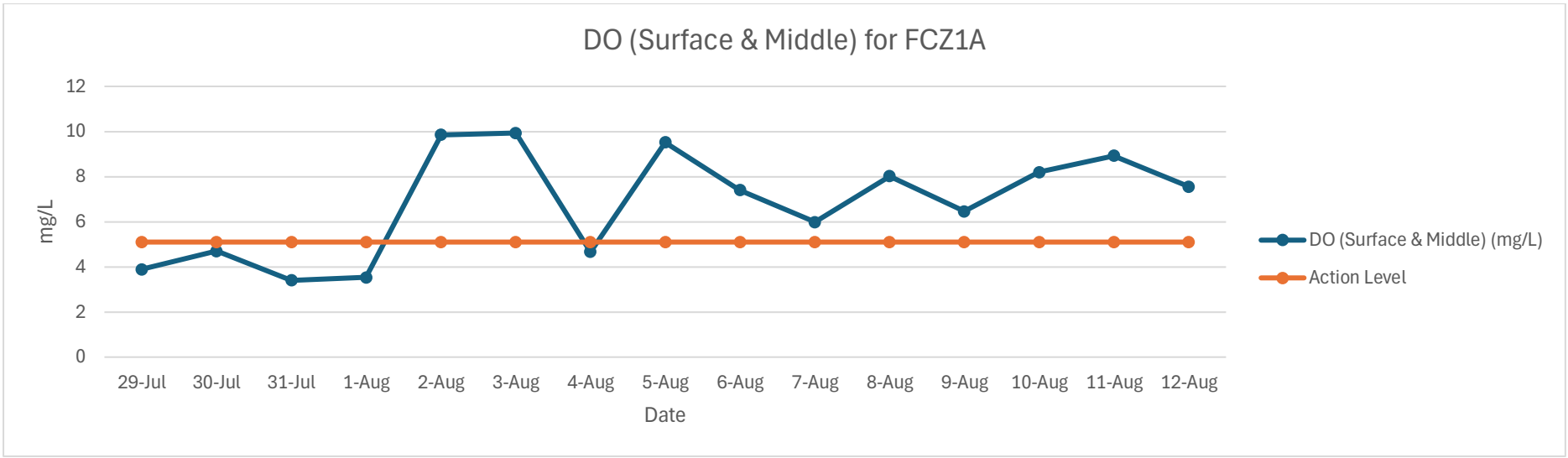
Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	8/08/2024	Sunny	Moderate	12:20	2.7	M	1	1	8.2	8.2	30.4	30.4	27.1	27.1	119.8	119.8	8.03	8.0	2.4	2.4	3	3.5	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.08	0.1	9	11
FCZ1A	8/08/2024	Sunny	Moderate	12:20	2.7	M	1	2	8.2		30.4		27.1		119.7		8.02		2.3		4		2		0.02		0.4		0.01		0.08		13	
FCZ2	8/08/2024	Sunny	Moderate	11:30	5.5	S	1	1	8.3	8.3	28.4	28.4	30.3	30.3	136.6	136.7	8.80	8.8	0.6	1.1	2	2.8	2	5.0	0.01	0.01	0.4	0.4	0.01	0.01	0.09	0.1	5	5
FCZ2	8/08/2024	Sunny	Moderate	11:30	5.5	S	1	2	8.3		28.4		30.2		136.7		8.81		0.6		2		2		0.01		0.4		0.01		0.08		8	
FCZ2	8/08/2024	Sunny	Moderate	11:30	5.5	B	5	1	8.1	8.1	30.7	30.7	26.6	26.6	118.2	118.3	7.98	8.0	1.5		4		14		0.01		0.4		0.01		0.09		3	
FCZ2	8/08/2024	Sunny	Moderate	11:30	5.5	B	5	2	8.1		30.7		26.6		118.3		7.99		1.5		3		2		0.01		0.3		0.01		0.09		3	
FCZ7	8/08/2024	Sunny	Moderate	12:07	5.9	S	1	1	8.2	8.2	27.7	27.7	30.2	30.2	142.2	142.3	9.20	9.2	1.4	3.0	3	3.3	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.08	0.1	27	32
FCZ7	8/08/2024	Sunny	Moderate	12:07	5.9	S	1	2	8.2		27.7		30.2		142.4		9.21		1.4		4		2		0.02		0.4		0.01		0.09		34	
FCZ7	8/08/2024	Sunny	Moderate	12:07	5.9	B	5	1	8.1	8.1	30.6	30.6	27.1	27.1	105.7	105.6	7.08	7.1	4.6		2		2		0.03		0.5		0.01		0.09		31	
FCZ7	8/08/2024	Sunny	Moderate	12:07	5.9	B	5	2	8.1		30.6		27.1		105.4		7.07		4.6		4		2		0.02		0.4		0.01		0.09		35	
FCZ8	8/08/2024	Sunny	Moderate	12:14	4.8	S	1	1	8.3	8.3	28.1	28.2	29.4	29.4	141.5	142.0	9.25	9.3	1.2	1.8	3	3.0	2	2.3	0.02	0.02	0.4	0.4	0.01	0.01	0.08	0.1	45	47
FCZ8	8/08/2024	Sunny	Moderate	12:14	4.8	S	1	2	8.3		28.2		29.3		142.5		9.34		1.2		2		2		0.02		0.4		0.01		0.08		52	
FCZ8	8/08/2024	Sunny	Moderate	12:14	4.8	B	4	1	8.2	8.2	30.4	30.4	27.1	27.1	119.8	119.8	8.03	8.0	2.4		4		3		0.02		0.4		0.01		0.08		49	
FCZ8	8/08/2024	Sunny	Moderate	12:14	4.8	B	4	2	8.2		30.4		27.1		119.7		8.02		2.3		3		2		0.02		0.4		0.01		0.09		42	
SGA	8/08/2024	Sunny	Moderate	12:24	2.8	M	1	1	8.2	8.2	28.4	28.4	29.7	29.6	142.2	143.8	9.20	9.4	1.5	1.4	2	2.0	2	2.0	0.02	0.02	0.4	0.4	0.01	0.01	0.08	0.1	35	36
SGA	8/08/2024	Sunny	Moderate	12:24	2.8	M	1	2	8.2		28.4		29.4		145.4		9.59		1.3		2		2		0.02		0.4		0.01		0.09		37	
M6A	8/08/2024	Sunny	Moderate	11:50	5.7	S	1	1	8.3	8.3	28.3	28.3	29.9	30.1	140.1	140.0	9.08	9.1	0.7	1.0	3	2.5	3	2.5	0.01	0.01	0.4	0.4	0.01	0.01	0.08	0.1	21	19
M6A	8/08/2024	Sunny	Moderate	11:50	5.7	S	1	2	8.3		28.3		30.2		139.9		9.03		0.6		2		3		0.01		0.4		0.01		0.08		26	
M6A	8/08/2024	Sunny	Moderate	11:50	5.7	B	5	1	8.2	8.2	28.2	28.9	28.1	28.1	131.4	131.4	8.72	8.7	1.3		3		2		0.01		0.4		0.01		0.09		16	
M6A	8/08/2024	Sunny	Moderate	11:50	5.7	B	5	2	8.2		29.6		28.0		131.3		8.72		1.4		2		2		0.01		0.4		0.01		0.08		14	
H4A	8/08/2024	Sunny	Moderate	12:23	3.2	S	1	1	8.2	8.3	28.4	28.9	29.7	29.1	142.2	143.8	9.23	9.4	1.5	1.4	3	2.8	2	2.0	0.02	0.02	0.3	0.3	0.01	0.01	0.08	0.1	21	19
H4A	8/08/2024	Sunny	Moderate	12:23	3.2	S	1	2	8.3		29.4		28.4		145.4		9.59		1.3		3		2		0.02		0.3		0.01		0.08		24	
H4A	8/08/2024	Sunny	Moderate	12:23	3.2	B	2	1	8.2	8.2	30.5	30.5	27.0	27.0	129.5	129.7	8.70	8.7	1.3		3		2		0.02		0.3		0.01		0.08		12	
H4A	8/08/2024	Sunny	Moderate	12:23	3.2	B	2	2	8.2		30.5		26.9		129.9		8.74		1.3		2		2		0.02		0.3		0.01		0.08		19	
N1	8/08/2024	Sunny	Moderate	11:54	7.2	S	1	1	8.2	8.2	27.6	27.6	30.0	30.0	138.8	139.0	9.01	9.2	1.4	1.9	2	3.2	2	2.0	0.02	0.02	0.3	0.3	0.01	0.01	0.08	0.1	42	44
N1	8/08/2024	Sunny	Moderate	11:54	7.2	S	1	2	8.2		27.6		30.0		139.2		9.04		1.4		2		2		0.02		0.3		0.01		0.08		49	
N1	8/08/2024	Sunny	Moderate	11:54	7.2	M	4	1	8.2	8.2	29.9	29.9	27.7	27.7	140.9	140.9	9.38		1.2		2		2		0.02		0.3		0.01		0.08		37	
N1	8/08/2024	Sunny	Moderate	11:54	7.2	M	4	2	8.2		29.9		27.7		140.9		9.38		1.2		4		2		0.02		0.3		0.01		0.08		44	
N1	8/08/2024	Sunny	Moderate	11:54	7.2	B	6	1	8.1	8.1	31.3	31.3	25.9	25.9	99.7	99.6	6.80	6.8	3.0		4		2		0.02		0.3		0.01		0.08		48	
N1	8/08/2024	Sunny	Moderate	11:54	7.2	B	6	2	8.1		31.3		25.8		99.5		6.79		2.9		5		2		0.02		0.3		0.01		0.08		45	
N2	8/08/2024	Sunny	Moderate	12:02	5.3	S	1	1	8.3	8.3	27.7	27.7	30.1	30.1	140.7	140.9	9.13	9.1	1.2	1.3	3	2.5	2	2.0	0.01	0.01	0.3	0.4	0.01	0.01	0.08	0.1	51	60
N2	8/08/2024	Sunny	Moderate	12:02	5.3	S	1	2	8.3		27.7		30.1		141.0		9.14		1.2		2		2		0.01		0.4		0.01		0.08		57	
N2	8/08/2024	Sunny	Moderate	12:02	5.3	B	4	1	8.3	8.3	28.8	28.9	28.8	28.7	138.1	138.1	9.09	9.1	1.4		3		2		0.01		0.3		0.01		0.08		62	
N2	8/08/2024	Sunny	Moderate	12:02	5.3	B	4	2	8.3		28.9		28.6		138		9.10		1.4		2		2		0.01		0.4		0.01		0.08		68	
C	8/08/2024	Sunny	Moderate	11:42	10.8	S	1	1	8.3	8.3	28.5	28.5	30.1	30.1	138.4	138.5	8.93	8.7	0.6	1.6	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.08	0.1	53	15
C	8/08/2024	Sunny	Moderate	11:42	10.8	S	1	2	8.3		28.4		30.1		138.6		8.95		0.6		2		2		0.01		0.3		0.01		0.08		10	
C	8/08/2024	Sunny	Moderate	11:42	10.8	M	5	1	8.2	8.2	29.7	29.7	28.1	28.2	127.7	128.3	8.46		1.2		2		2		0.01		0.5		0.01		0.08		7	
C	8/08/2024	Sunny	Moderate	11:42	10.8	M	5	2	8.2		29.6		28.2		128.9		8.53		1.2		2		2		0.01		0.3		0.01		0.08		4	
C	8/08/2024	Sunny	Moderate	11:42	10.8	B	10	1	7.8	7.8	32.7	32.7	23.8	23.8	30.1	30.0	2.11	2.1	3.0		2		2		0.01		0.3		0.01		0.08		6.0	
C	8/08/2024	Sunny	Moderate	11:42	10.8	B	10	2	7.8		32.7		23.8		29.9		2.09		3.0		2		2		0.01		0.2		0.01		0.08		7.0	

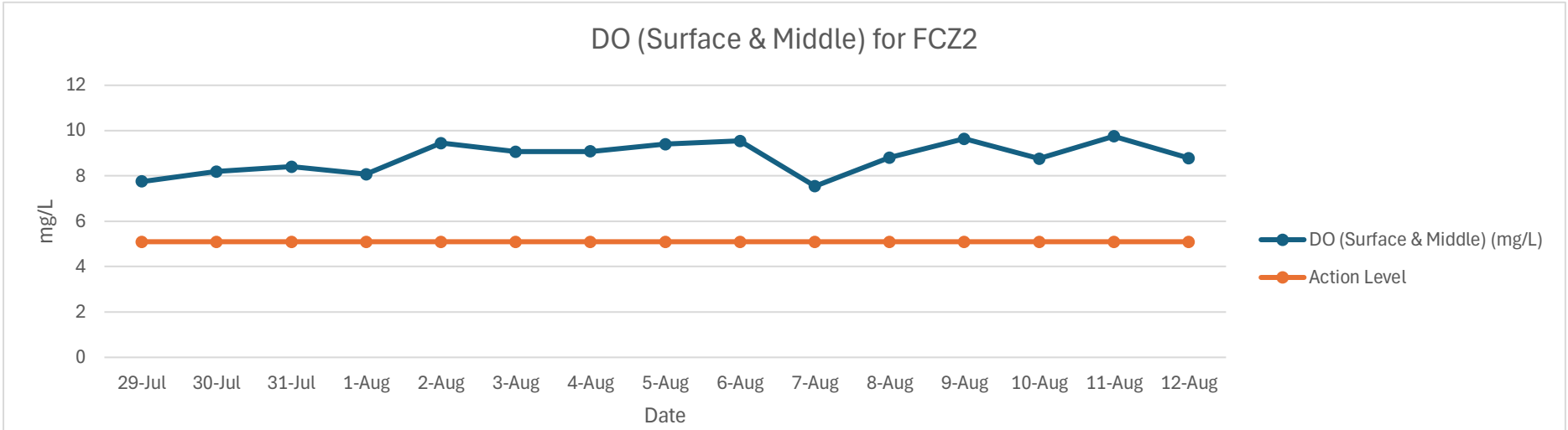
Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis													
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	9/08/2024	Sunny	Moderate	11:30	2.7	M	1	1	8.1	8.1	31.2	31.3	26.1	26.1	95.4	95.2	6.48	6.5	3.8	3.8	2	2.5	2	2.0	0.01	0.01	0.2	0.2	0.01	0.01	0.02	0.0	0	0
FCZ1A	9/08/2024	Sunny	Moderate	11:30	2.7	M	1	2	8.1		31.3		26.0		94.9		6.45		3.8		3		2		0.01		0.2		0.01		0.02		0	
FCZ2	9/08/2024	Sunny	Moderate	12:36	5.6	S	1	1	8.3	8.3	29.5	29.5	29.8	29.8	149.4	149.6	9.62	9.6	0.5	1.1	2	2.0	2	2.0	0.01	0.01	0.2	0.2	0.01	0.01	0.02	0.0	0	0
FCZ2	9/08/2024	Sunny	Moderate	12:36	5.6	S	1	2	8.3		29.5		29.8		149.7		9.65		0.6		2		2		0.01		0.2		0.01		0.02		0	
FCZ2	9/08/2024	Sunny	Moderate	12:36	5.6	B	5	1	8.0	8.0	32.3	32.5	24.4	24.4	70.0	69.4	4.86	4.8	1.6		2		2		0.01		0.2		0.01		0.02		0	
FCZ2	9/08/2024	Sunny	Moderate	12:36	5.6	B	5	2	8.0		32.6		24.3		68.8		4.78		1.6		2		2		0.01		0.2		0.01		0.02		0	
FCZ7	9/08/2024	Sunny	Moderate	11:56	5.9	S	1	1	8.1	8.1	31.0	31.0	26.9	27.0	113.5	113.6	7.61	7.6	2.1	1.8	4	3.3	2	2.0	0.01	0.01	0.2	0.2	0.01	0.01	0.02	0.0	0	0
FCZ7	9/08/2024	Sunny	Moderate	11:56	5.9	S	1	2	8.1		31.0		27.0		113.7		7.59		2.2		4		2		0.01		0.2		0.01		0.02		0	
FCZ7	9/08/2024	Sunny	Moderate	11:56	5.9	B	5	1	8.0	8.0	32.1	32.1	24.7	24.7	77.3	77.3	5.40	5.4	1.4		2		2		0.01		0.2		0.01		0.02		0	
FCZ7	9/08/2024	Sunny	Moderate	11:56	5.9	B	5	2	8.0		32.1		24.7		77.3		5.36		1.4		3		2		0.01		0.2		0.01		0.02		0	
FCZ8	9/08/2024	Sunny	Moderate	11:49	4.8	S	1	1	8.2	8.2	30.6	30.6	27.1	27.1	130.3	130.5	8.74	8.8	1.0	2.6	2	2.5	2	2.0	0.01	0.01	0.2	0.2	0.01	0.01	0.02	0.0	1	1
FCZ8	9/08/2024	Sunny	Moderate	11:49	4.8	S	1	2	8.2		30.6		27.1		130.6		8.76		1.0		2		2		0.01		0.2		0.01		0.02		0	
FCZ8	9/08/2024	Sunny	Moderate	11:49	4.8	B	4	1	8.0	8.0	31.8	31.8	25.3	25.4	85.9	85.9	5.90	5.9	4.1		2		2		0.01		0.2		0.01		0.02		0	
FCZ8	9/08/2024	Sunny	Moderate	11:49	4.8	B	4	2	8.0		31.7		25.4		85.8		5.89		4.1		4		2		0.01		0.3		0.01		0.02		1	
SGA	9/08/2024	Sunny	Moderate	11:25	2.8	M	1	1	8.1	8.1	30.8	31.0	26.8	26.5	106.6	106.8	7.16	7.2	2.7	2.9	2	2.0	2	2.0	0.02	0.02	0.2	0.2	0.01	0.01	0.02	0.0	0	0
SGA	9/08/2024	Sunny	Moderate	11:25	2.8	M	1	2	8.1		31.2		26.2		107		7.21		3.0		2		2		0.01		0.2		0.01		0.02		0	
M6A	9/08/2024	Sunny	Moderate	12:19	5.7	S	1	1	8.2	8.2	30.5	30.5	27.5	27.5	132.3	132.4	8.81	8.8	1.0	2.4	2	2.3	2	2.0	0.01	0.01	0.3	0.2	0.01	0.01	0.02	0.0	0	0
M6A	9/08/2024	Sunny	Moderate	12:19	5.7	S	1	2	8.2		30.5		27.4		132.4		8.82		1.0		2		2		0.01		0.2		0.01		0.02		0	
M6A	9/08/2024	Sunny	Moderate	12:19	5.7	B	5	1	8.0	8.0	32.3	32.4	24.4	24.3	59.1	58.5	4.11	4.1	3.7		3		2		0.01		0.2		0.01		0.02		1	
M6A	9/08/2024	Sunny	Moderate	12:19	5.7	B	5	2	8.0		32.4		24.2		57.8		4.02		3.7		2		2		0.01		0.2		0.01		0.02		0	
H4A	9/08/2024	Sunny	Moderate	11:37	3.2	S	1	1	8.2	8.2	30.5	30.6	27.3	27.3	122.7	122.3	8.20	8.2	2.1	6.2	2	2.3	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.02	0.0	0	0
H4A	9/08/2024	Sunny	Moderate	11:37	3.2	S	1	2	8.2		30.6		27.2		121.9		8.16		2.2		3		2		0.01		0.3		0.01		0.02		0	
H4A	9/08/2024	Sunny	Moderate	11:37	3.2	B	2	1	7.9	8.0	31.5	31.5	25.7	25.7	75	74.8	5.12	5.1	10.2		2		2		0.01		0.2		0.01		0.02		0	
H4A	9/08/2024	Sunny	Moderate	11:37	3.2	B	2	2	8.0		31.5		25.7		74.6		5.10		10.4		2		2		0.01		0.2		0.01		0.02		0	
N1	9/08/2024	Sunny	Moderate	12:09	7.2	S	1	1	8.3	8.3	28.7	28.7	29.8	29.8	140.8	140.9	9.10	7.3	1.2	1.5	3	2.5	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.02	0.0	0	0
N1	9/08/2024	Sunny	Moderate	12:09	7.2	S	1	2	8.3		28.7		29.8		141		9.13		1.2		3		2		0.01		0.3		0.01		0.02		1	
N1	9/08/2024	Sunny	Moderate	12:09	7.2	M	4	1	8.0	8.0	32.4	32.4	24.3	24.3	80.6	79.3	5.60		1.6		2		2		0.01		0.3		0.01		0.02		0	
N1	9/08/2024	Sunny	Moderate	12:09	7.2	M	4	2	8.0		32.4		24.3		78		5.42		1.6		2		2		0.01		0.3		0.01		0.02		0	
N1	9/08/2024	Sunny	Moderate	12:09	7.2	B	6	1	7.9	7.9	32.8	32.8	23.6	23.6	43.5	43.3	3.05	3.0	1.8		2		2		0.01		0.3		0.01		0.02		0	
N1	9/08/2024	Sunny	Moderate	12:09	7.2	B	6	2	7.9		32.8		23.6		43.1		3.03		1.8		3		2		0.01		0.3		0.01		0.02		0	
N2	9/08/2024	Sunny	Moderate	12:01	5.3	S	1	1	8.2	8.2	29.9	29.9	28.5	28.5	125.8	125.7	8.27	8.3	2.0	2.2	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.02	0.0	0	0
N2	9/08/2024	Sunny	Moderate	12:01	5.3	S	1	2	8.2		29.9		28.5		125.6		8.26		1.9		2		2		0.01		0.3		0.01		0.02		0	
N2	9/08/2024	Sunny	Moderate	12:01	5.3	B	4	1	8.1	8.1	31.8	31.8	25.2	25.2	92.5	92.4	6.36	6.4	2.5		2		2		0.01		0.3		0.01		0.02		0	
N2	9/08/2024	Sunny	Moderate	12:01	5.3	B	4	2	8.1		31.8		25.2		92.3		6.34		2.5		2		2		0.01		0.2		0.01		0.02		0	
C	9/08/2024	Sunny	Moderate	12:26	10.8	S	1	1	8.3	8.3	29.9	29.9	28.4	28.4	135.8	136.0	8.94	6.9	0.9	1.4	2	2.5	2	2.0	0.01	0.01	0.2	0.2	0.01	0.01	0.02	0.0	0	0
C	9/08/2024	Sunny	Moderate	12:26	10.8	S	1	2	8.3		29.9		28.4		136.1		8.96		0.9		3		2		0.01		0.2		0.01		0.02		2	
C	9/08/2024	Sunny	Moderate	12:26	10.8	M	5	1	8.0	8.0	32.4	32.4	24.2	24.2	69.8	69.7	4.87		1.7		3		2		0.01		0.2		0.01		0.02		0	
C	9/08/2024	Sunny	Moderate	12:26	10.8	M	5	2	8.0		32.4		24.2		69.5		4.84		1.7		3		2		0.01		0.3		0.01		0.02		0	
C	9/08/2024	Sunny	Moderate	12:26	10.8	B	10	1	7.8	7.8	33.0	33.0	23.2	23.2	33.0	32.9	2.33	2.3	1.7		2		2		0.01		0.2		0.01		0.02		0.0	
C	9/08/2024	Sunny	Moderate	12:26	10.8	B	10	2	7.8		33.0		23.2		32.8		2.32		1.7		2		2		0.01		0.2		0.01		0.02		0.0	

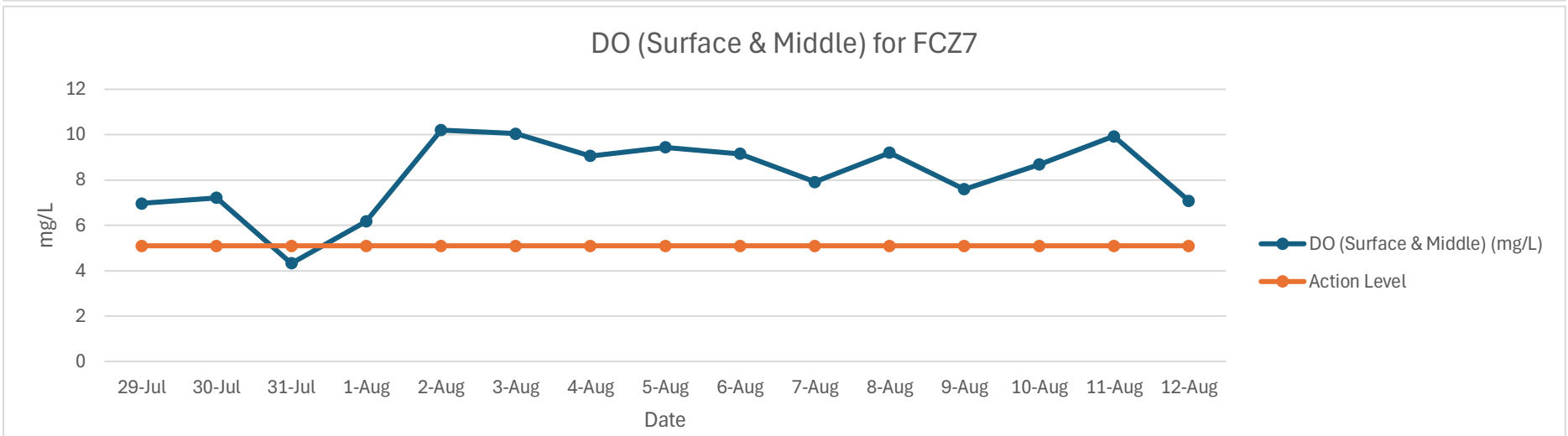
Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	10/08/2024	Sunny	Moderate	9:47	2.7	M	1	1	8.2	8.2	31.2	31.3	26.5	26.5	132.2	132.0	8.20	8.2	1.4	1.4	2	2.0	2	2.0	0.02	0.02	0.3	0.3	0.01	0.01	0.26	0.3	36	42
FCZ1A	10/08/2024	Sunny	Moderate	9:47	2.7	M	1	2	8.2		31.3		26.5		131.7		8.20		1.4		2		2		0.02		0.3		0.01		0.26		47	
FCZ2	10/08/2024	Sunny	Moderate	8:45	5.6	S	1	1	8.1	8.1	30.5	30.6	27.7	27.7	132.5	131.9	8.80	8.8	0.7	1.4	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.22	0.3	5	4
FCZ2	10/08/2024	Sunny	Moderate	8:45	5.6	S	1	2	8.1		30.6		27.6		131.3		8.73		0.7		2		2		0.01		0.3		0.01		0.26		4	
FCZ2	10/08/2024	Sunny	Moderate	8:45	5.6	B	5	1	7.9	7.9	32.5	32.5	24.2	24.2	59.4	59.3	4.14	4.1	2.0		2		2		0.01		0.3		0.01		0.27		4	
FCZ2	10/08/2024	Sunny	Moderate	8:45	5.6	B	5	2	7.9		32.5		24.2		59.2		4.12		2.0		2		2		0.01		0.3		0.01		0.28		3	
FCZ7	10/08/2024	Sunny	Moderate	9:27	5.9	S	1	1	8.2	8.2	31.3	31.4	26.4	26.3	128.6	128.4	8.69	8.7	1.4	1.6	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.28	0.3	3	5
FCZ7	10/08/2024	Sunny	Moderate	9:27	5.9	S	1	2	8.2		31.4		26.2		128.2		8.67		1.4		2		2		0.01		0.3		0.01		0.28		5	
FCZ7	10/08/2024	Sunny	Moderate	9:27	5.9	B	5	1	8.0	8.0	32.3	32.3	24.6	24.6	78.9	78.7	5.49	5.5	1.7		2		2		0.01		0.3		0.01		0.28		6	
FCZ7	10/08/2024	Sunny	Moderate	9:27	5.9	B	5	2	8.0		32.3		24.6		78.5		5.44		1.7		2		2		0.01		0.3		0.01		0.28		5	
FCZ8	10/08/2024	Sunny	Moderate	9:35	4.8	S	1	1	8.2	8.2	31.2	31.2	26.8	26.8	134.4	134.4	9.02	9.0	1.4	1.8	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.28	0.3	1	2
FCZ8	10/08/2024	Sunny	Moderate	9:35	4.8	S	1	2	8.2		31.2		26.7		134.4		9.04		1.2		2		2		0.01		0.3		0.01		0.28		2	
FCZ8	10/08/2024	Sunny	Moderate	9:35	4.8	B	4	1	8.0	8.0	31.8	31.8	25.5	25.5	97.2	97.1	6.64	6.6	2.3		2		2		0.01		0.3		0.01		0.23		2	
FCZ8	10/08/2024	Sunny	Moderate	9:35	4.8	B	4	2	8.0		31.8		25.5		97.0		6.63		2.3		2		2		0.01		0.3		0.01		0.27		2	
SGA	10/08/2024	Sunny	Moderate	9:51	2.8	M	1	1	8.1	8.1	31.4	31.4	26.4	26.4	118.6	118.6	8.01	8.0	3.2	3.2	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.27	0.3	41	38
SGA	10/08/2024	Sunny	Moderate	9:51	2.8	M	1	2	8.1		31.4		26.4		118.6		8.00		3.2		2		2		0.01		0.3		0.01		0.28		35	
M6A	10/08/2024	Sunny	Moderate	9:05	5.7	S	1	1	8.2	8.2	30.9	30.9	27.1	27.1	124.3	124.5	8.32	8.3	1.5	2.7	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.28	0.3	7	8
M6A	10/08/2024	Sunny	Moderate	9:05	5.7	S	1	2	8.2		30.9		27.1		124.6		8.33		1.3		2		2		0.01		0.3		0.01		0.28		8	
M6A	10/08/2024	Sunny	Moderate	9:05	5.7	B	5	1	7.9	7.9	32.4	32.4	24.4	24.4	64.5	64.3	4.48	4.5	3.9		2		2		0.01		0.3		0.01		0.28		6	
M6A	10/08/2024	Sunny	Moderate	9:05	5.7	B	5	2	7.9		32.4		24.3		64.1		4.46		3.9		2		2		0.01		0.3		0.01		0.28		9	
H4A	10/08/2024	Sunny	Moderate	9:42	3.2	S	1	1	8.2	8.2	31.3	31.3	26.7	26.7	131	131.2	8.80	8.8	1.8	2.5	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.28	0.3	3	2
H4A	10/08/2024	Sunny	Moderate	9:42	3.2	S	1	2	8.2		31.3		26.7		131.3		8.82		1.8		2		2		0.01		0.3		0.01		0.27		2	
H4A	10/08/2024	Sunny	Moderate	9:42	3.2	B	2	1	8.1	8.1	31.6	31.6	26.0	26.0	108.4	108.1	7.36	7.3	3.2		2		2		0.01		0.3		0.01		0.28		1	
H4A	10/08/2024	Sunny	Moderate	9:42	3.2	B	2	2	8.1		31.6		26.0		107.8		7.32		3.2		2		2		0.01		0.3		0.01		0.27		1	
N1	10/08/2024	Sunny	Moderate	9:12	7.2	S	1	1	8.2	8.2	30.3	30.4	28.1	28.0	125.6	125.8	8.30	7.1	0.9	1.8	2	2.0	2	2.0	0.02	0.01	0.3	0.3	0.01	0.01	0.28	0.3	1	1
N1	10/08/2024	Sunny	Moderate	9:12	7.2	S	1	2	8.2		30.4		27.9		126.0		8.34		0.9		2		2		0.01		0.3		0.01		0.27		0	
N1	10/08/2024	Sunny	Moderate	9:12	7.2	M	4	1	8.0	8.0	32.2	32.2	24.7	24.7	84.2	84.1	5.82		2.2		2		2		0.01		0.3		0.01		0.27		1	
N1	10/08/2024	Sunny	Moderate	9:12	7.2	M	4	2	8.0		32.2		24.7		84		5.81		2.2		2		2		0.01		0.3		0.01		0.27		1	
N1	10/08/2024	Sunny	Moderate	9:12	7.2	B	6	1	7.8	7.8	33.0	33.0	23.4	23.4	26	25.9	1.84	1.8	2.3		2		2		0.01		0.3		0.01		0.27		2	
N1	10/08/2024	Sunny	Moderate	9:12	7.2	B	6	2	7.8		33.0		23.4		25.7		1.81		2.5		2		2		0.01		0.3		0.01		0.26		1	
N2	10/08/2024	Sunny	Moderate	9:20	5.3	S	1	1	8.2	8.2	31.4	31.4	26.4	26.4	123.0	123.3	8.31	8.3	1.6	1.7	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.23	0.3	6	7
N2	10/08/2024	Sunny	Moderate	9:20	5.3	S	1	2	8.2		31.4		26.3		123.5		8.34		1.1		2		2		0.01		0.3		0.01		0.26		5	
N2	10/08/2024	Sunny	Moderate	9:20	5.3	B	4	1	8.1	8.1	32.0	32.0	25.0	25.0	91.6	91.6	6.31	6.3	2.0		2		2		0.01		0.3		0.01		0.26		9	
N2	10/08/2024	Sunny	Moderate	9:20	5.3	B	4	2	8.1		32.0		25.0		91.6		6.31		2.0		2		2		0.01		0.3		0.01		0.26		7	
C	10/08/2024	Sunny	Moderate	8:56	10.8	S	1	1	8.2	8.2	30.9	31.0	27.1	27.0	127.6	127.4	8.53	6.6	1.1	1.8	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.27	0.3	82	92
C	10/08/2024	Sunny	Moderate	8:56	10.8	S	1	2	8.2		31.0		26.9		127.2		8.53		1.1		2		2		0.01		0.3		0.01		0.26		79	
C	10/08/2024	Sunny	Moderate	8:56	10.8	M	5	1	7.9	7.9	32.9	32.9	23.8	23.8	68.9	67.4	4.82		1.7		2		2		0.01		0.3		0.01		0.25		86	
C	10/08/2024	Sunny	Moderate	8:56	10.8	M	5	2	7.9		32.8		23.8		65.8		4.61		1.8		2		2		0.01		0.3		0.01		0.26		94	
C	10/08/2024	Sunny	Moderate	8:56	10.8	B	10	1	7.8	7.8	33.0	33.1	23.1	23.1	38.1	37.9	2.71	2.7	2.5		2		2		0.01		0.3		0.01		0.25		78.0	
C	10/08/2024	Sunny	Moderate	8:56	10.8	B	10	2	7.8		33.1		23.1		37.7		2.67		2.5		2		2		0.01		0.3		0.01		0.26		130.0	

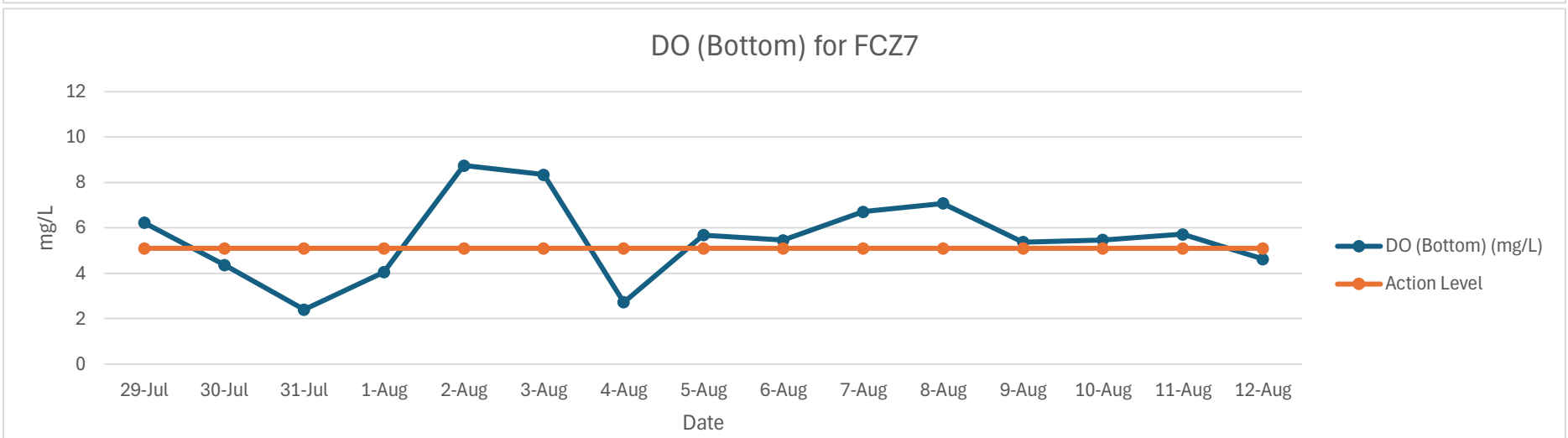
Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring												Laboratory Analysis													
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	11/08/2024	Rainy	Moderate	11:48	2.7	M	1	1	8.2	8.2	31.0	31.0	28.0	28.0	135.5	135.7	8.92	8.9	1.2	1.2	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.26	0.3	5	3
FCZ1A	11/08/2024	Rainy	Moderate	11:48	2.7	M	1	2	8.2		31.0		28.0		135.8		8.94		1.1		2		2		0.01		0.3		0.01		0.26		0	
FCZ2	11/08/2024	Rainy	Moderate	11:02	5.6	S	1	1	8.3	8.3	30.7	30.7	28.3	28.3	143.4	146.0	9.74	9.8	0.7	0.9	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.22	0.3	3	5
FCZ2	11/08/2024	Rainy	Moderate	11:02	5.6	S	1	2	8.3		30.7		28.3		148.6		9.76		0.7		2		2		0.01		0.3		0.01		0.27		2	
FCZ2	11/08/2024	Rainy	Moderate	11:02	5.6	B	5	1	8.2	8.2	32.0	32.0	25.3	25.3	119.3	119.2	8.18	8.2	1.1		2		2		0.01		0.3		0.01		0.28		7	
FCZ2	11/08/2024	Rainy	Moderate	11:02	5.6	B	5	2	8.2		32.0		25.2		119.1		8.17		1.1		2		2		0.01		0.3		0.01		0.27		6	
FCZ7	11/08/2024	Rainy	Moderate	11:33	5.9	S	1	1	8.3	8.3	30.9	30.9	27.8	27.8	149.9	150.2	9.91	9.9	0.9	2.1	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.28	0.3	0	0
FCZ7	11/08/2024	Rainy	Moderate	11:33	5.9	S	1	2	8.3		30.9		27.8		150.4		9.94		0.9		2		2		0.01		0.3		0.01		0.28		0	
FCZ7	11/08/2024	Rainy	Moderate	11:33	5.9	B	5	1	8.0	8.0	32.4	32.4	24.5	24.5	82.6	82.5	5.73	5.7	3.3		2		2		0.01		0.3		0.01		0.23		0	
FCZ7	11/08/2024	Rainy	Moderate	11:33	5.9	B	5	2	8.0		32.4		24.5		82.3		5.71		3.4		2		2		0.01		0.3		0.01		0.27		0	
FCZ8	11/08/2024	Rainy	Moderate	11:38	4.8	S	1	1	8.3	8.3	31.2	31.2	27.2	27.2	149.2	149.4	9.94	10.0	1.1	7.0	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.28	0.3	0	0
FCZ8	11/08/2024	Rainy	Moderate	11:38	4.8	S	1	2	8.3		31.2		27.2		149.6		9.97		1.1		2		2		0.01		0.3		0.01		0.28		0	
FCZ8	11/08/2024	Rainy	Moderate	11:38	4.8	B	4	1	8.0	8.0	32.2	32.2	25.0	25.0	79.3	79.1	5.46	5.4	12.8		2		2		0.01		0.3		0.01		0.28		0	
FCZ8	11/08/2024	Rainy	Moderate	11:38	4.8	B	4	2	8.0		32.2		25.0		78.9		5.43		12.9		2		2		0.01		0.3		0.01		0.28		0	
SGA	11/08/2024	Rainy	Moderate	11:51	2.8	M	1	1	8.2	8.2	31.4	31.5	26.8	26.8	130.1	129.5	8.72	8.7	2.3	2.4	3	2.5	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.27	0.3	0	0
SGA	11/08/2024	Rainy	Moderate	11:51	2.8	M	1	2	8.2		31.5		26.7		128.9		8.65		2.5		2		2		0.01		0.3		0.01		0.28		0	
M6A	11/08/2024	Rainy	Moderate	11:14	5.7	S	1	1	8.3	8.3	30.5	30.5	28.8	28.8	142.3	142.4	9.27	9.3	0.6	1.0	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.28	0.3	1	1
M6A	11/08/2024	Rainy	Moderate	11:14	5.7	S	1	2	8.2		30.5		28.8		142.4		9.28		0.7		2		2		0.01		0.3		0.01		0.28		1	
M6A	11/08/2024	Rainy	Moderate	11:14	5.7	B	5	1	8.2	8.2	31.2	31.2	27.0	27.0	138.5	138.5	9.26	9.3	1.3		2		2		0.01		0.3		0.01		0.23		0	
M6A	11/08/2024	Rainy	Moderate	11:14	5.7	B	5	2	8.2		31.2		27.0		138.5		9.26		1.2		2		2		0.01		0.3		0.01		0.26		0	
H4A	11/08/2024	Rainy	Moderate	11:44	3.2	S	1	1	8.2	8.2	31.1	31.1	27.6	27.6	142.2	142.0	9.43	9.4	1.2	2.8	3	2.3	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.28	0.3	0	0
H4A	11/08/2024	Rainy	Moderate	11:44	3.2	S	1	2	8.2		31.1		27.6		141.8		9.40		1.2		2		2		0.01		0.3		0.01		0.28		0	
H4A	11/08/2024	Rainy	Moderate	11:44	3.2	B	2	1	8.1	8.1	31.5	31.5	26.7	26.7	109.9	109.9	7.38	7.4	4.4		2		2		0.01		0.3		0.01		0.27		0	
H4A	11/08/2024	Rainy	Moderate	11:44	3.2	B	2	2	8.1		31.5		26.7		109.9		7.38		4.5		2		2		0.01		0.3		0.01		0.28		0	
N1	11/08/2024	Rainy	Moderate	11:20	7.2	S	1	1	8.3	8.3	30.7	30.8	28.2	28.2	145.8	145.9	9.58	8.7	0.8	2.1	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.27	0.3	0	0
N1	11/08/2024	Rainy	Moderate	11:20	7.2	S	1	2	8.3		30.8		28.1		146.0		9.61		0.8		2		2		0.01		0.3		0.01		0.28		0	
N1	11/08/2024	Rainy	Moderate	11:20	7.2	M	4	1	8.1	8.1	32.1	32.1	25.2	25.2	114.3	112.6	7.85		1.2		2		2		0.01		0.3		0.01		0.23		1	
N1	11/08/2024	Rainy	Moderate	11:20	7.2	M	4	2	8.1		32.1		25.1		110.8		7.62		1.2		2		2		0.01		0.3		0.01		0.27		0	
N1	11/08/2024	Rainy	Moderate	11:20	7.2	B	6	1	7.8	7.8	32.9	32.9	23.5	23.5	41	40.8	2.88	2.9	4.1		2		2		0.01		0.3		0.01		0.27		0	
N1	11/08/2024	Rainy	Moderate	11:20	7.2	B	6	2	7.8		32.9		23.5		40.5		2.85		4.2		2		2		0.01		0.3		0.01		0.27		0	
N2	11/08/2024	Rainy	Moderate	11:26	5.3	S	1	1	8.3	8.3	30.9	30.9	27.8	27.8	154.2	154.3	10.20	10.2	0.8	1.7	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.27	0.3	1	0
N2	11/08/2024	Rainy	Moderate	11:26	5.3	S	1	2	8.3		30.9		27.8		154.4		10.21		0.8		2		2		0.01		0.3		0.01		0.27		0	
N2	11/08/2024	Rainy	Moderate	11:26	5.3	B	4	1	8.0	8.0	32.4	32.4	24.5	24.5	83.1	82.7	5.76	5.7	2.6		2		2		0.01		0.3		0.01		0.27		0	
N2	11/08/2024	Rainy	Moderate	11:26	5.3	B	4	2	8.0		32.4		24.4		82.3		5.71		2.6		2		2		0.01		0.3		0.01		0.27		0	
C	11/08/2024	Rainy	Moderate	11:09	10.8	S	1	1	8.3	8.3	31.0	31.0	27.4	27.5	144.1	145.0	9.58	8.7	0.8	1.3	3	2.5	2	2.0	0.01	0.01	0.3	0.3	0.01	0.02	0.28	0.3	7	6
C	11/08/2024	Rainy	Moderate	11:09	10.8	S	1	2	8.3		31.0		27.5		145.9		9.69		0.8		2		2		0.01		0.3		0.01		0.28		5	
C	11/08/2024	Rainy	Moderate	11:09	10.8	M	5	1	8.1	8.1	32.0	32.0	25.3	25.3	113.7	114.0	7.80		1.1		4		2		0.01		0.3		0.03		0.26		3	
C	11/08/2024	Rainy	Moderate	11:09	10.8	M	5	2	8.1		32.0		25.3		114.3		7.83		1.1		2		2		0.01		0.3		0.02		0.29		5	
C	11/08/2024	Rainy	Moderate	11:09	10.8	B	10	1	7.8	7.8	33.1	33.1	23.1	23.1	39.1	38.7	2.77	2.7	2.0		2		2		0.01		0.3		0.01		0.26		7.0	
C	11/08/2024	Rainy	Moderate	11:09	10.8	B	10	2	7.8		33.1		23.1		38.3		2.71		2.0		2		2		0.01		0.3		0.01		0.27		8.0	

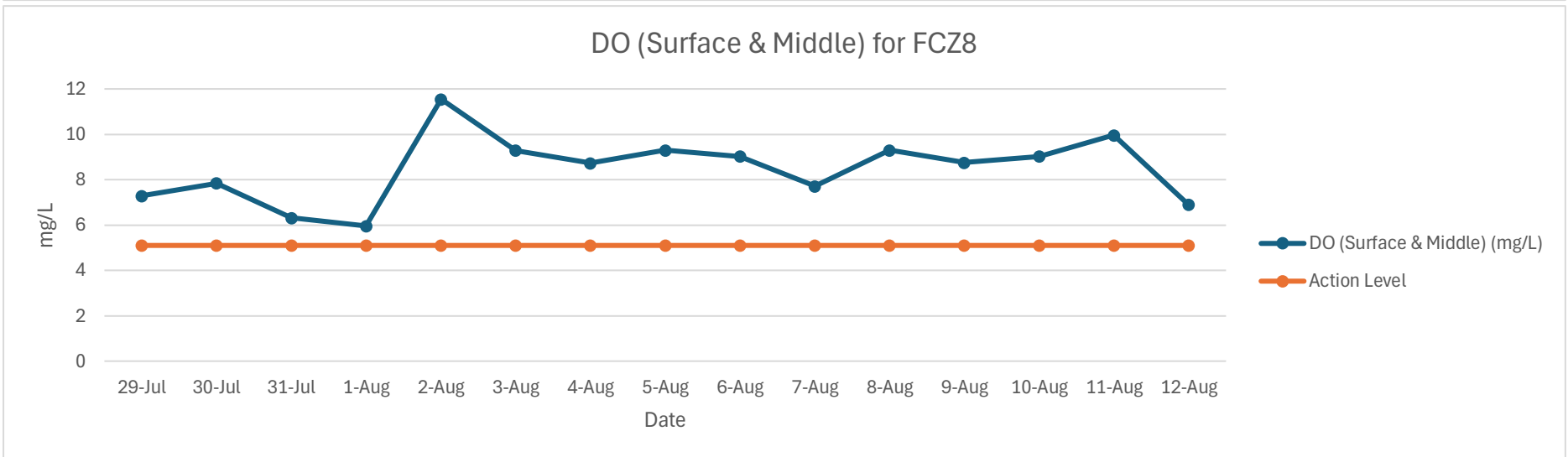
Monitoring Location	Date	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-Situ Monitoring										Laboratory Analysis											
									pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia Nitrogen (mg/L)		Total Inorganic Nitrogen (mg/L)		E.coli (CFU/100mL)	
									Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.	Value	Depth Ave.
FCZ1A	12/08/2024	Rainy	Moderate	13:07	2.7	M	1	1	8.1	8.1	31.2	31.2	27.6	27.6	114.5	114.2	7.57	7.6	1.7	1.8	2	2.0	2	2.0	0.02	0.02	0.3	0.3	0.01	0.01	0.03	0.0	2	2
FCZ1A	12/08/2024	Rainy	Moderate	13:07	2.7	M	1	2	8.0		31.2		27.6		113.9		7.54		1.8		2		2		0.02		0.3		0.01		0.02		2	
FCZ2	12/08/2024	Rainy	Moderate	12:09	5.5	S	1	1	8.2	8.2	30.9	30.9	27.7	27.7	132.3	132.7	8.76	8.8	0.6	0.9	2	2.0	2	2.0	0.01	0.01	0.3	0.3	0.01	0.01	0.02	0.0	3	2
FCZ2	12/08/2024	Rainy	Moderate	12:09	5.5	S	1	2	8.2		30.8		27.6		133.1		8.82		0.7		2		2		0.01		0.3		0.01		0.02		2	
FCZ2	12/08/2024	Rainy	Moderate	12:09	5.5	B	5	1	7.9	7.9	32.6	32.6	24.2	24.2	62.0	62.3	4.32	4.3	1.2		2		2		0.01		0.3		0.01		0.02		2	
FCZ2	12/08/2024	Rainy	Moderate	12:09	5.5	B	5	2	7.9		32.6		24.2		62.5		4.37		1.2		2		2		0.01		0.3		0.01		0.02		1	
FCZ7	12/08/2024	Rainy	Moderate	12:47	5.9	S	1	1	8.1	8.1	31.5	31.6	27.2	27.3	107.0	106.3	7.12	7.1	0.9	2.3	2	2.0	2	2.0	0.02	0.02	0.3	0.3	0.01	0.01	0.02	0.0	1	3
FCZ7	12/08/2024	Rainy	Moderate	12:47	5.9	S	1	2	8.1		31.6		27.4		105.6		7.05		0.7		2		2		0.02		0.3		0.01		0.02		2	
FCZ7	12/08/2024	Rainy	Moderate	12:47	5.9	B	5	1	7.9	7.9	32.6	32.6	24.2	24.1	67.0	66.4	4.66	4.6	3.7		2		2		0.02		0.3		0.01		0.04		4	
FCZ7	12/08/2024	Rainy	Moderate	12:47	5.9	B	5	2	7.8		32.5		24.0		65.8		4.60		3.8		2		2		0.02		0.3		0.01		0.02		5	
FCZ8	12/08/2024	Rainy	Moderate	12:54	4.8	S	1	1	8.1	8.1	31.7	31.6	26.3	26.2	103.0	102.2	6.95	6.9	0.8	2.7	2	2.0	2	2.0	0.02	0.02	0.3	0.3	0.01	0.01	0.02	0.0	0	2
FCZ8	12/08/2024	Rainy	Moderate	12:54	4.8	S	1	2	8.0		31.5		26.0		101.3		6.84		1.0		2		2		0.02		0.3		0.01		0.02		0	
FCZ8	12/08/2024	Rainy	Moderate	12:54	4.8	B	4	1	8.0	8.0	32.3	32.3	25.0	25.0	77.5	77.6	5.34	5.3	4.6		2		2		0.02		0.3		0.01		0.02		4	
FCZ8	12/08/2024	Rainy	Moderate	12:54	4.8	B	4	2	8.0		32.3		25.0		77.6		5.35		4.5		2		2		0.02		0.3		0.01		0.03		5	
SGA	12/08/2024	Rainy	Moderate	13:11	2.8	M	1	1	8.1	8.1	31.6	31.7	26.6	26.7	112.8	112.9	7.58	7.6	0.9	1.1	2	2.0	2	2.0	0.02	0.02	0.3	0.3	0.01	0.01	0.02	0.0	3	3
SGA	12/08/2024	Rainy	Moderate	13:11	2.8	M	1	2	8.1		31.7		26.8		113		7.62		1.2		2		2		0.02		0.3		0.01		0.02		2	
M6A	12/08/2024	Rainy	Moderate	12:27	5.7	S	1	1	8.2	8.2	30.9	31.0	27.6	27.6	135.3	135.8	8.97	9.0	0.7	1.4	2	2.0	2	2.0	0.02	0.01	0.3	0.3	0.01	0.01	0.03	0.0	31	36
M6A	12/08/2024	Rainy	Moderate	12:27	5.7	S	1	2	8.2		31.0		27.6		136.3		9.02		0.5		2		2		0.01		0.3		0.01		0.02		27	
M6A	12/08/2024	Rainy	Moderate	12:27	5.7	B	5	1	8.1	8.1	32.2	32.2	25.1	25.1	94	93.6	6.45	6.4	2.2		2		2		0.01		0.3		0.01		0.04		39	
M6A	12/08/2024	Rainy	Moderate	12:27	5.7	B	5	2	8.1		32.1		25.1		93.2		6.43		2.0		2		2		0.01		0.3		0.01		0.02		45	
H4A	12/08/2024	Rainy	Moderate	1:04	3.2	S	1	1	8.1	8.1	31.4	31.5	27.4	27.3	105.8	105.7	7.03	7.0	1.7	3.6	2	2.0	2	2.0	0.01	0.02	0.3	0.3	0.01	0.01	0.02	0.0	0	1
H4A	12/08/2024	Rainy	Moderate	1:04	3.2	S	1	2	8.1		31.5		27.2		105.6		6.99		1.7		2		2		0.02		0.3		0.01		0.02		1	
H4A	12/08/2024	Rainy	Moderate	1:04	3.2	B	2	1	8.0	8.0	31.8	31.8	26.2	26.2	84.2	84.2	5.69	5.7	5.7		2		2		0.02		0.3		0.01		0.02		1	
H4A	12/08/2024	Rainy	Moderate	1:04	3.2	B	2	2	8.0		31.8		26.2		84.2		5.70		5.3		2		2		0.01		0.3		0.01		0.02		1	
N1	12/08/2024	Rainy	Moderate	12:33	7.2	S	1	1	8.1	8.1	31.4	31.4	26.8	26.9	122.5	122.9	8.21	6.8	0.6	1.5	2	2.0	2	2.0	0.02	0.02	0.3	0.3	0.01	0.01	0.02	0.0	2	2
N1	12/08/2024	Rainy	Moderate	12:33	7.2	S	1	2	8.1		31.3		27.0		123.2		8.27		0.6		2		2		0.01		0.3		0.01		0.02		1	
N1	12/08/2024	Rainy	Moderate	12:33	7.2	M	4	1	8.0	8.0	32.3	32.3	24.8	24.8	77.2	76.4	5.32		1.0		2		2		0.01		0.3		0.01		0.04		2	
N1	12/08/2024	Rainy	Moderate	12:33	7.2	M	4	2	8.0		32.3		24.8		75.5		5.21		1.1		2		2		0.02		0.3		0.01		0.02		4	
N1	12/08/2024	Rainy	Moderate	12:33	7.2	B	6	1	7.8	7.8	33.0	33.0	23.3	23.4	27.1	27.2	1.91	1.9	2.8		2		2		0.01		0.3		0.01		0.02		2	
N1	12/08/2024	Rainy	Moderate	12:33	7.2	B	6	2	7.8		32.9		23.4		27.2		1.93		2.8		2		2		0.02		0.3		0.01		0.02		1	
N2	12/08/2024	Rainy	Moderate	12:41	5.3	S	1	1	8.2	8.2	31.4	31.4	27.1	27.2	135.0	134.9	9.00	9.0	0.5	1.7	2	2.0	2	2.0	0.01	0.02	0.3	0.3	0.01	0.01	0.02	0.0	0	1
N2	12/08/2024	Rainy	Moderate	12:41	5.3	S	1	2	8.2		31.3		27.3		134.8		8.99		0.6		2		2		0.02		0.3		0.01		0.02		0	
N2	12/08/2024	Rainy	Moderate	12:41	5.3	B	4	1	7.9	7.9	32.8	32.8	23.9	23.9	52.2	52.3	3.65	3.7	3.0		2		2		0.02		0.3		0.01		0.02		0	
N2	12/08/2024	Rainy	Moderate	12:41	5.3	B	4	2	7.9		32.8		23.8		52.4		3.70		2.8		2		2		0.02		0.3		0.01		0.02		4	
C	12/08/2024	Rainy	Moderate	12:20	10.8	S	1	1	8.2	8.2	31.5	31.5	26.6	26.7	124.9	125.0	8.40	6.1	0.7	1.7	2	2.0	2	2.0	0.02	0.02	0.3	0.3	0.01	0.01	0.03	0.0	6	5
C	12/08/2024	Rainy	Moderate	12:20	10.8	S	1	2	8.2		31.5		26.7		125.0		8.42		0.6		2		2		0.02		0.3		0.01		0.02		4	
C	12/08/2024	Rainy	Moderate	12:20	10.8	M	5	1	8.0	8.0	32.6	32.6	24.1	24.1	54.1	54.1	3.78		1.4		2		2		0.02		0.3		0.01		0.02		5	
C	12/08/2024	Rainy	Moderate	12:20	10.8	M	5	2	7.9		32.5		24.1		54.0		3.77		1.5		2		2		0.02		0.3		0.01		0.02		3	
C	12/08/2024	Rainy	Moderate	12:20	10.8	B	10	1	7.8	7.8	33.1	33.1	23.1	23.2	33.5	33.8	2.37	2.4	3.0		2		2		0.02		0.3		0.01		0.02		7.0	
C	12/08/2024	Rainy	Moderate	12:20	10.8	B	10	2	7.8		33.1		23.2		34.0		2.42		2.9		2		2		0.02		0.3		0.01		0.02		5.0	

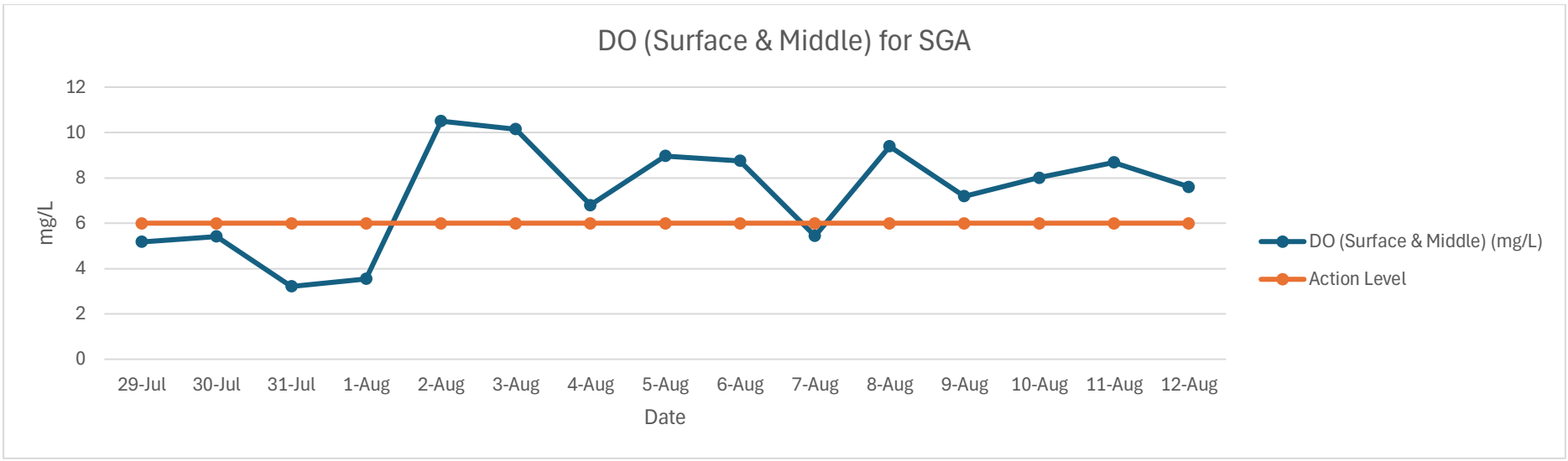

DO (Surface & Middle) for FCZ1A
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Surface & Middle) (mg/L)
Action Level

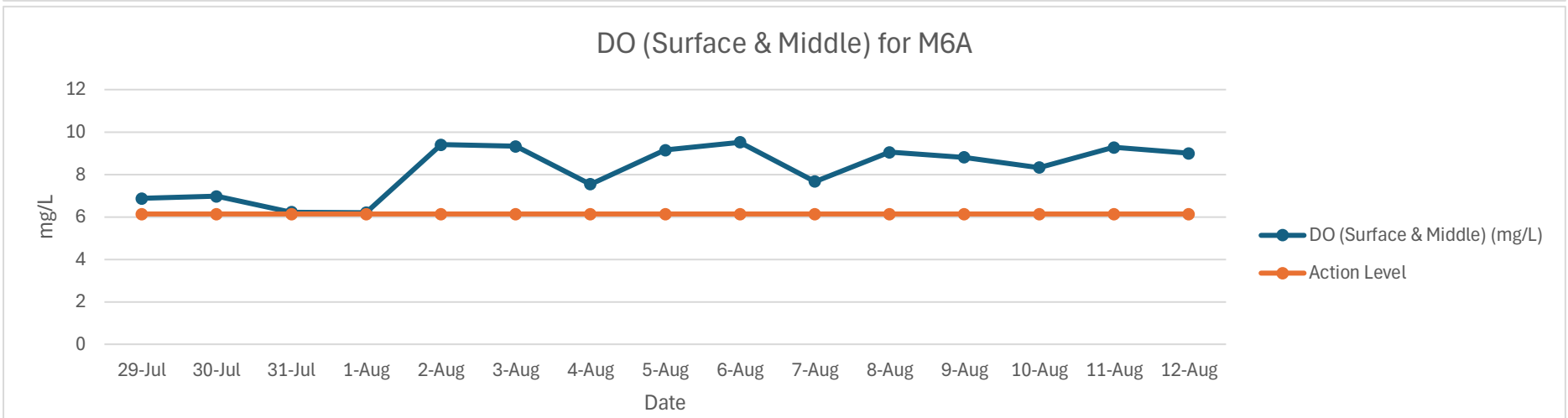

DO (Surface & Middle) for FCZ2
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Surface & Middle) (mg/L)
Action Level

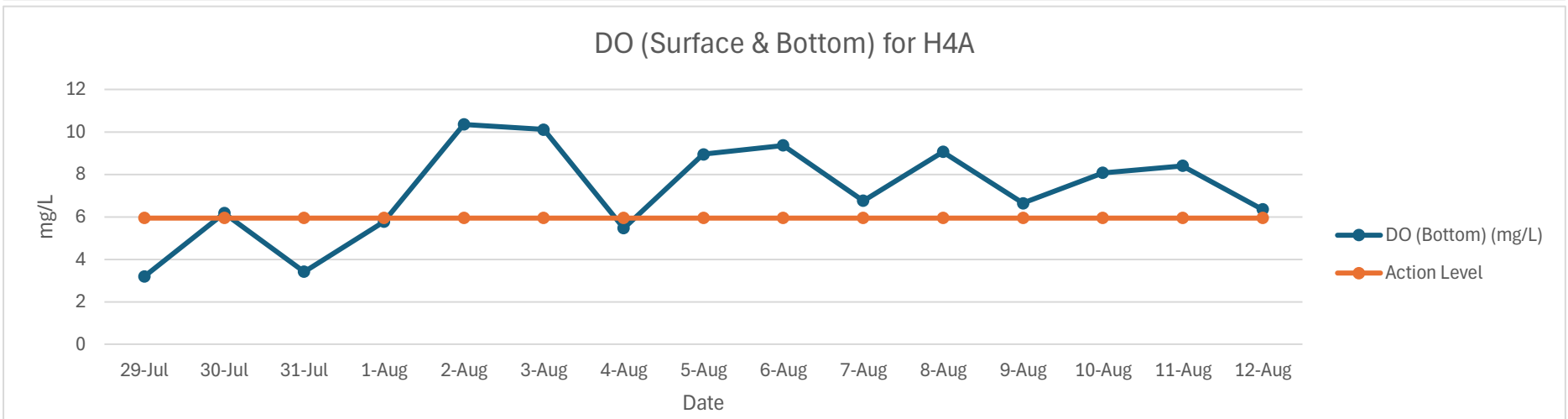

DO (Surface & Middle) for FCZ7
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Surface & Middle) (mg/L)
Action Level

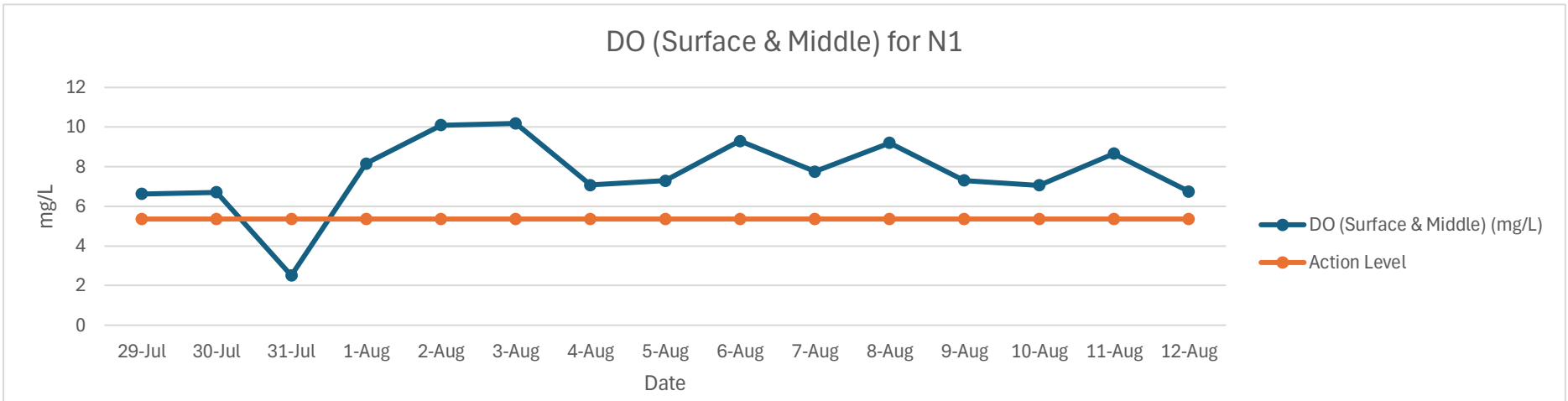

DO (Bottom) for FCZ7
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Bottom) (mg/L)
Action Level

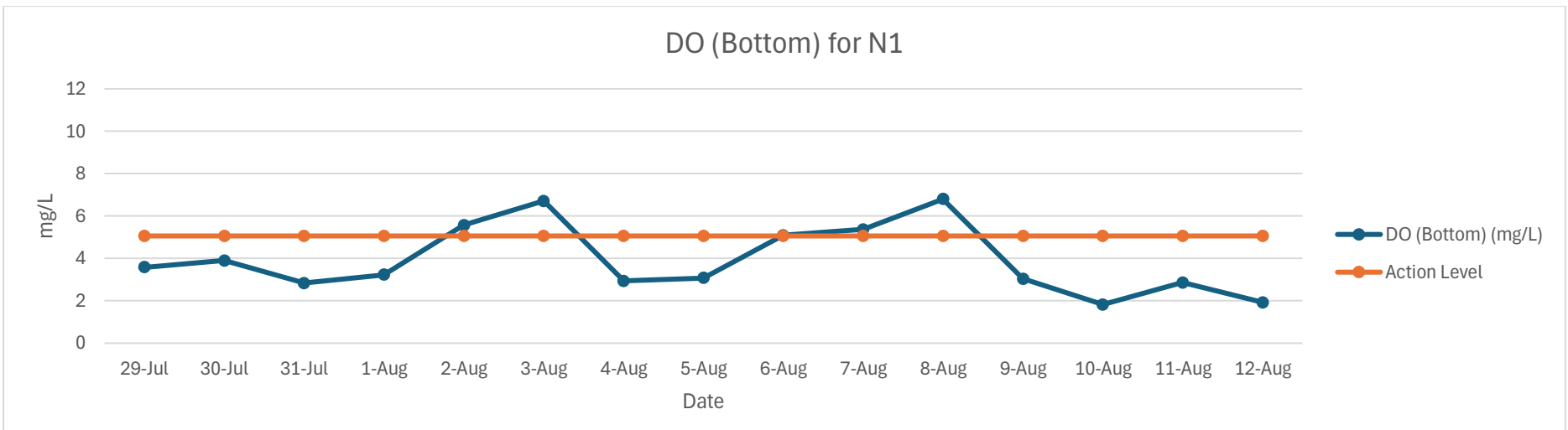

DO (Surface & Middle) for FCZ8
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Surface & Middle) (mg/L)
Action Level

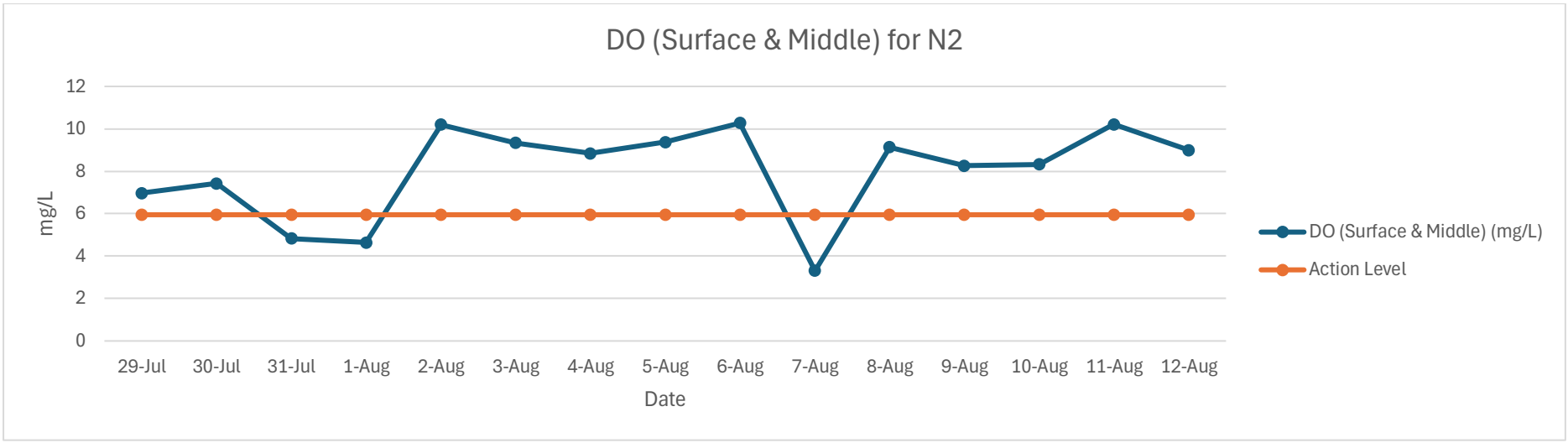

DO (Surface & Middle) for SGA
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Surface & Middle) (mg/L)
Action Level

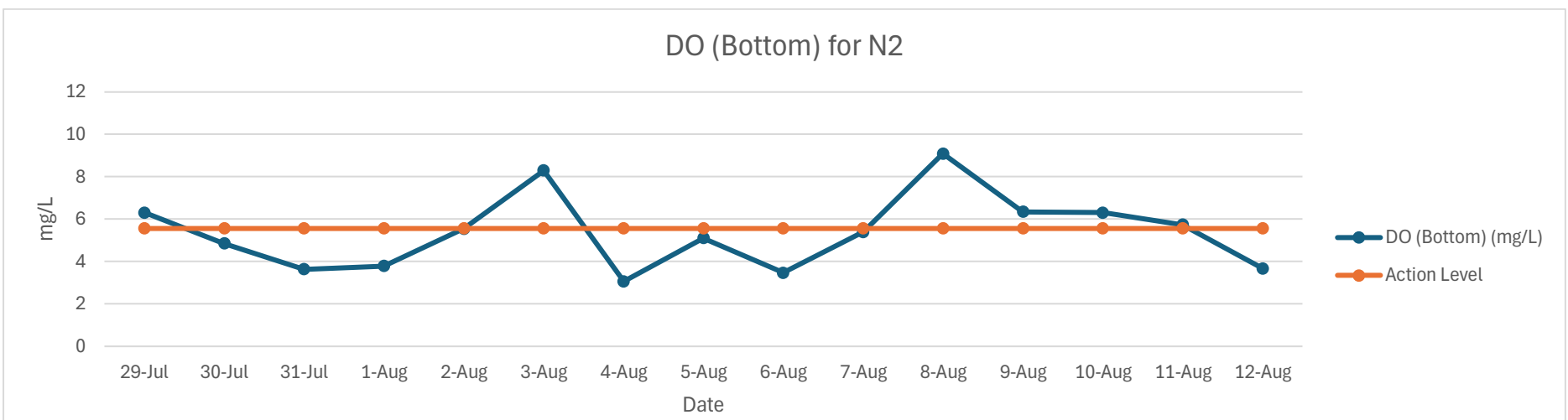

DO (Surface & Middle) for M6A
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Surface & Middle) (mg/L)
Action Level

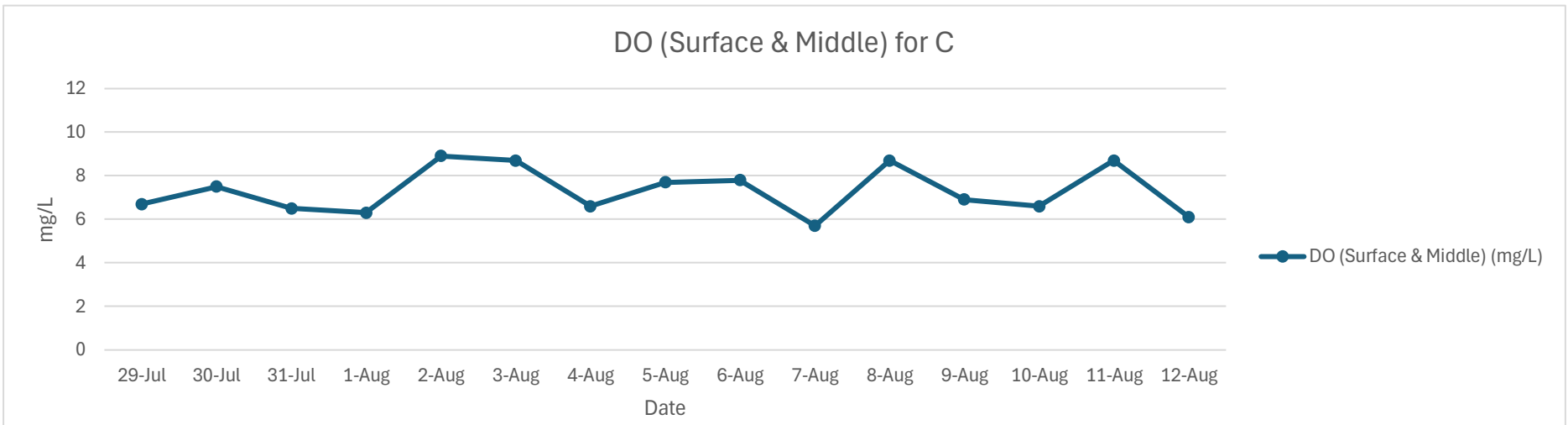

DO (Surface & Bottom) for H4A
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Bottom) (mg/L)
Action Level

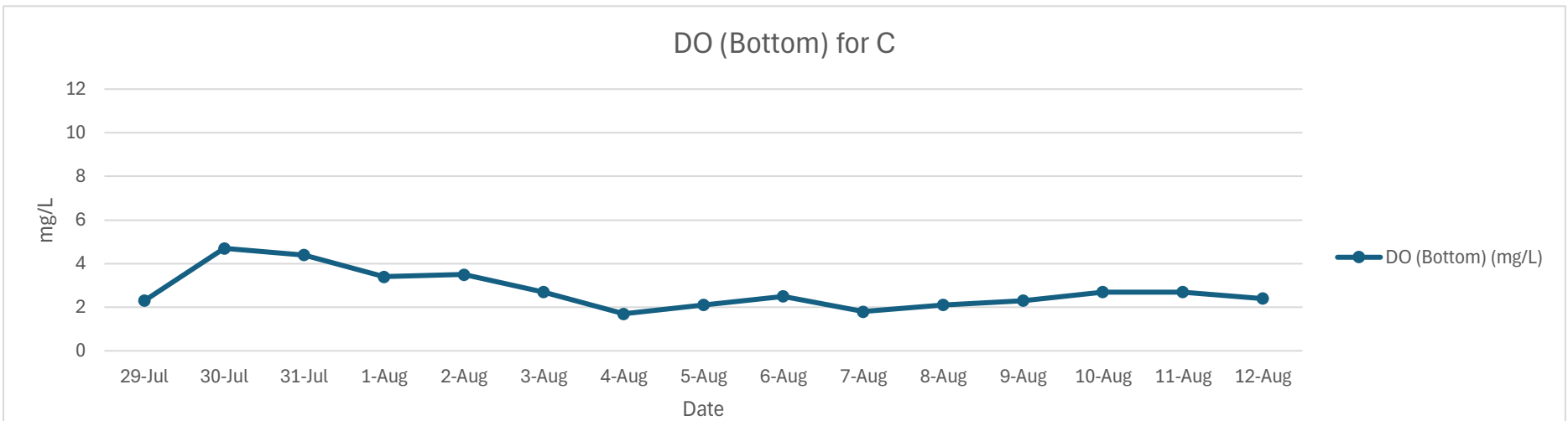

DO (Surface & Middle) for N1
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Surface & Middle) (mg/L)
Action Level

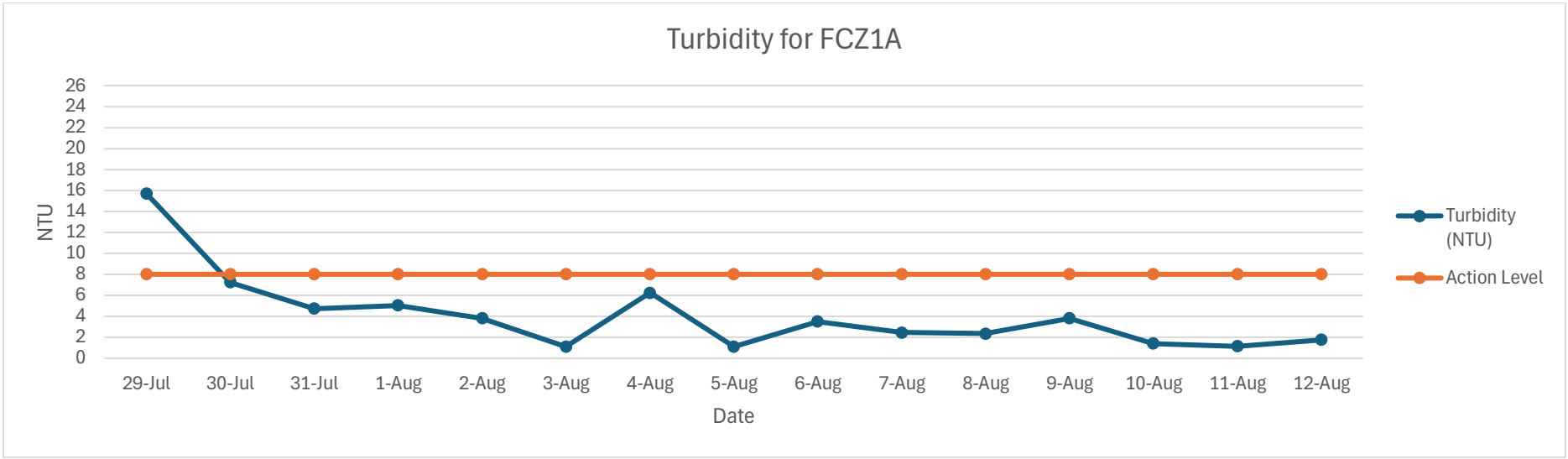

DO (Bottom) for N1
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Bottom) (mg/L)
Action Level

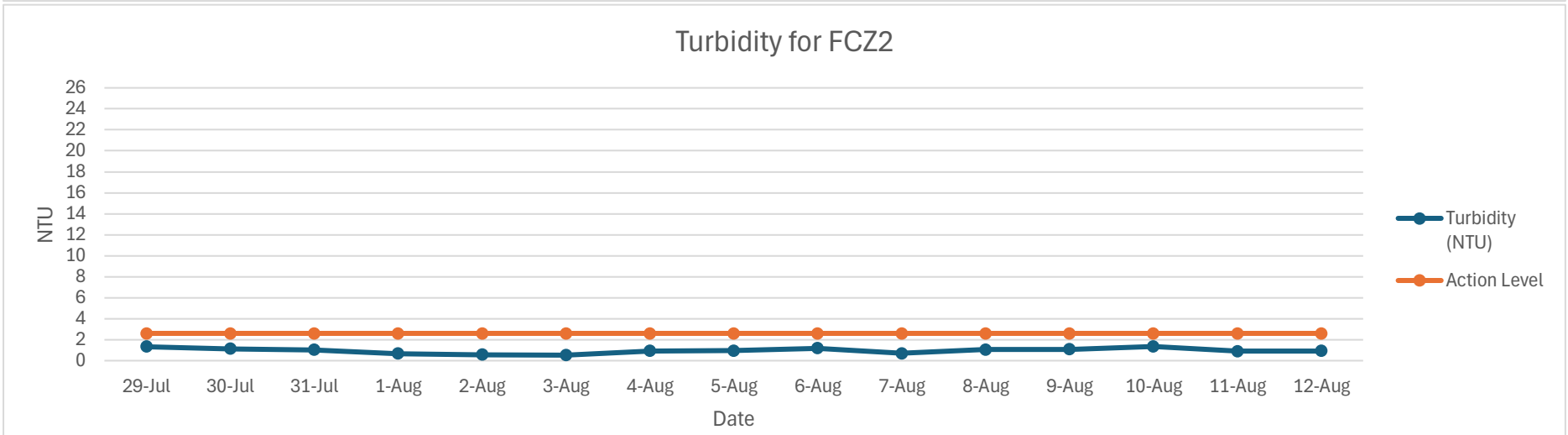

DO (Surface & Middle) for N2
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Surface & Middle) (mg/L)
Action Level

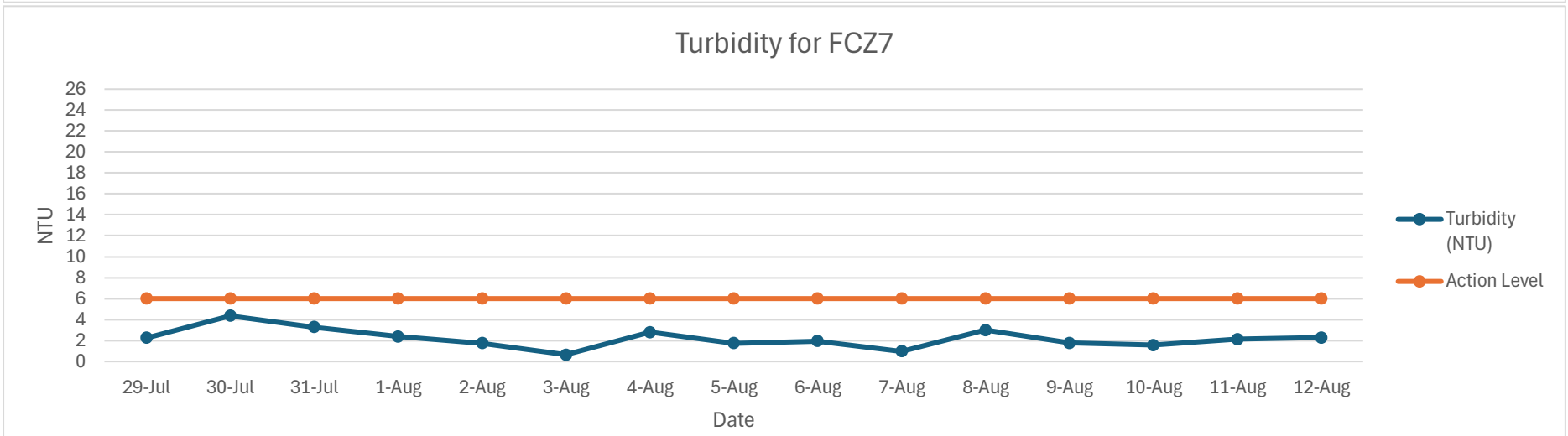

DO (Bottom) for N2
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Bottom) (mg/L)
Action Level

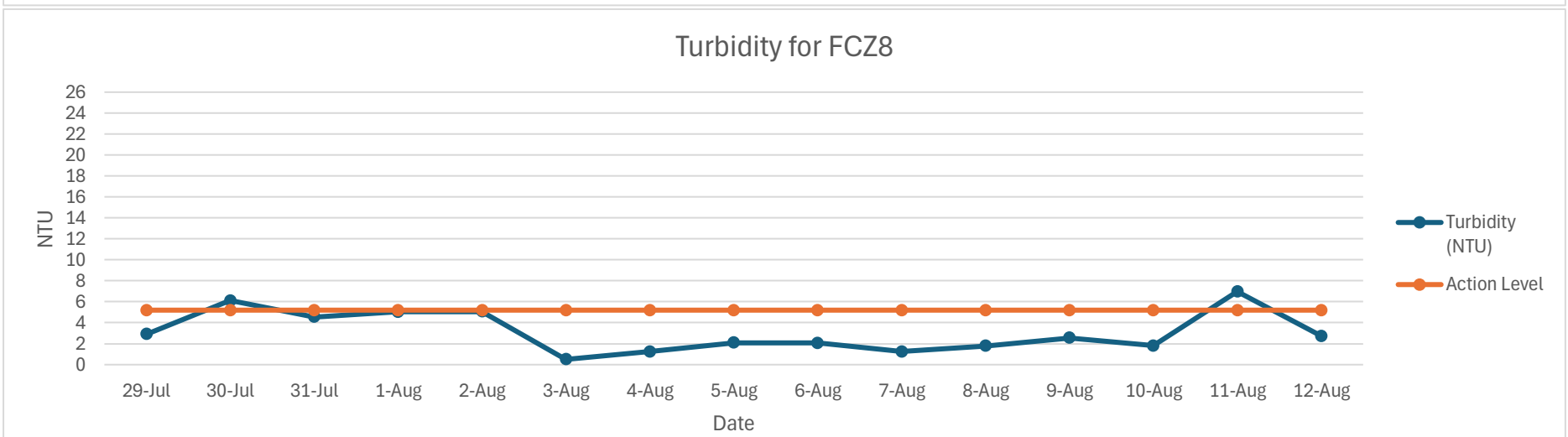

DO (Surface & Middle) for C
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Surface & Middle) (mg/L)

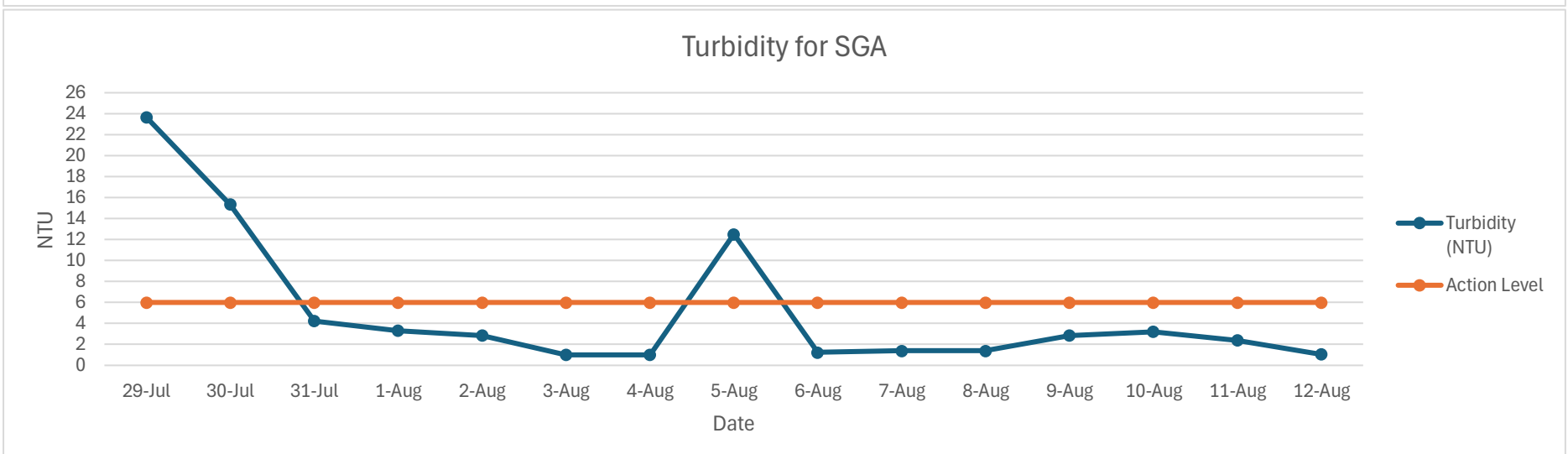

DO (Bottom) for C
mg/L
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
DO (Bottom) (mg/L)

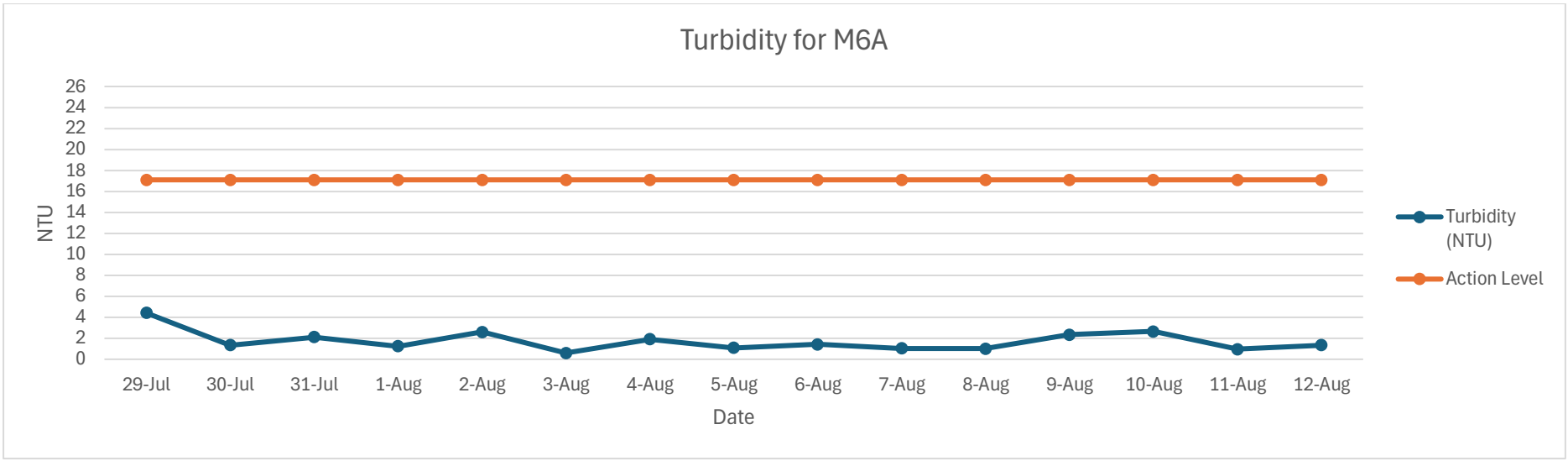

Turbidity for FCZ1A
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)
Action Level

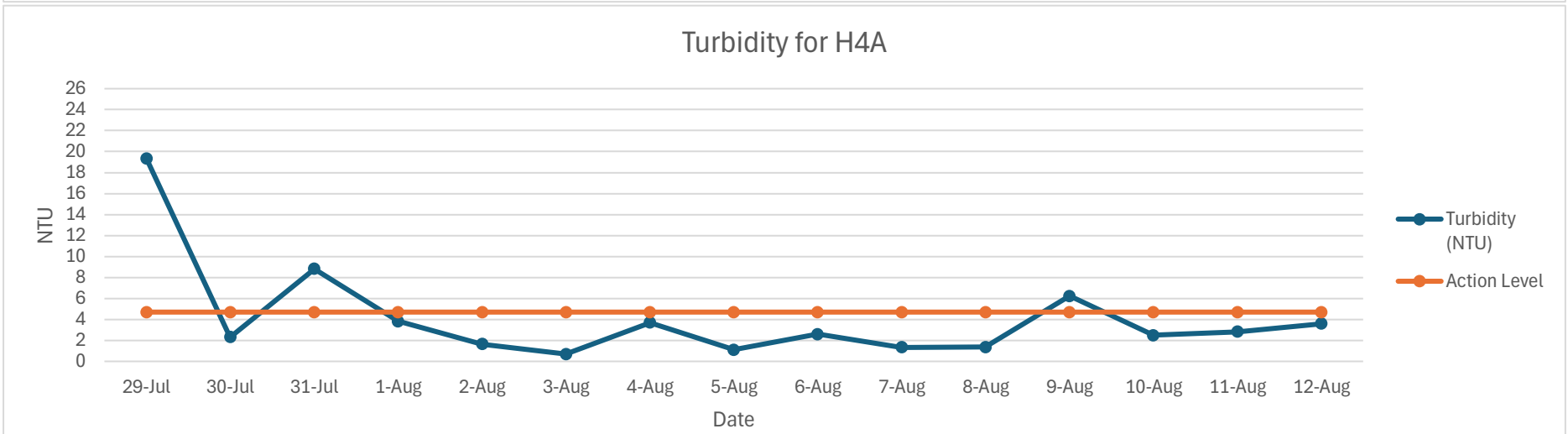

Turbidity for FCZ2
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)
Action Level

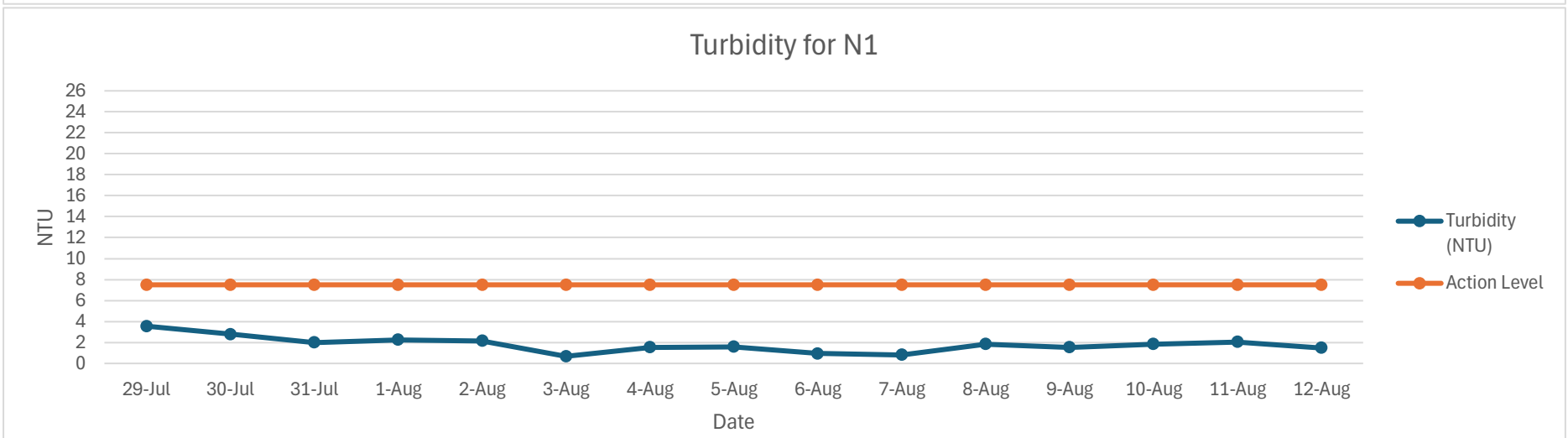

Turbidity for FCZ7
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)
Action Level

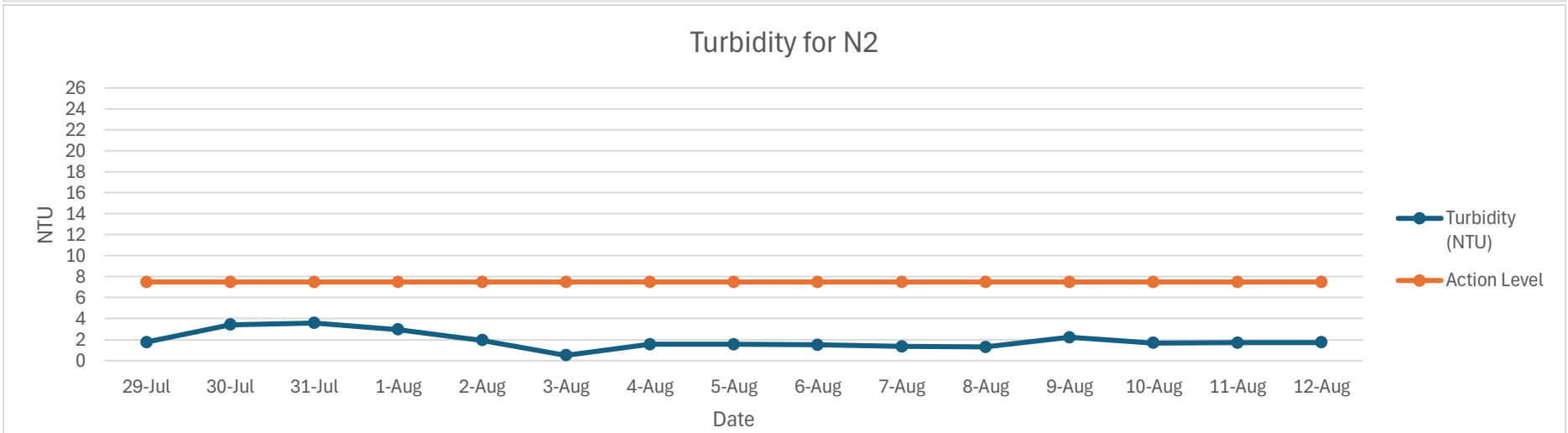

Turbidity for FCZ8
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)
Action Level

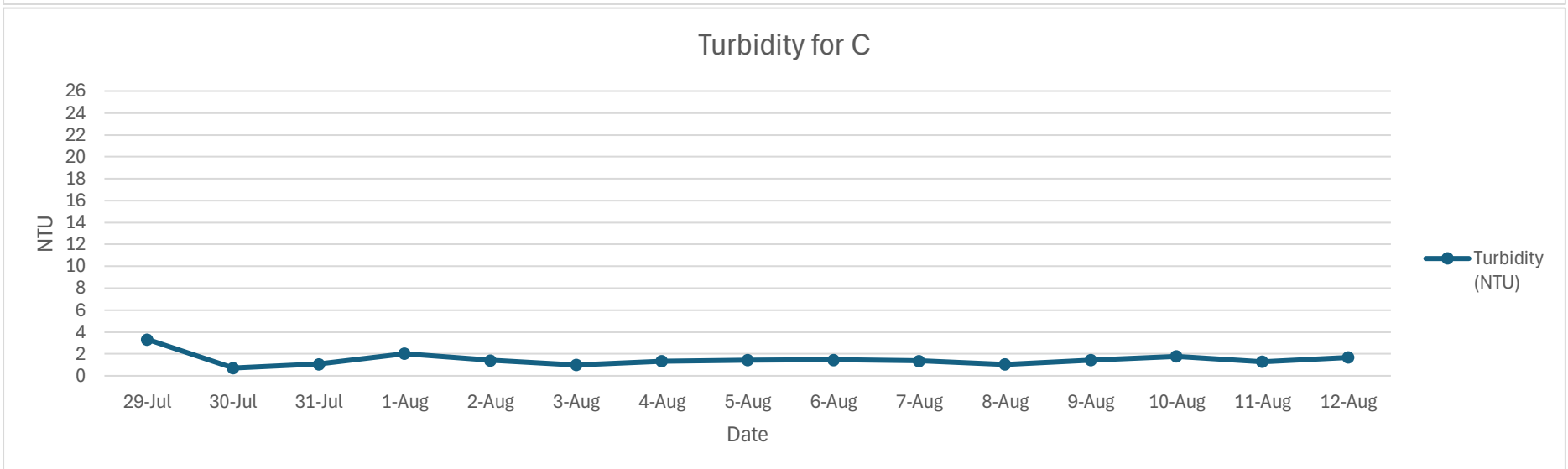

Turbidity for SGA
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)
Action Level

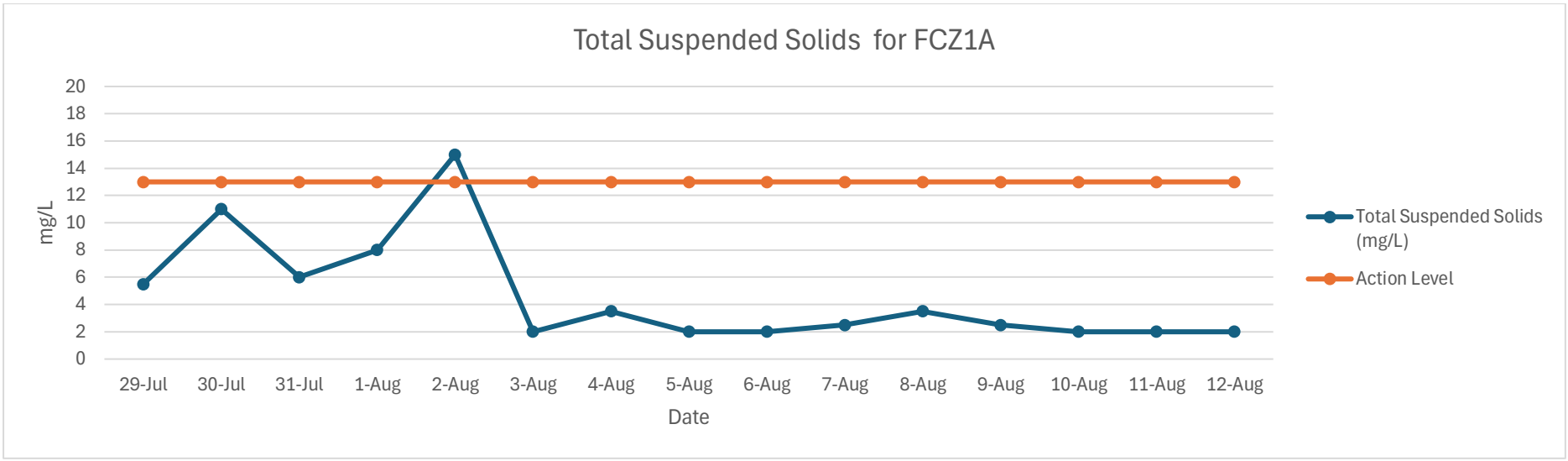

Turbidity for M6A
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)
Action Level

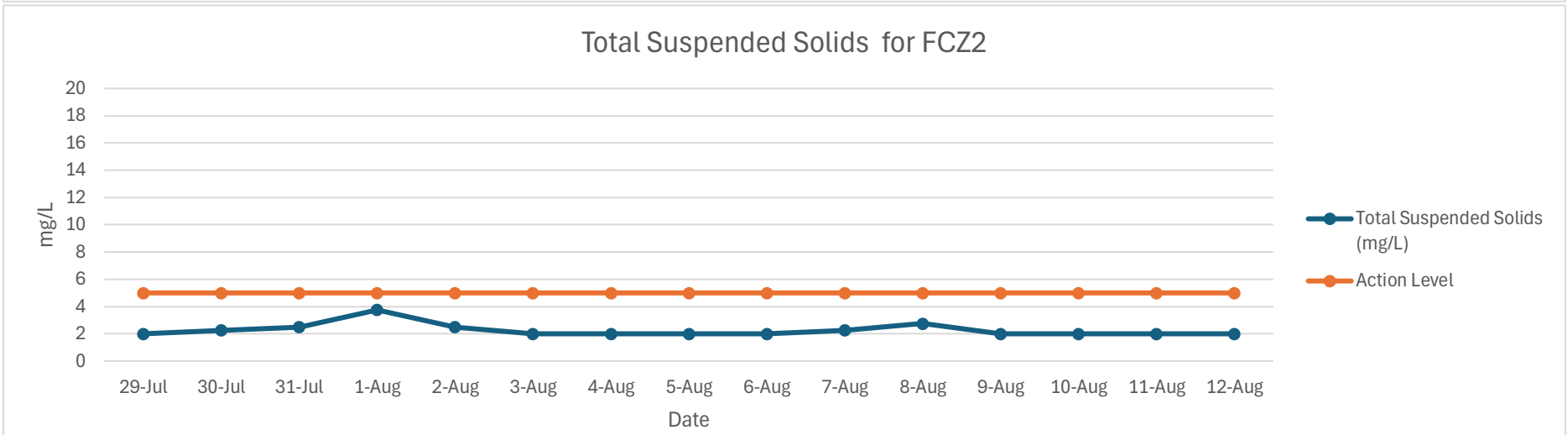

Turbidity for H4A
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)
Action Level

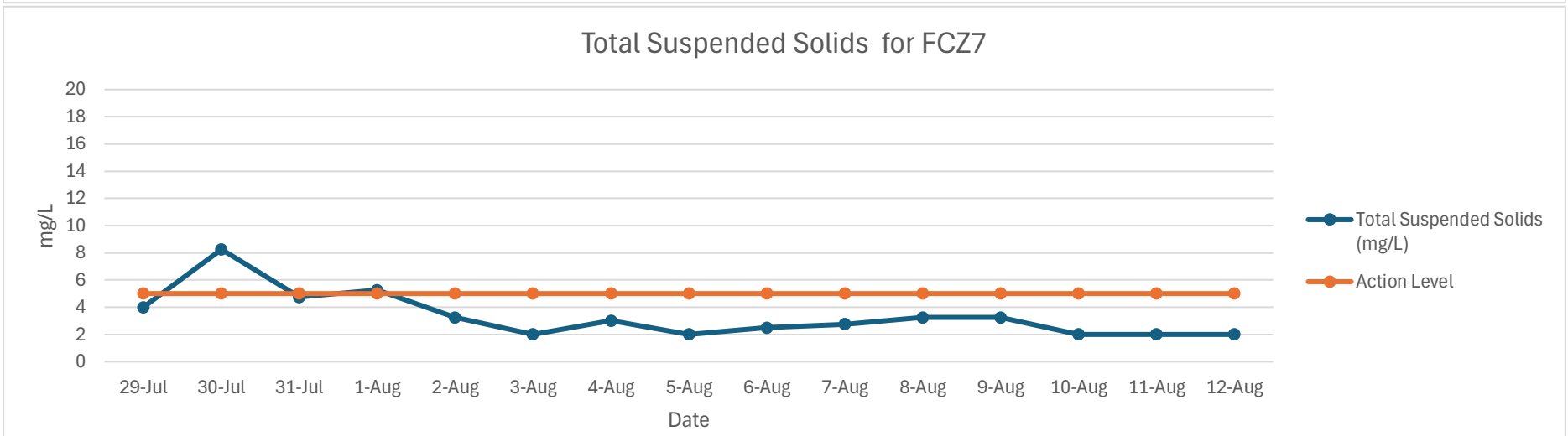

Turbidity for N1
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)
Action Level

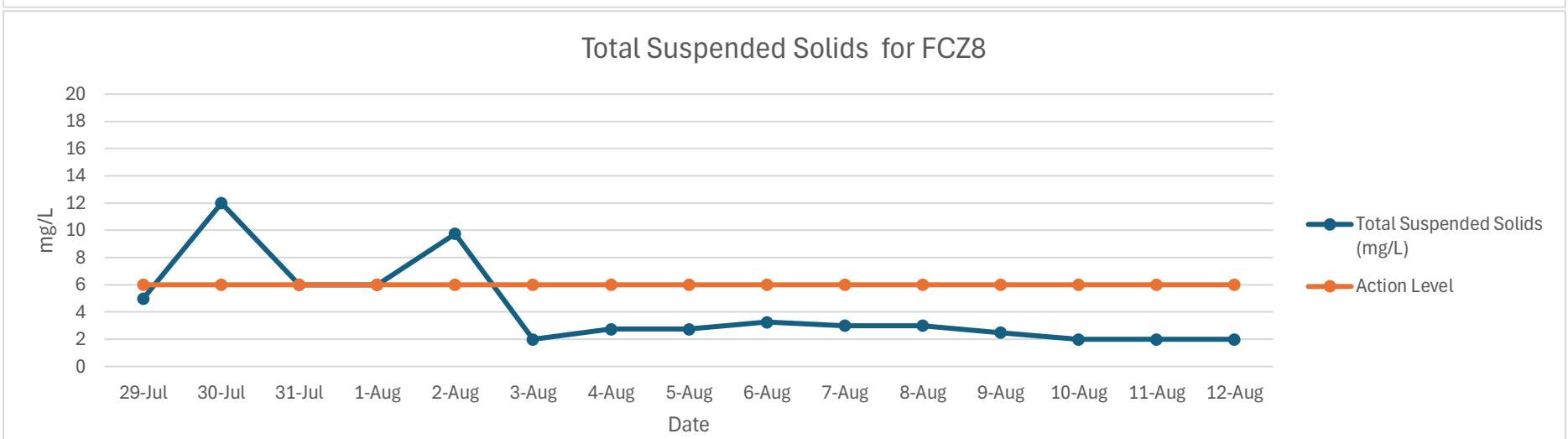

Turbidity for N2
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)
Action Level

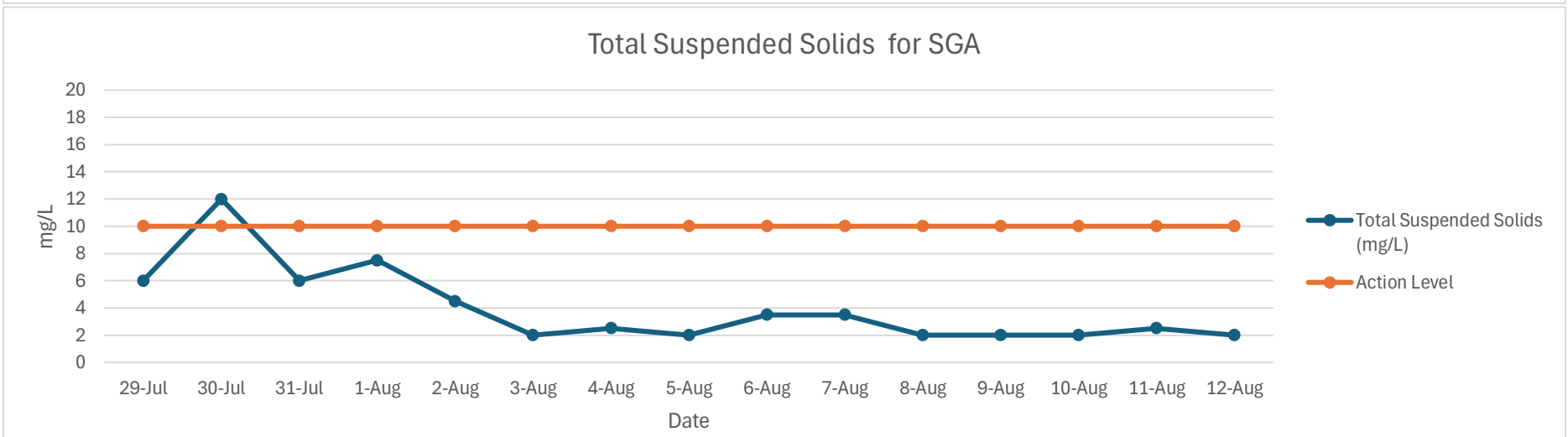

Turbidity for C
NTU
26
24
22
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Turbidity (NTU)

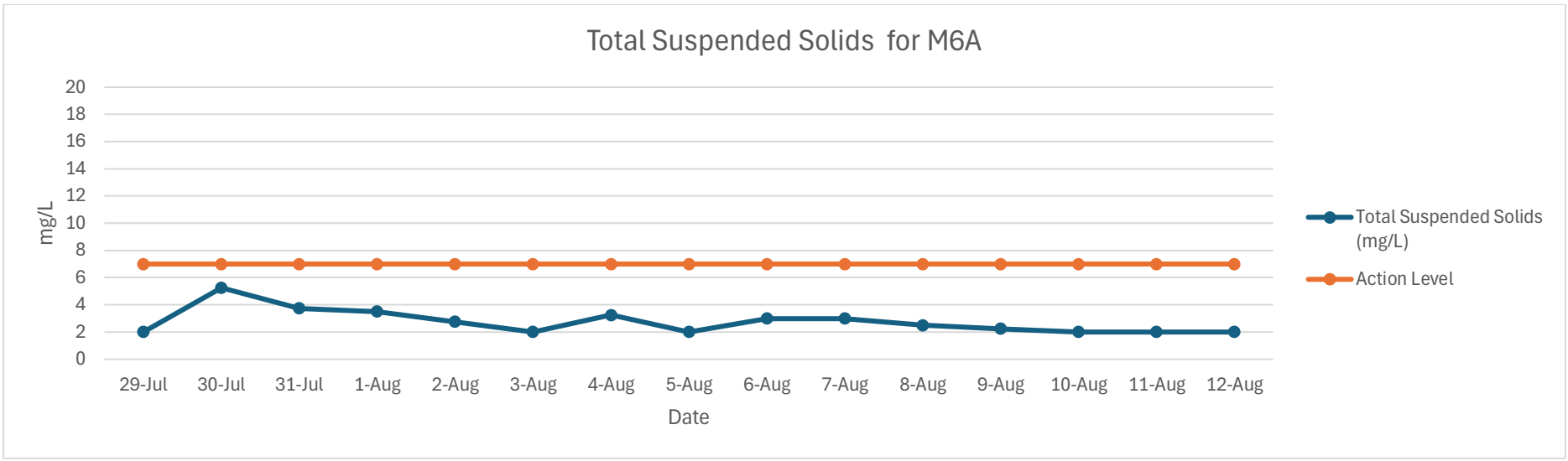

Total Suspended Solids for FCZ1A
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)
Action Level

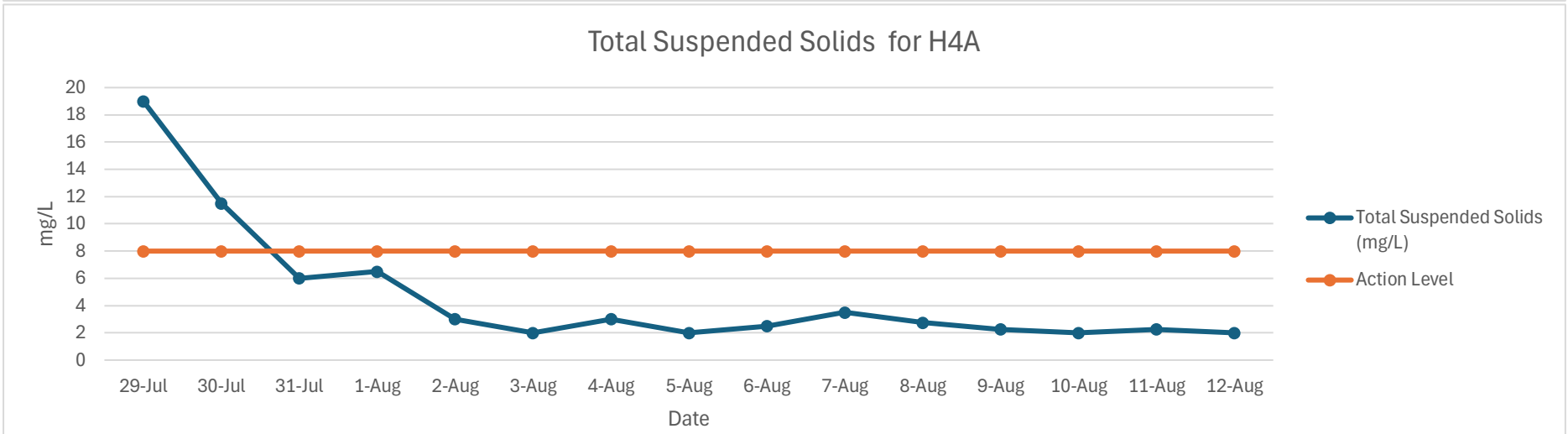

Total Suspended Solids for FCZ2
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)
Action Level

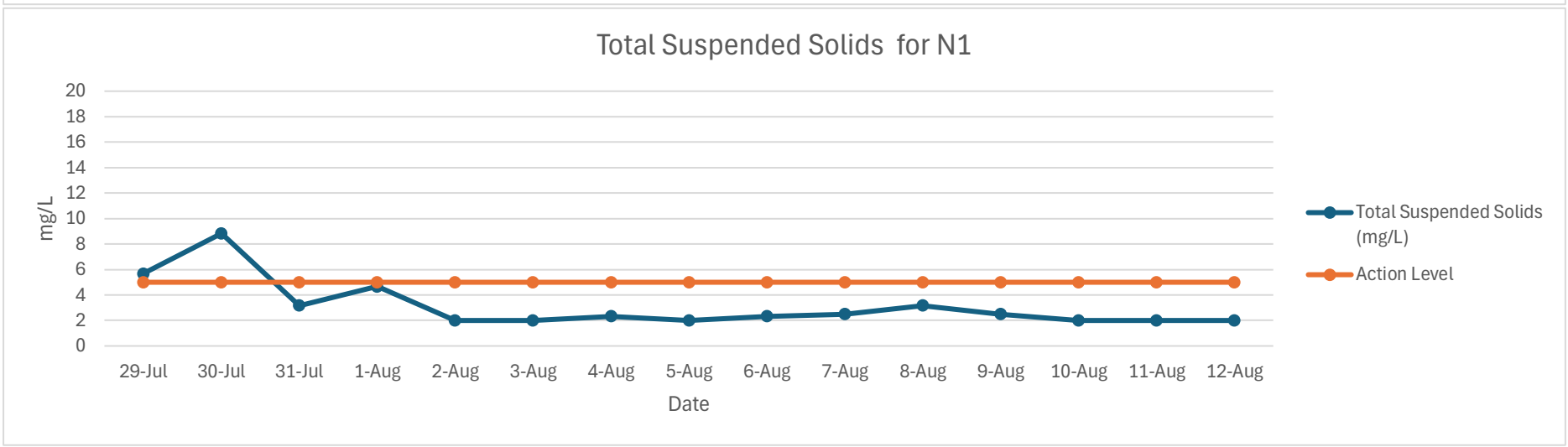

Total Suspended Solids for FCZ7
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)
Action Level

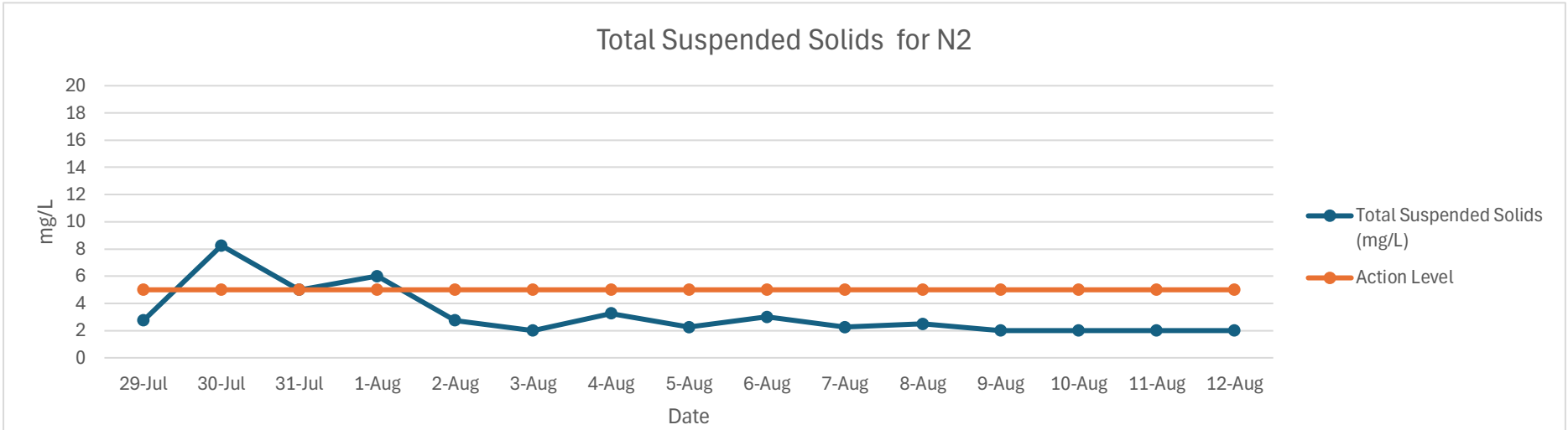

Total Suspended Solids for FCZ8
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)
Action Level

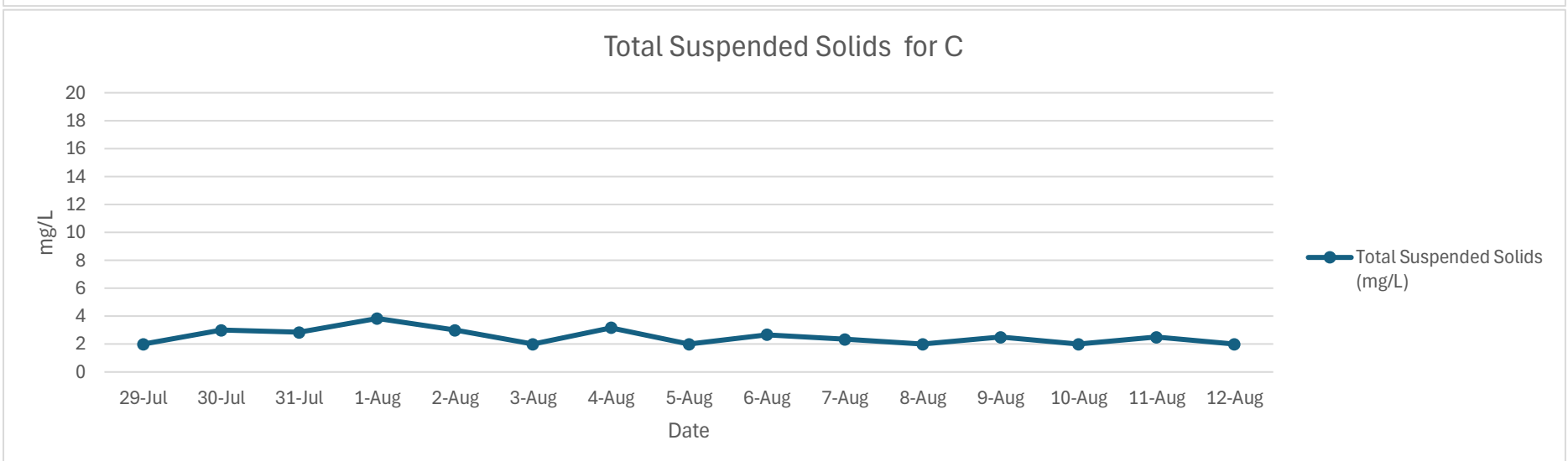

Total Suspended Solids for SGA
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)
Action Level

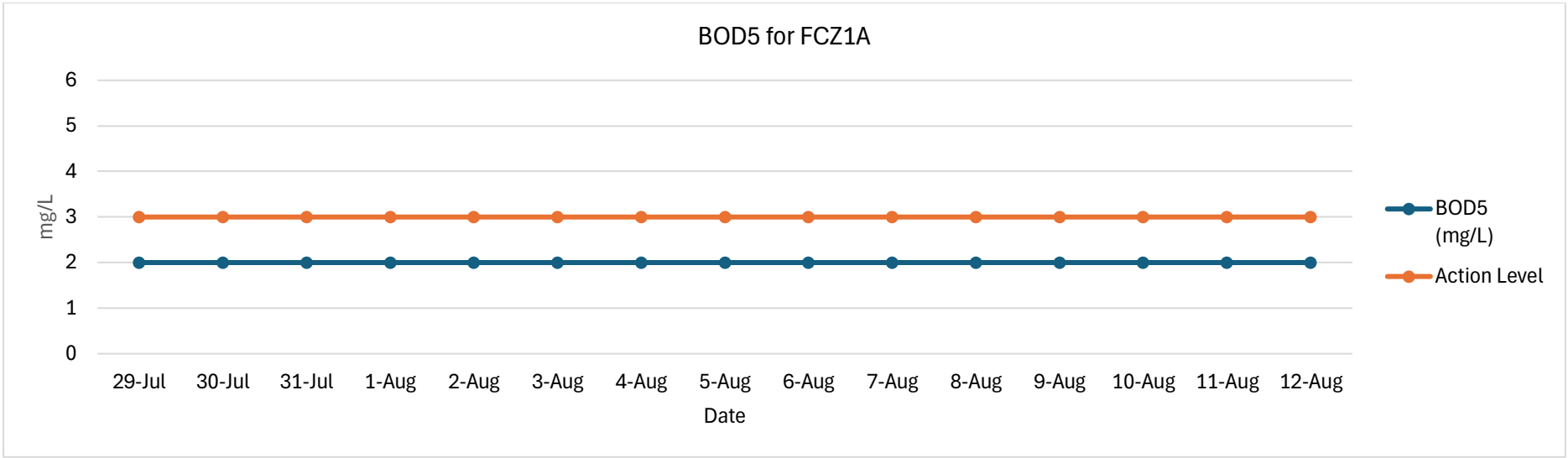

Total Suspended Solids for M6A
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)
Action Level

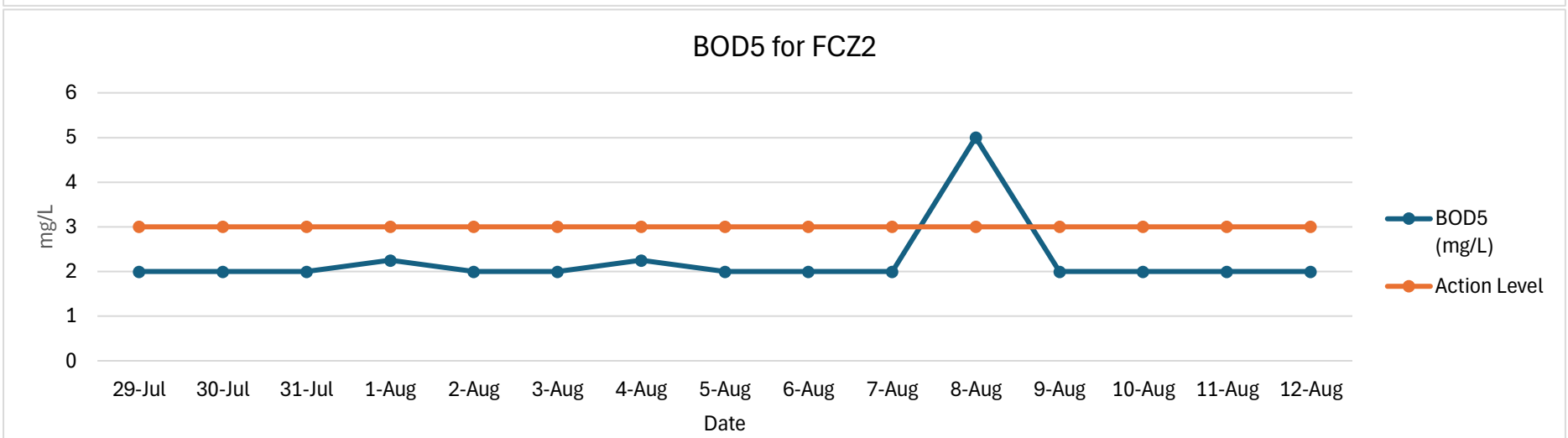

Total Suspended Solids for H4A
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)
Action Level

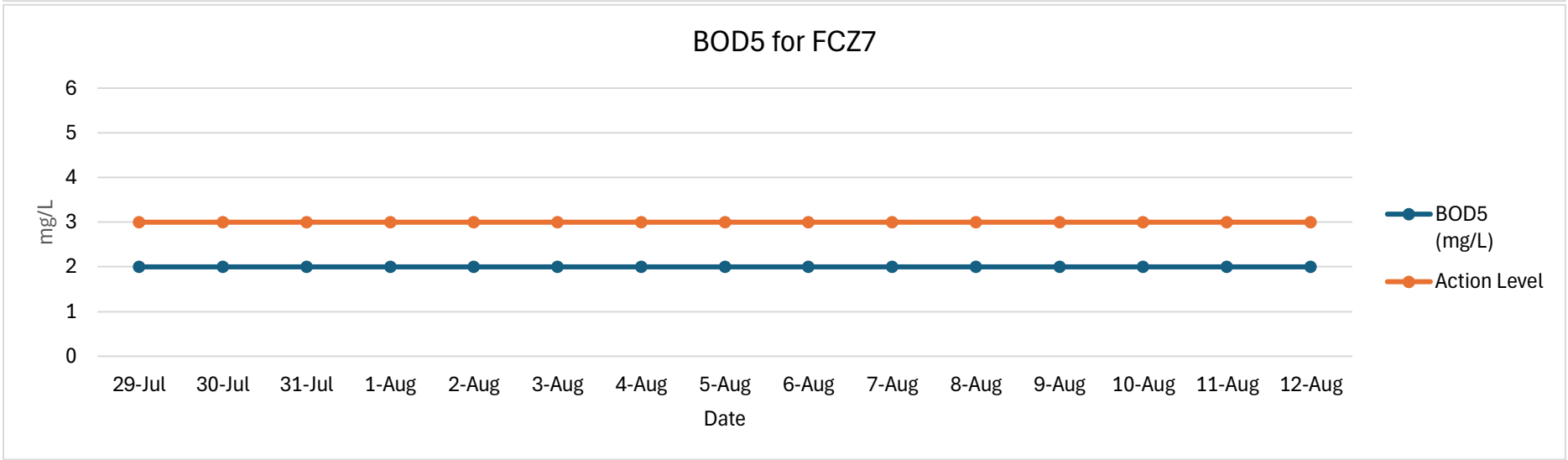

Total Suspended Solids for N1
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)
Action Level

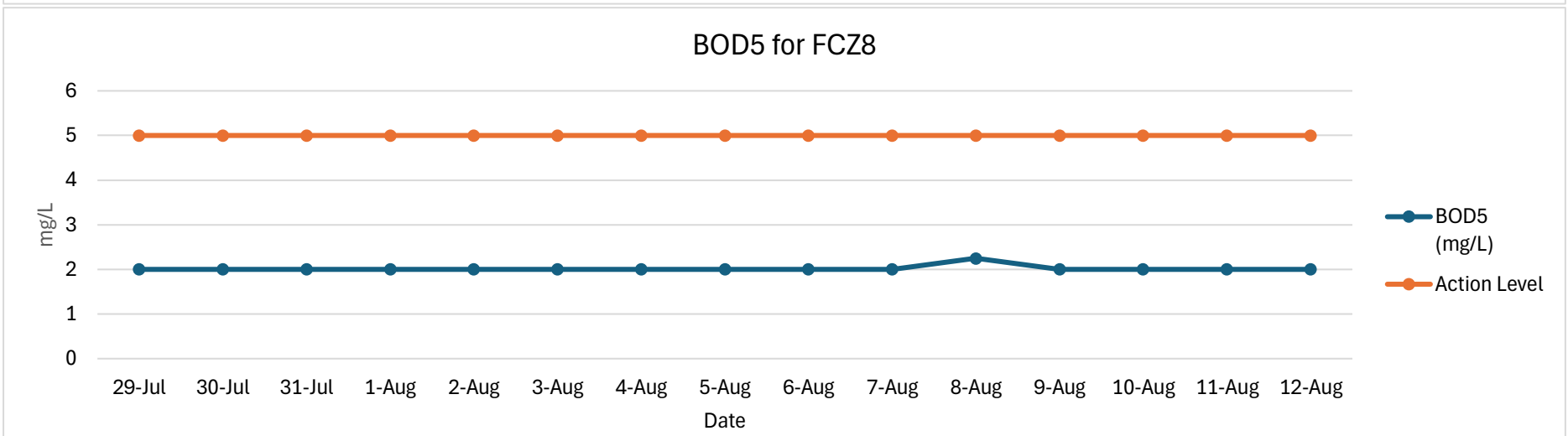

Total Suspended Solids for N2
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)
Action Level

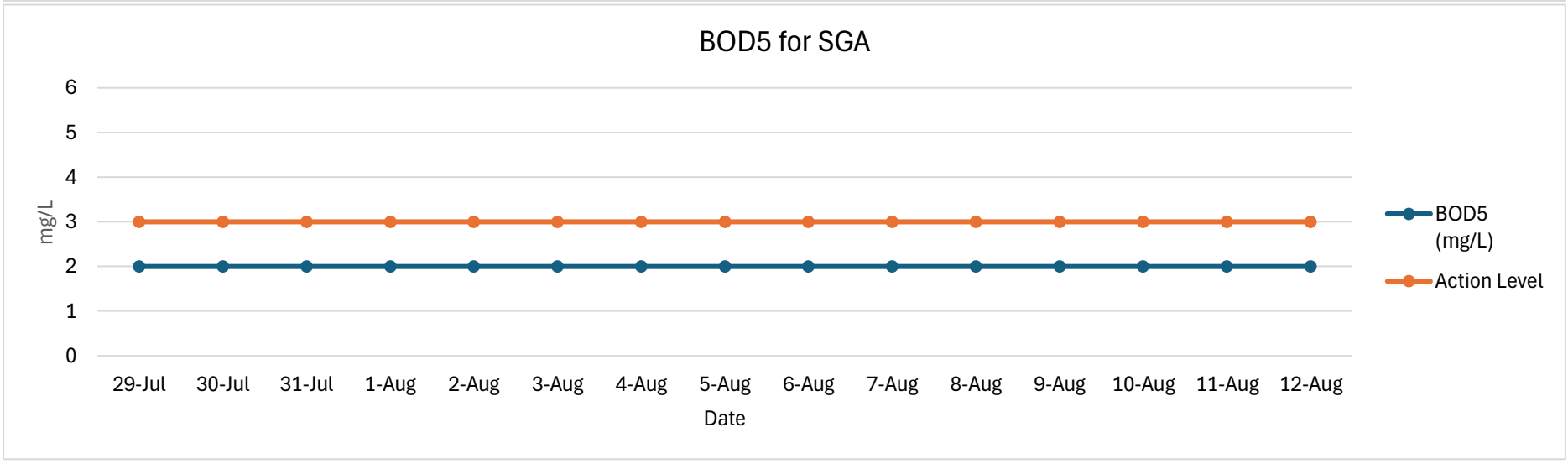

Total Suspended Solids for C
mg/L
20
18
16
14
12
10
8
6
4
2
0
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Suspended Solids (mg/L)

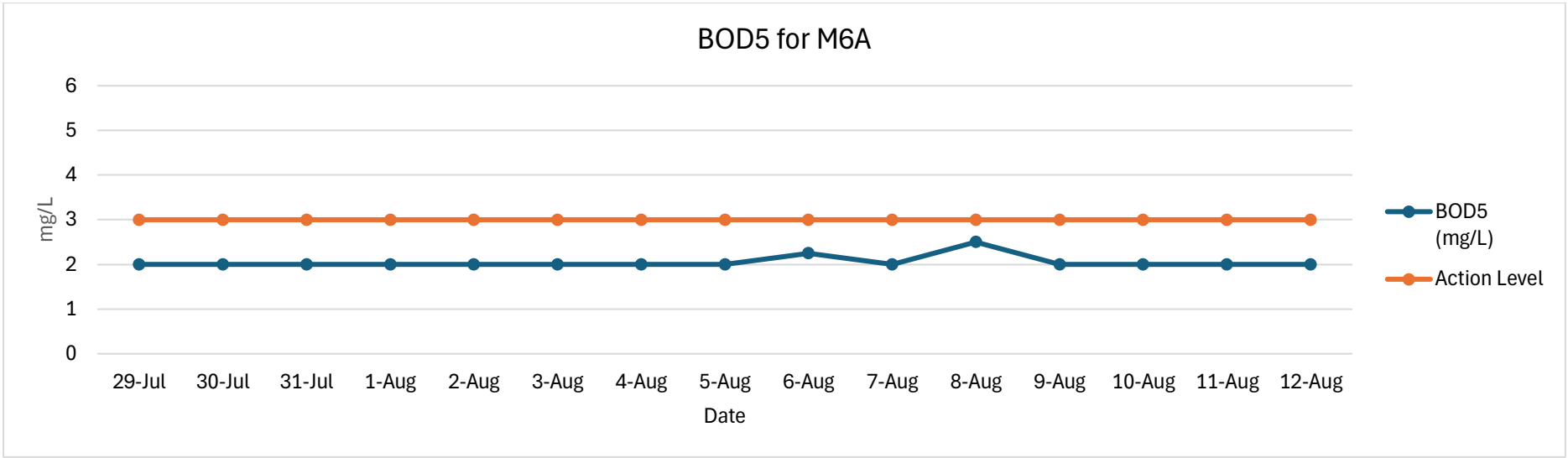

BOD5 for FCZ1A
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)
Action Level

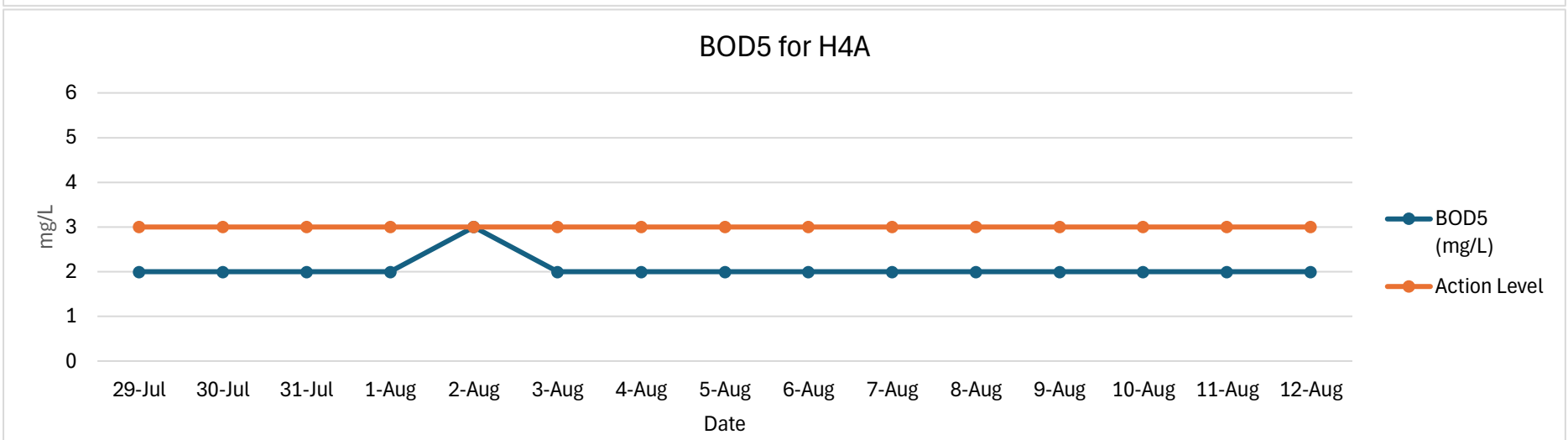

BOD5 for FCZ2
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)
Action Level

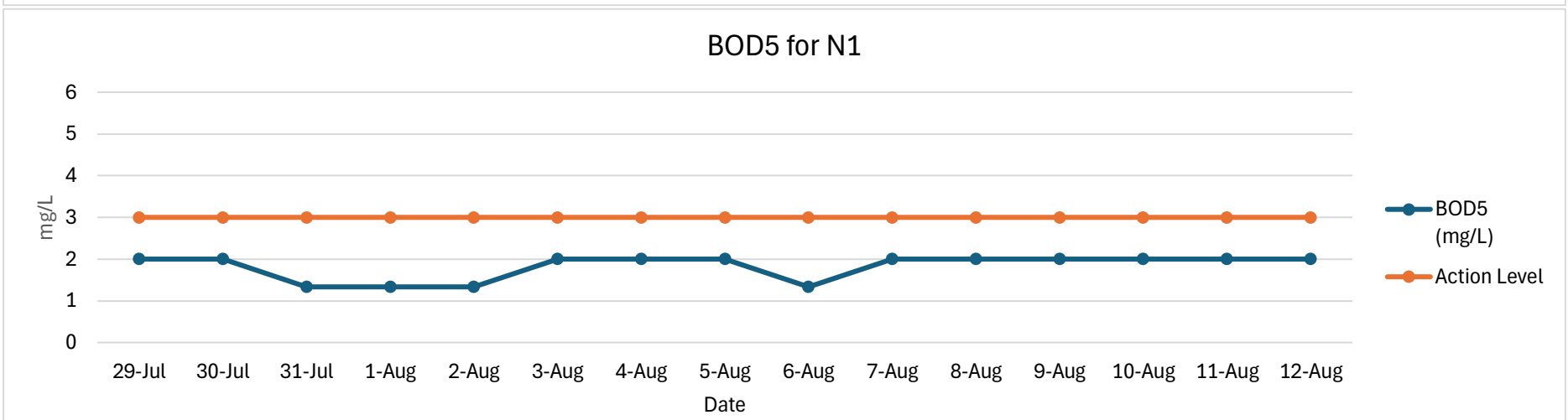

BOD5 for FCZ7
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)
Action Level

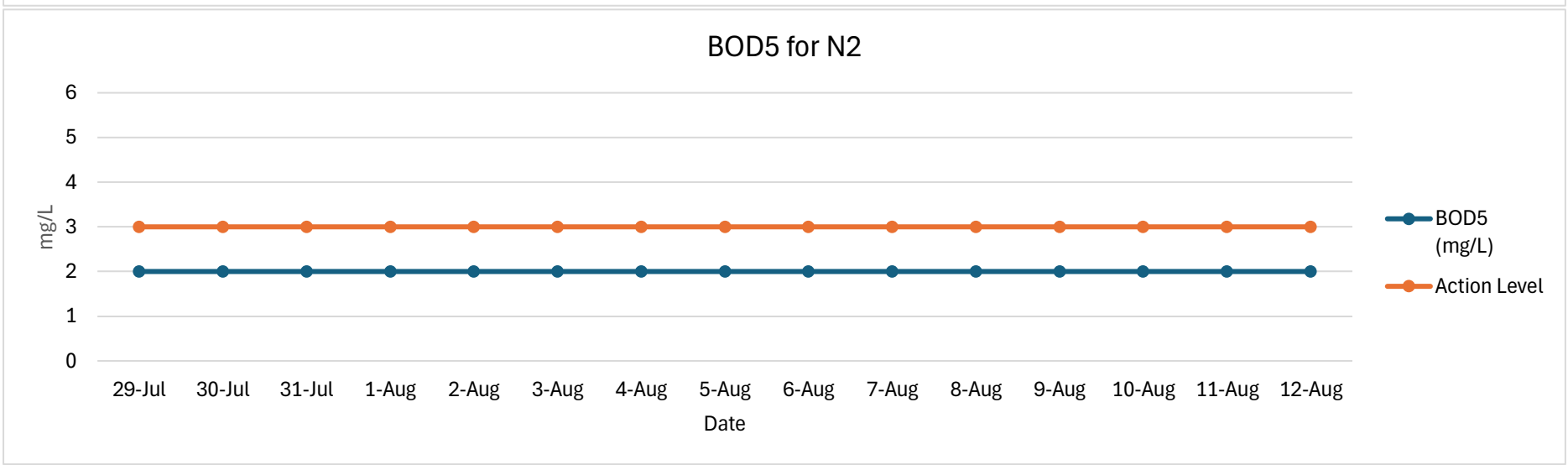

BOD5 for FCZ8
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)
Action Level

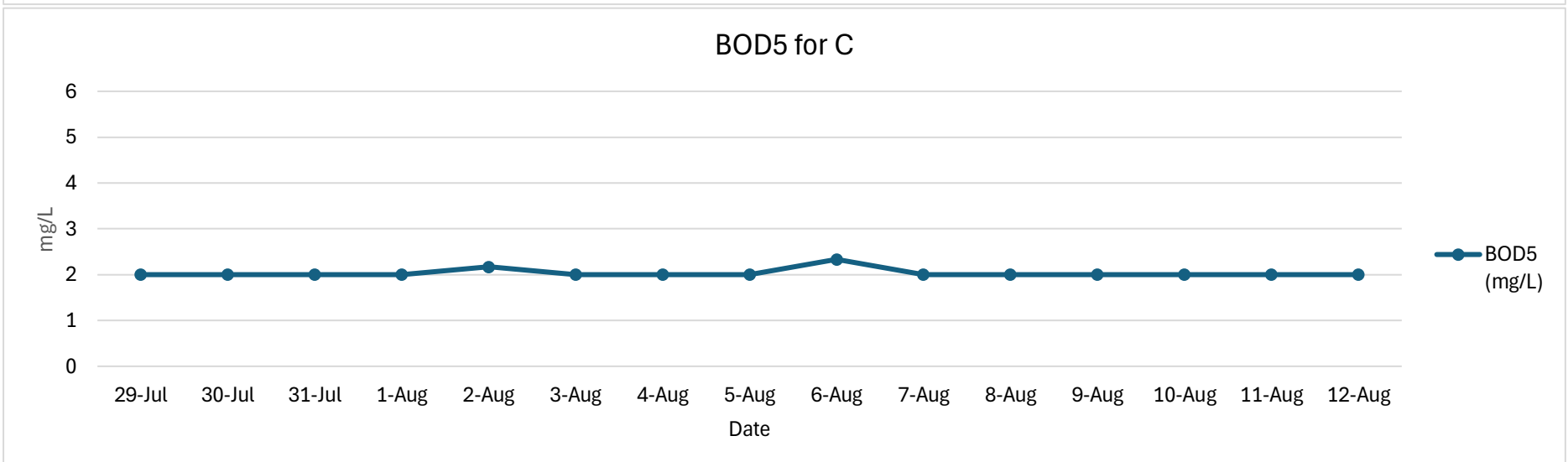

BOD5 for SGA
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)
Action Level

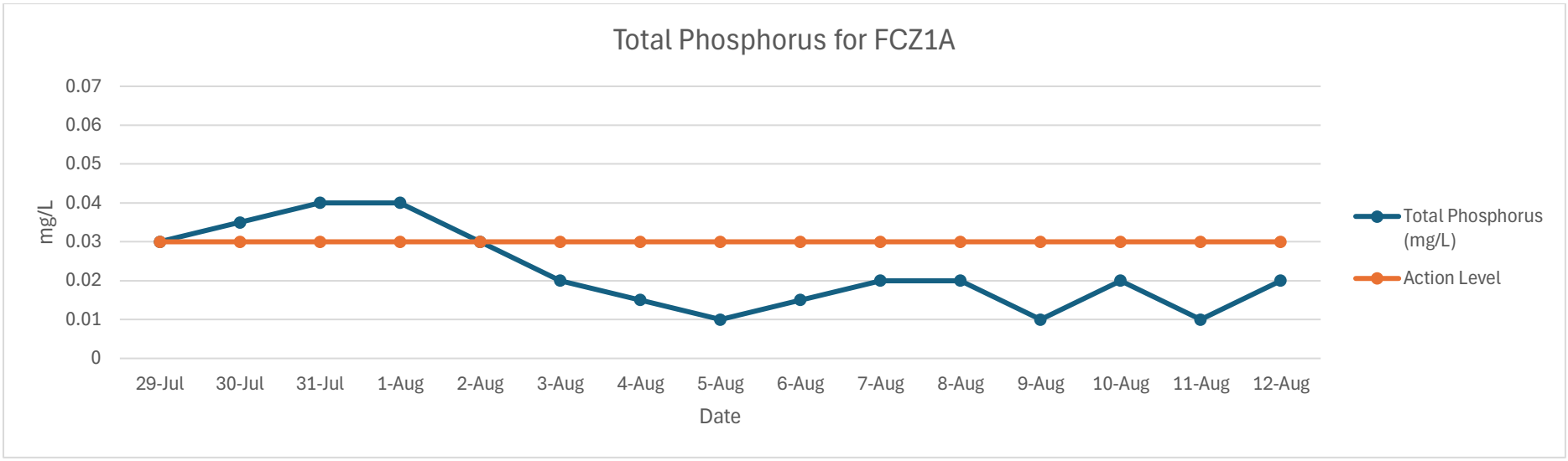

BOD5 for M6A
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)
Action Level

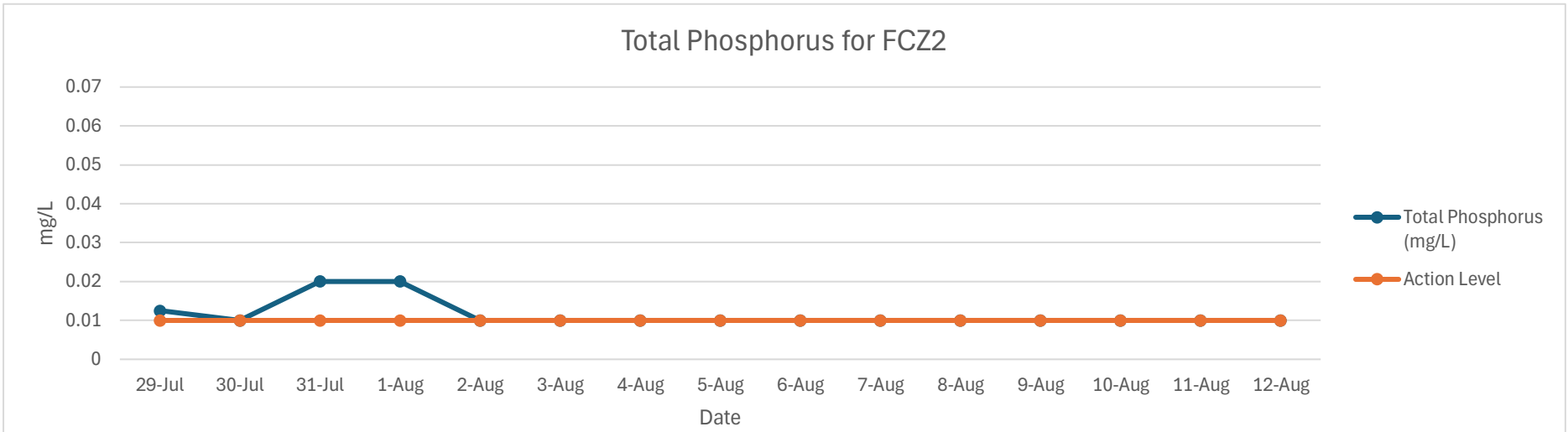

BOD5 for H4A
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)
Action Level

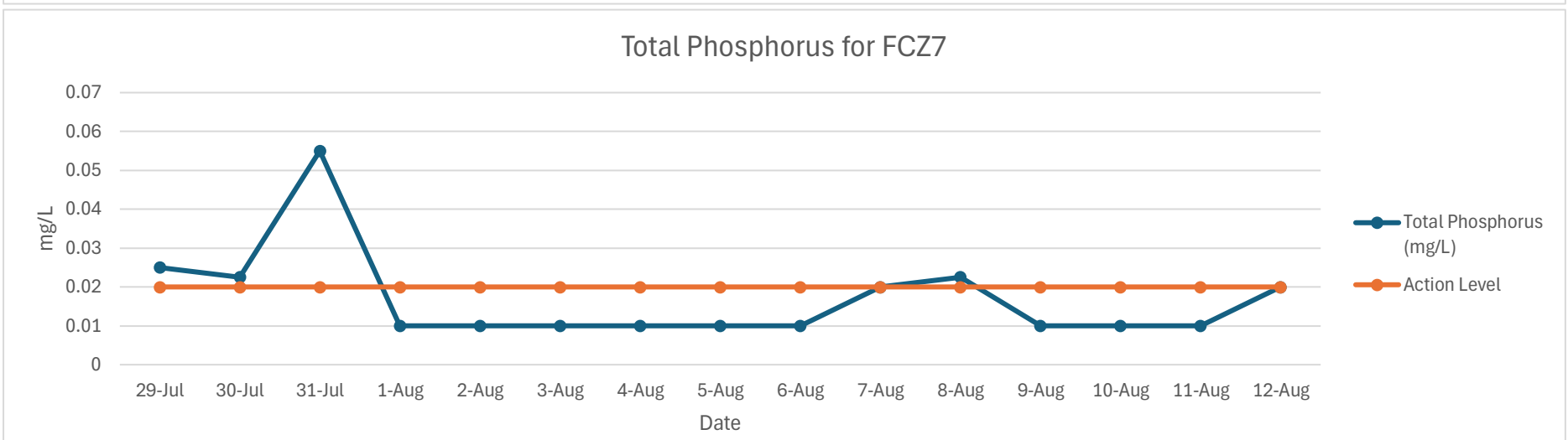

BOD5 for N1
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)
Action Level

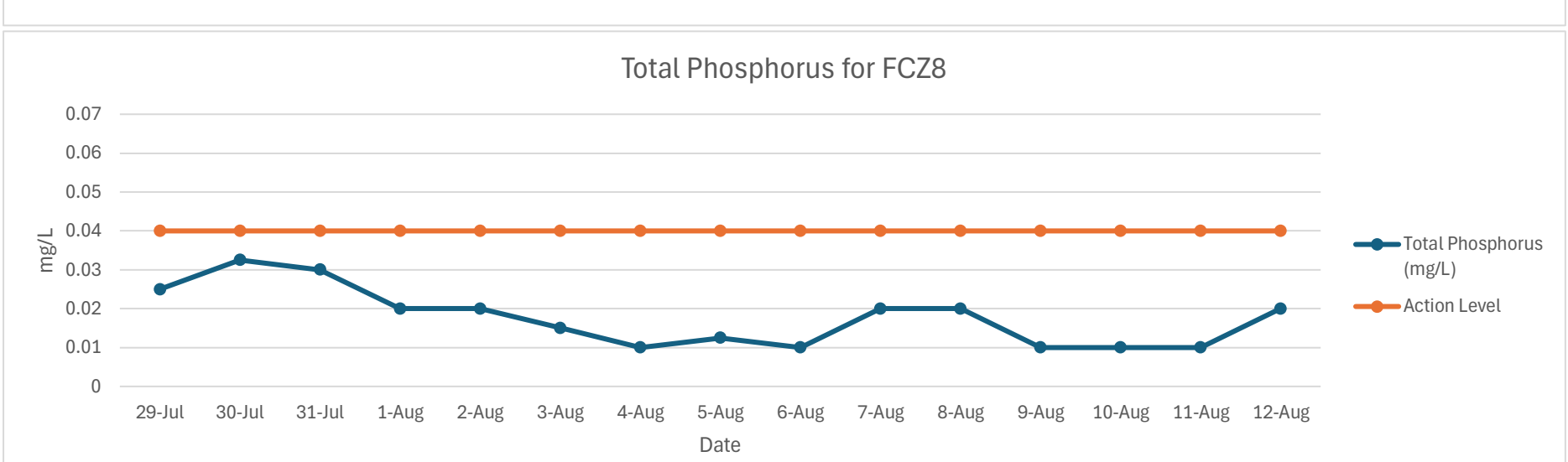

BOD5 for N2
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)
Action Level

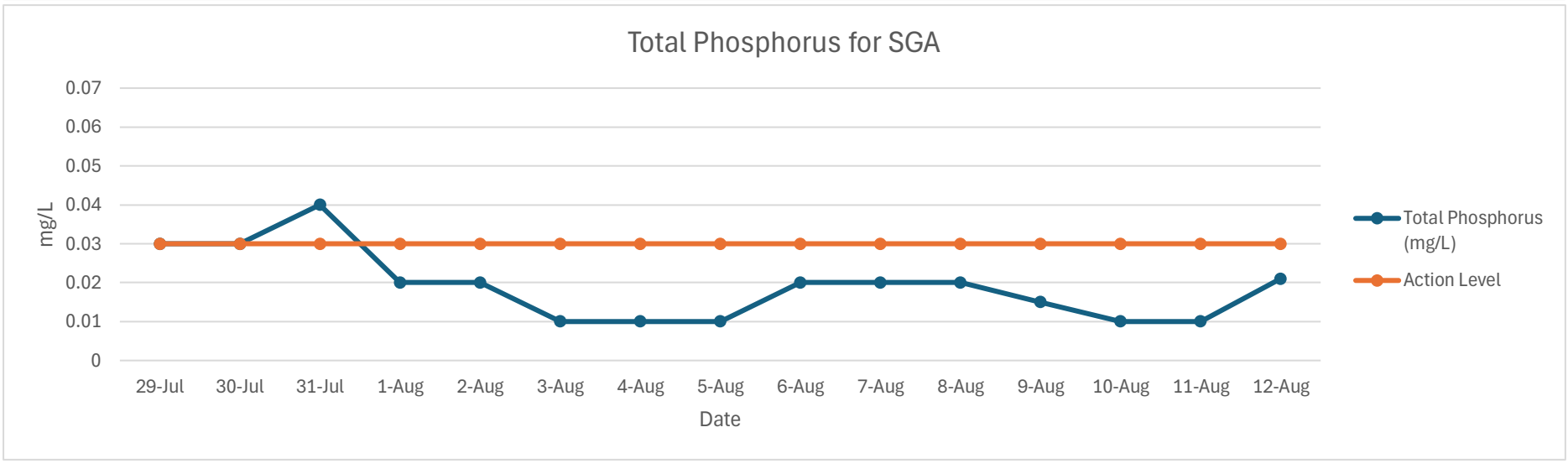

BOD5 for C
6
5
4
3
2
1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
BOD5 (mg/L)

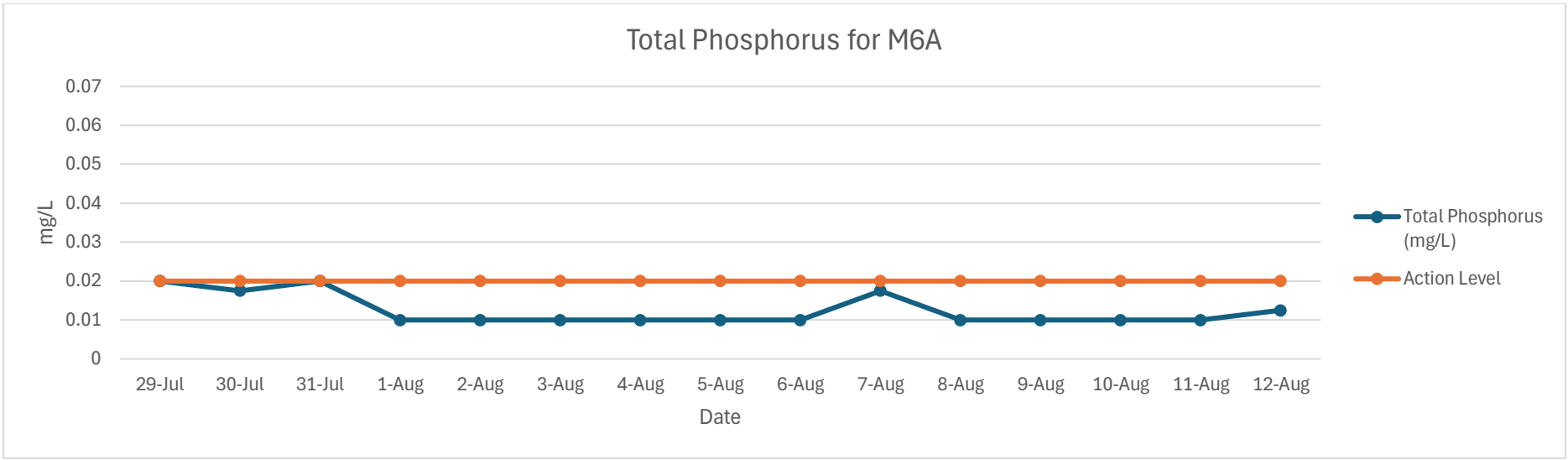

Total Phosphorus for FCZ1A
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)
Action Level

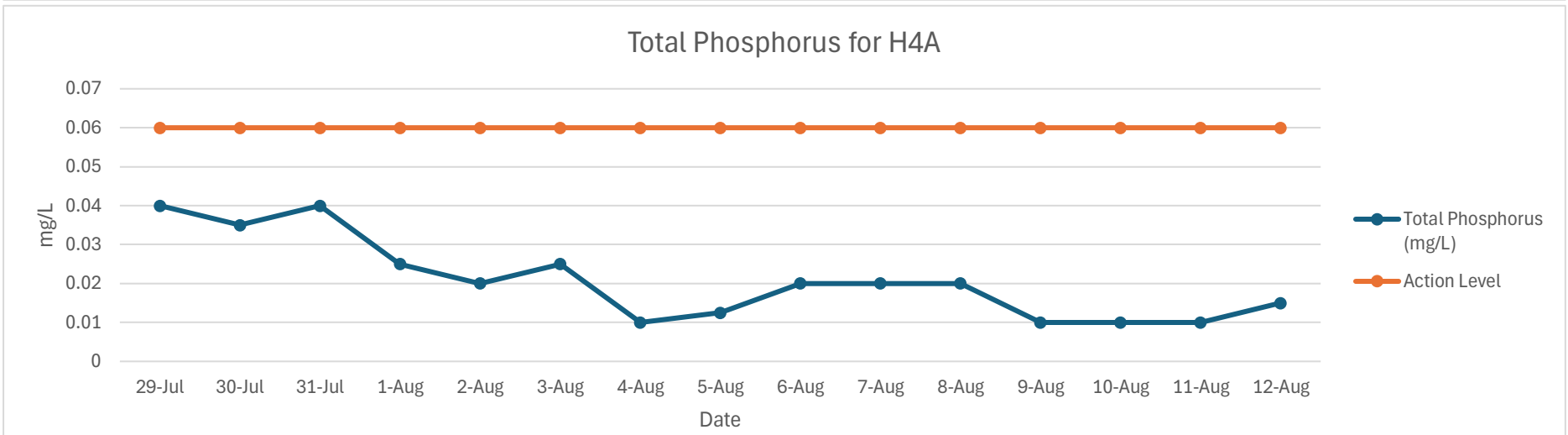

Total Phosphorus for FCZ2
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)
Action Level

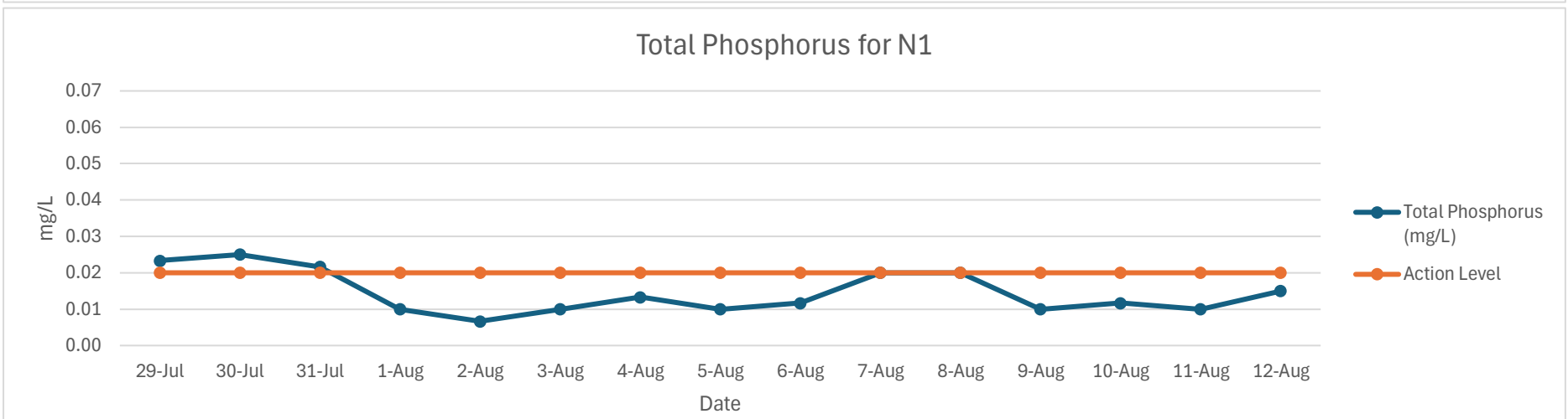

Total Phosphorus for FCZ7
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)
Action Level

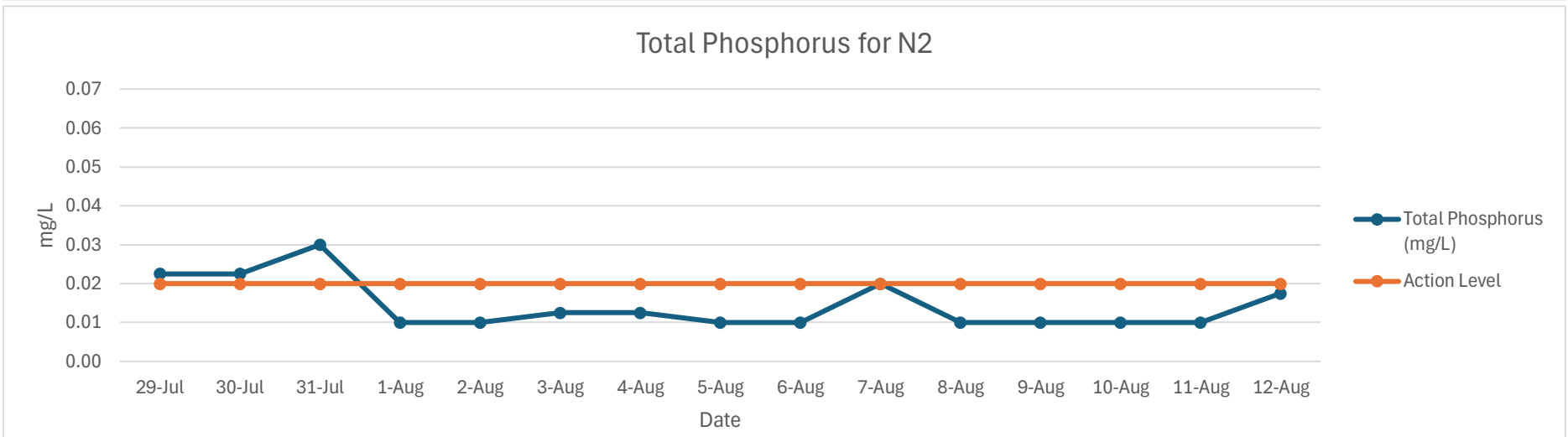

Total Phosphorus for FCZ8
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)
Action Level

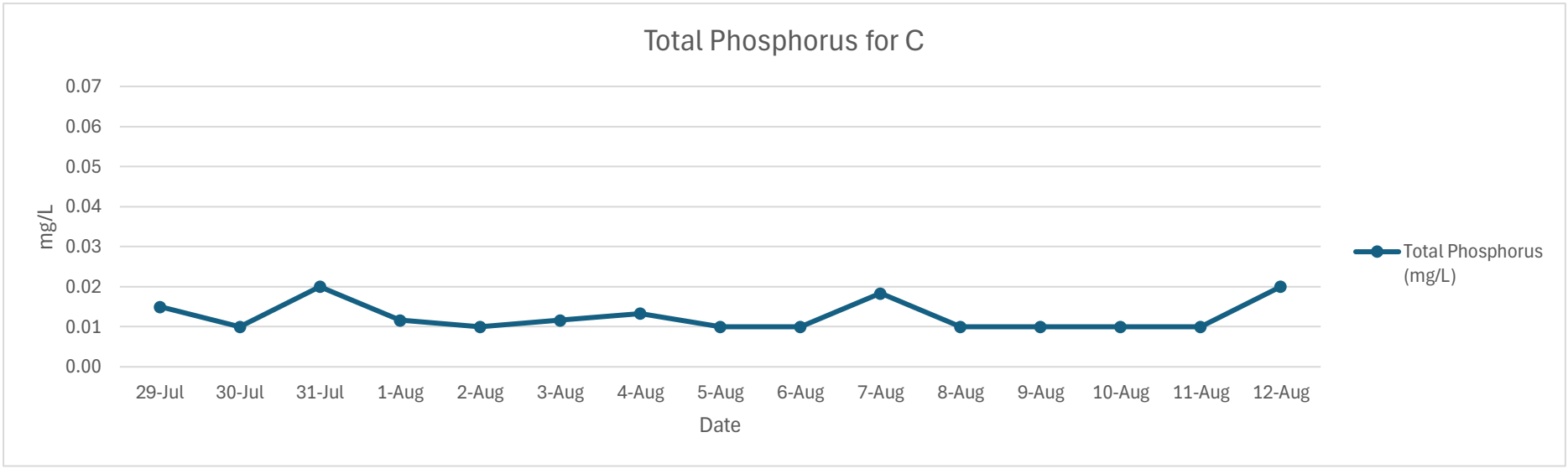

Total Phosphorus for SGA
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)
Action Level

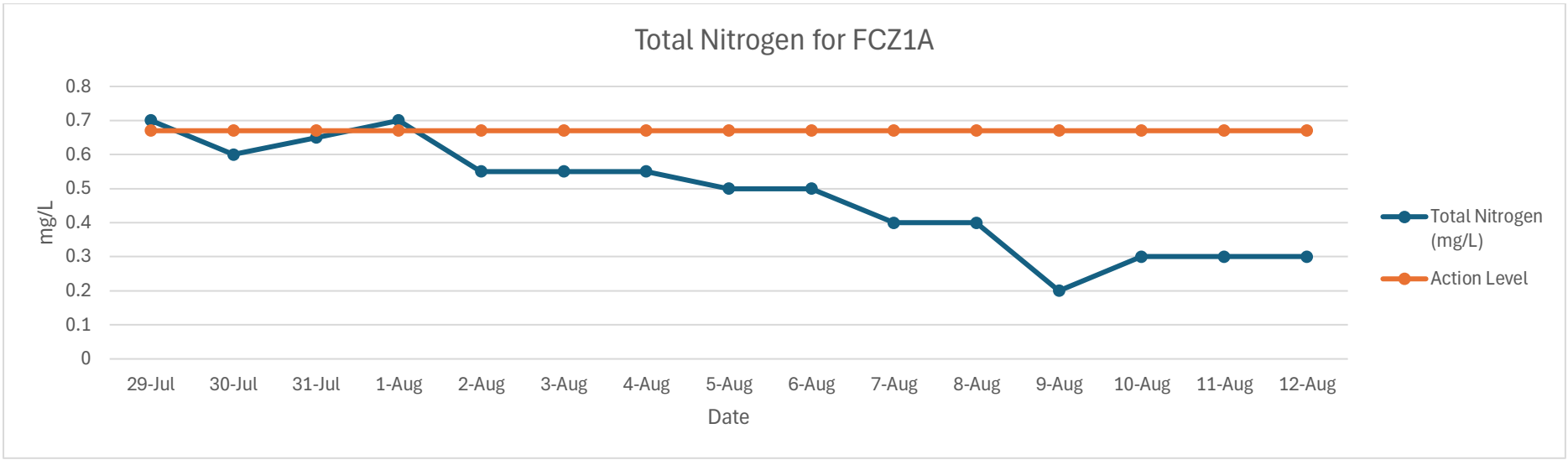

Total Phosphorus for M6A
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)
Action Level

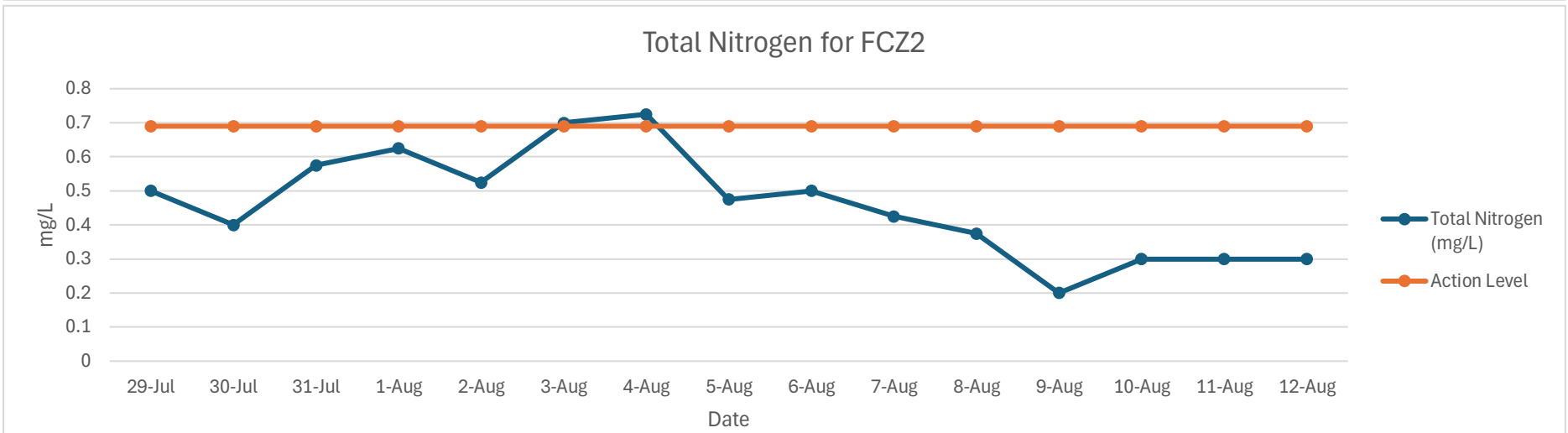

Total Phosphorus for H4A
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)
Action Level

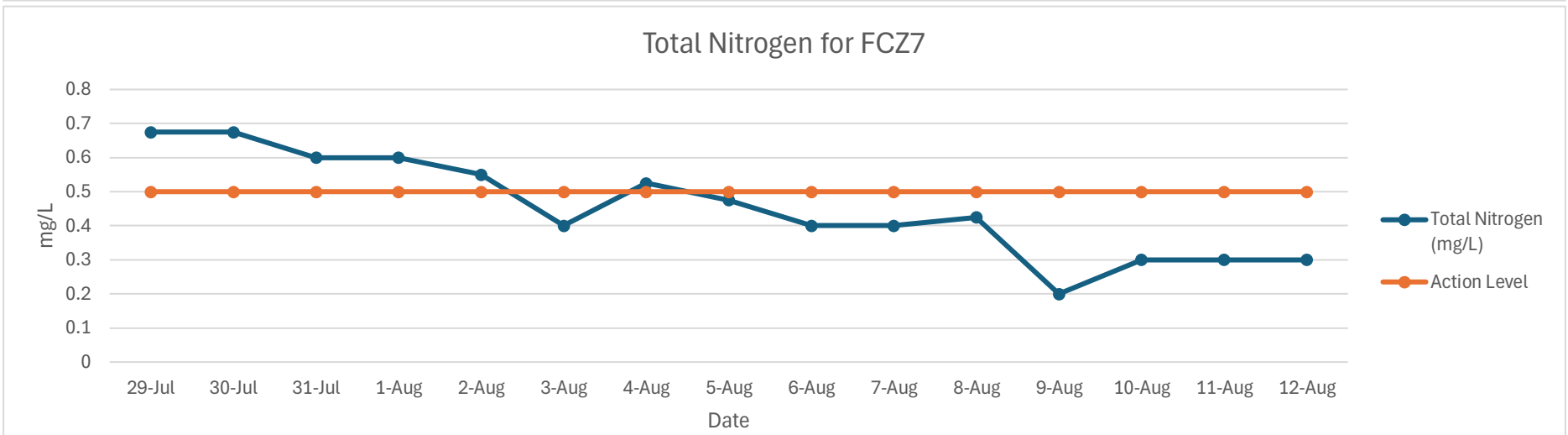

Total Phosphorus for N1
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)
Action Level

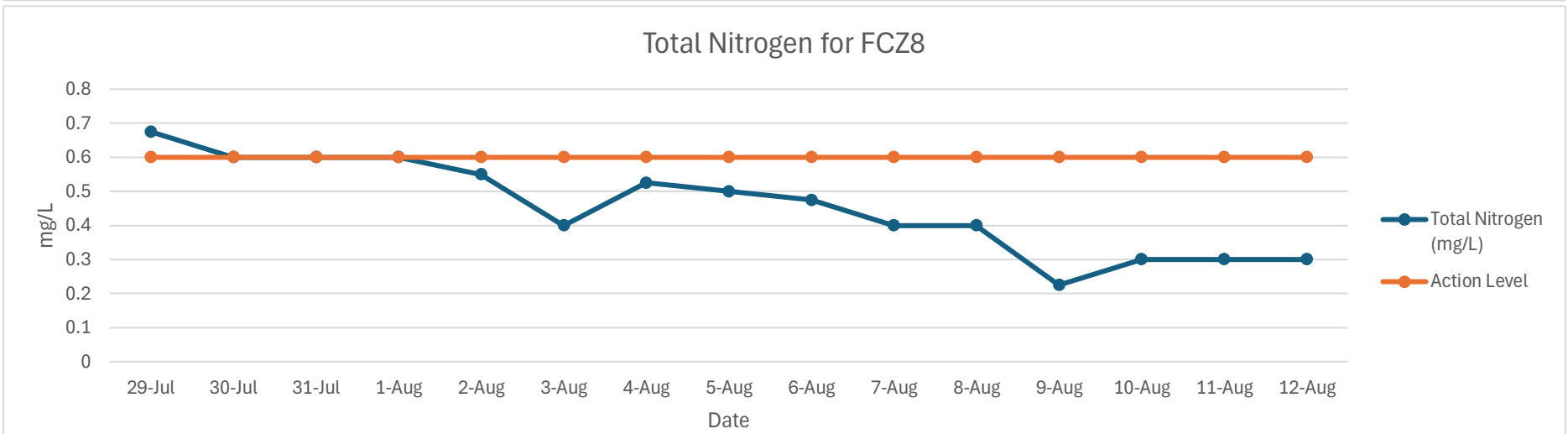

Total Phosphorus for N2
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)
Action Level

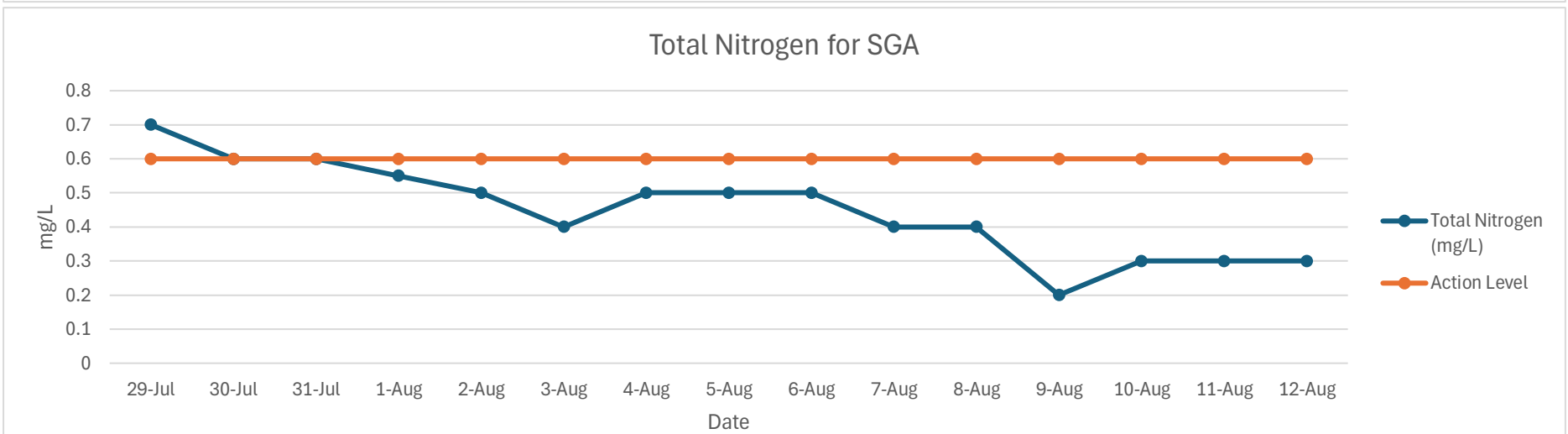

Total Phosphorus for C
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Phosphorus (mg/L)

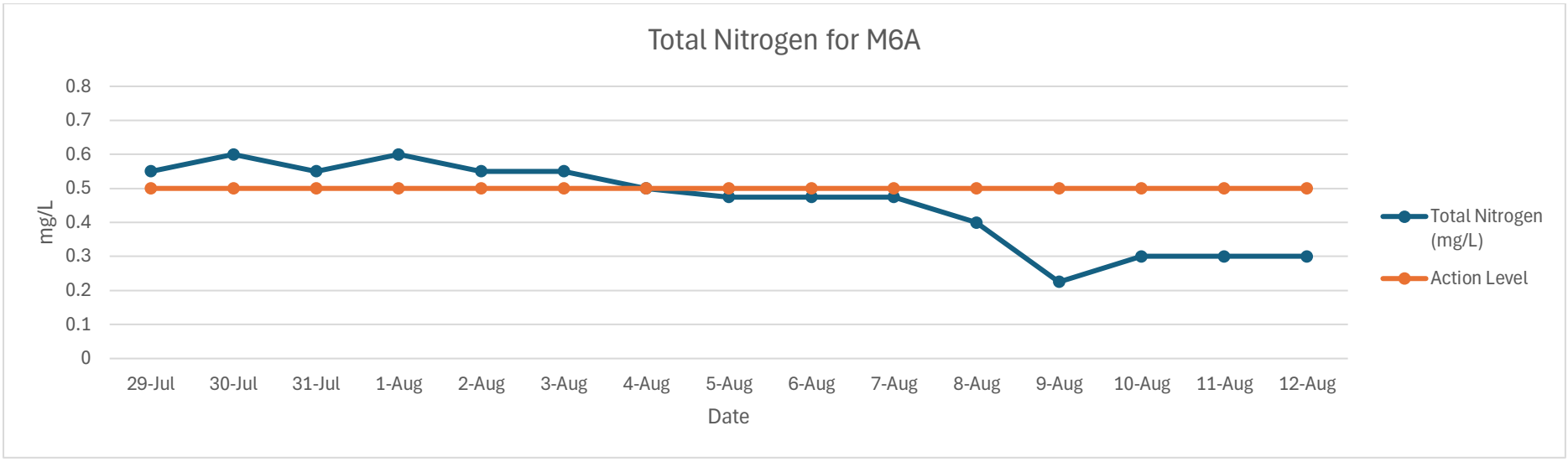

Total Nitrogen for FCZ1A
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)
Action Level

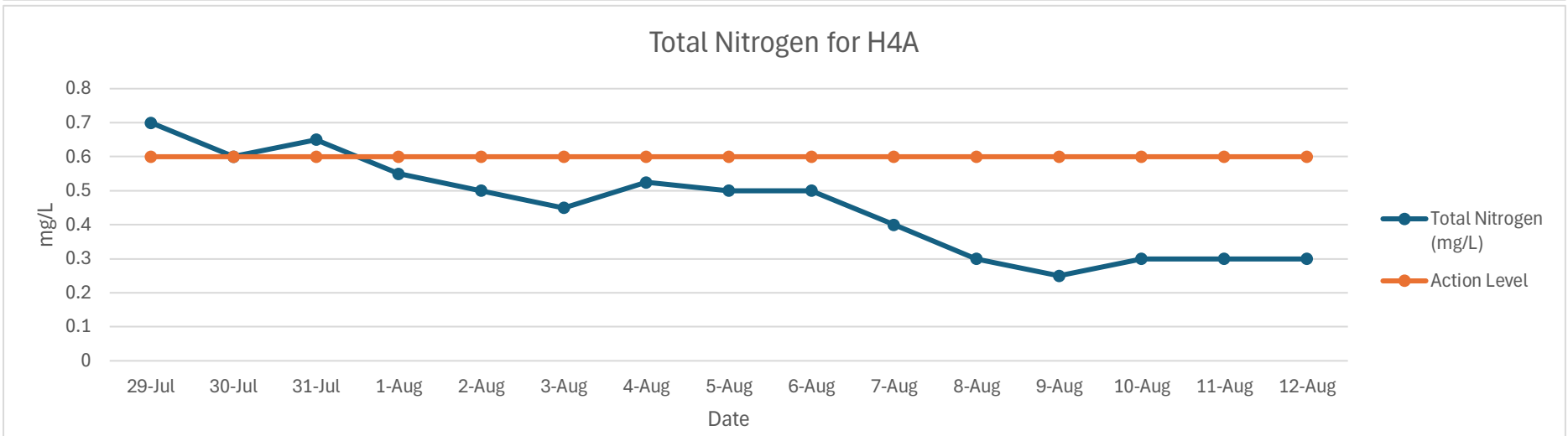

Total Nitrogen for FCZ2
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)
Action Level

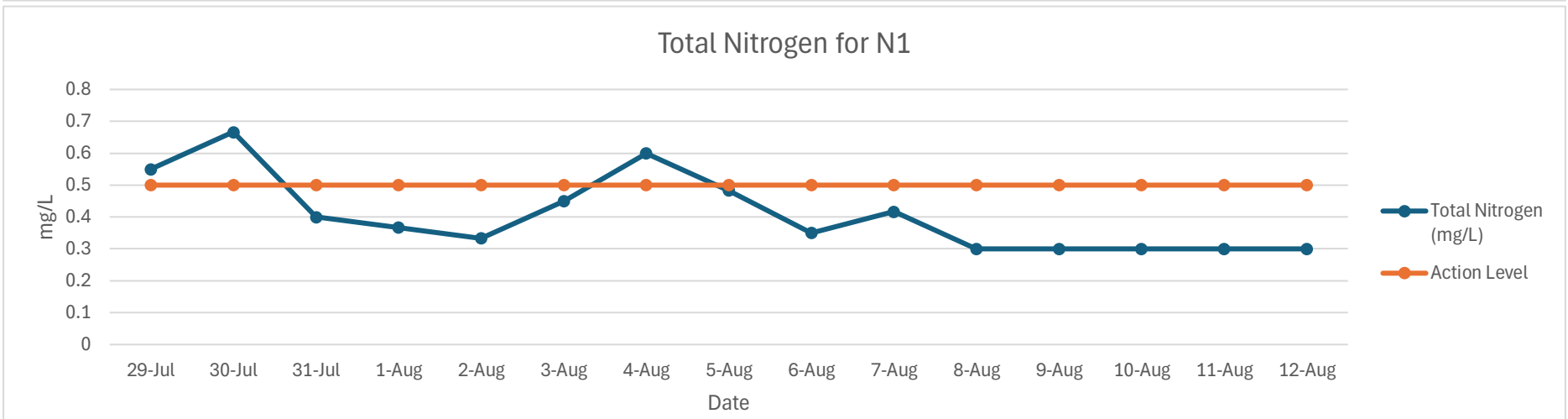

Total Nitrogen for FCZ7
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)
Action Level

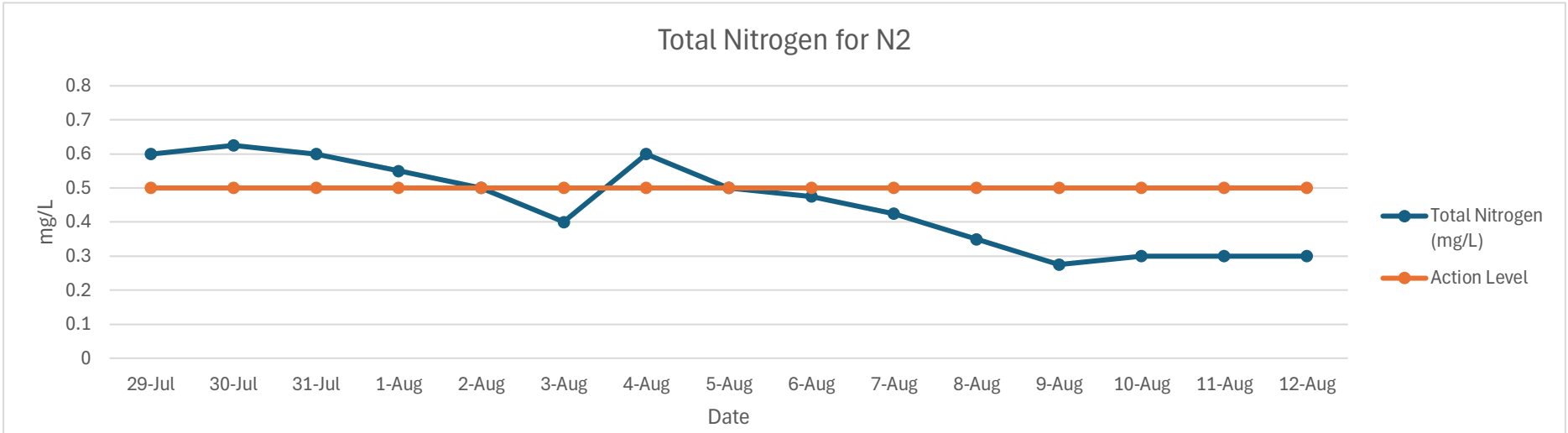

Total Nitrogen for FCZ8
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)
Action Level

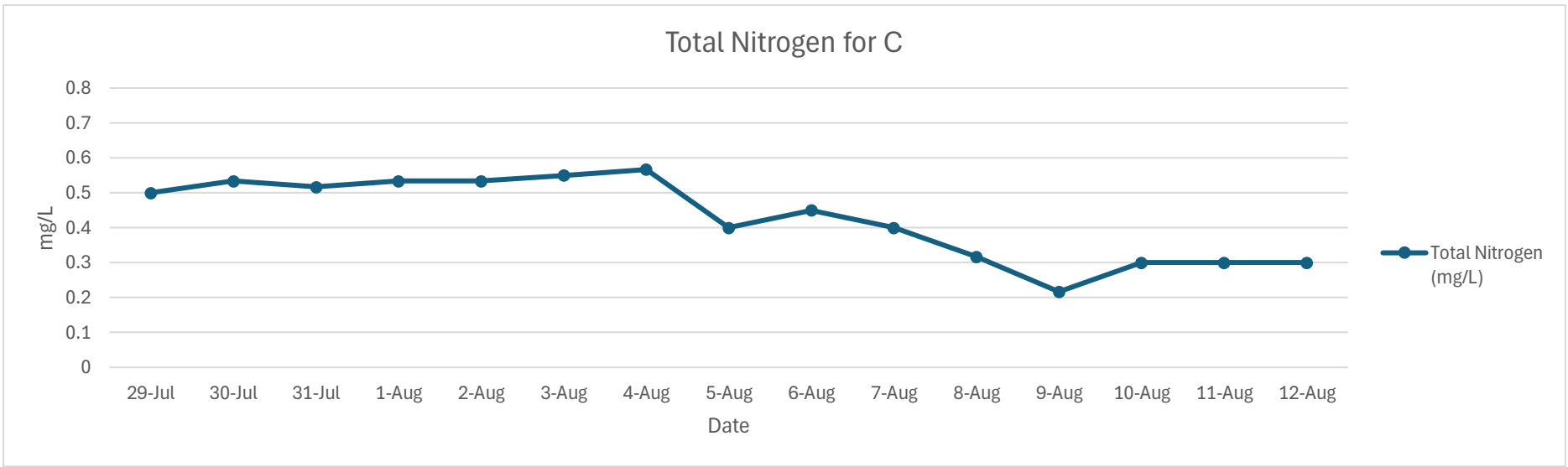

Total Nitrogen for SGA
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)
Action Level

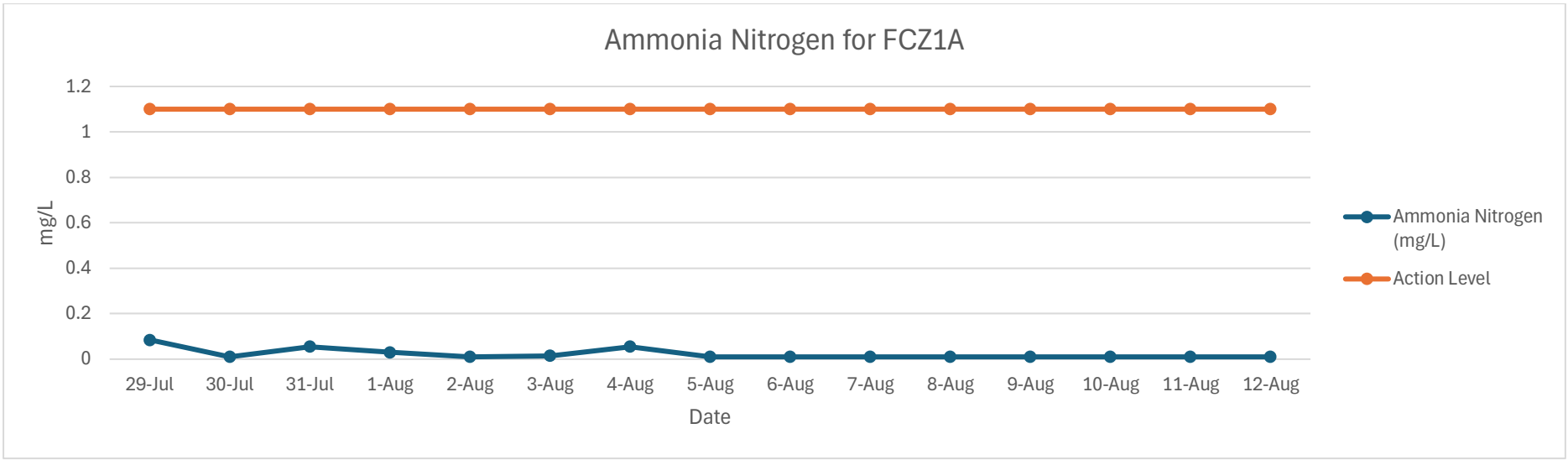

Total Nitrogen for M6A
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)
Action Level

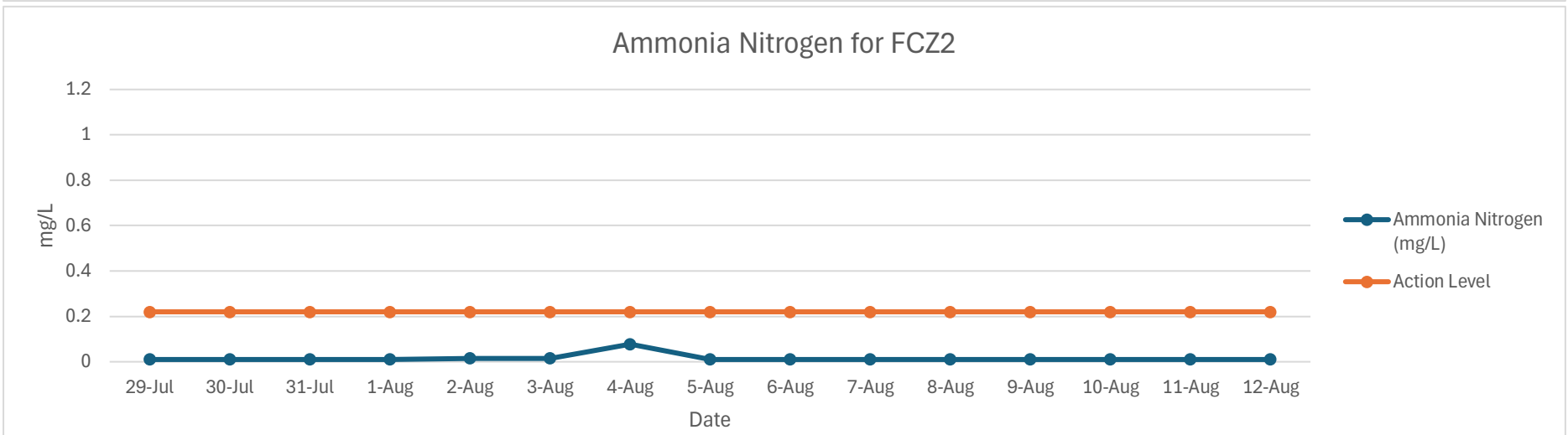

Total Nitrogen for H4A
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)
Action Level

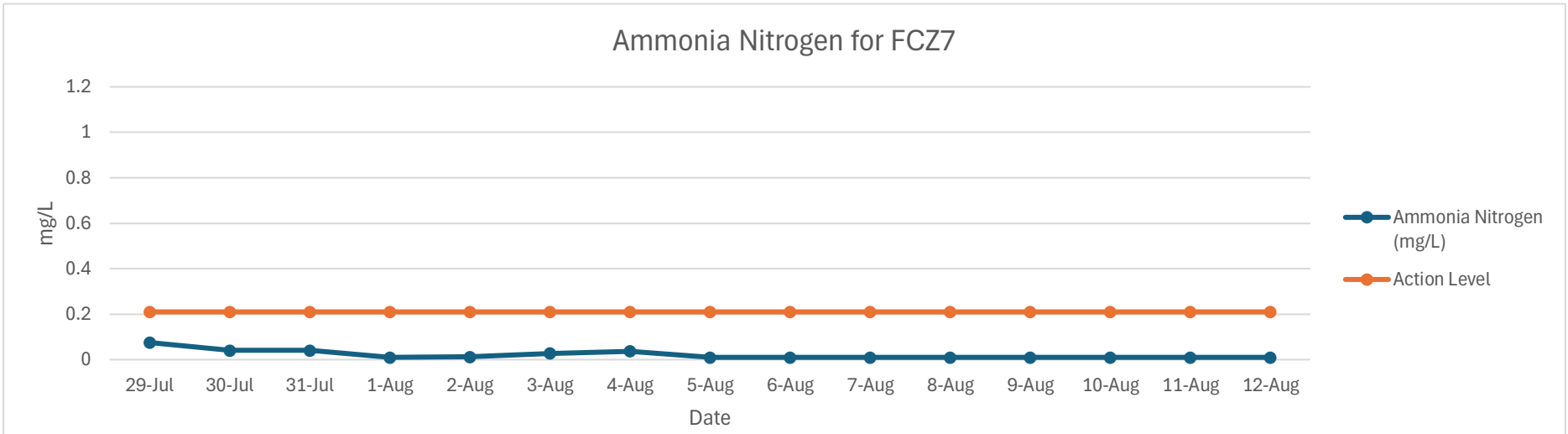

Total Nitrogen for N1
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)
Action Level

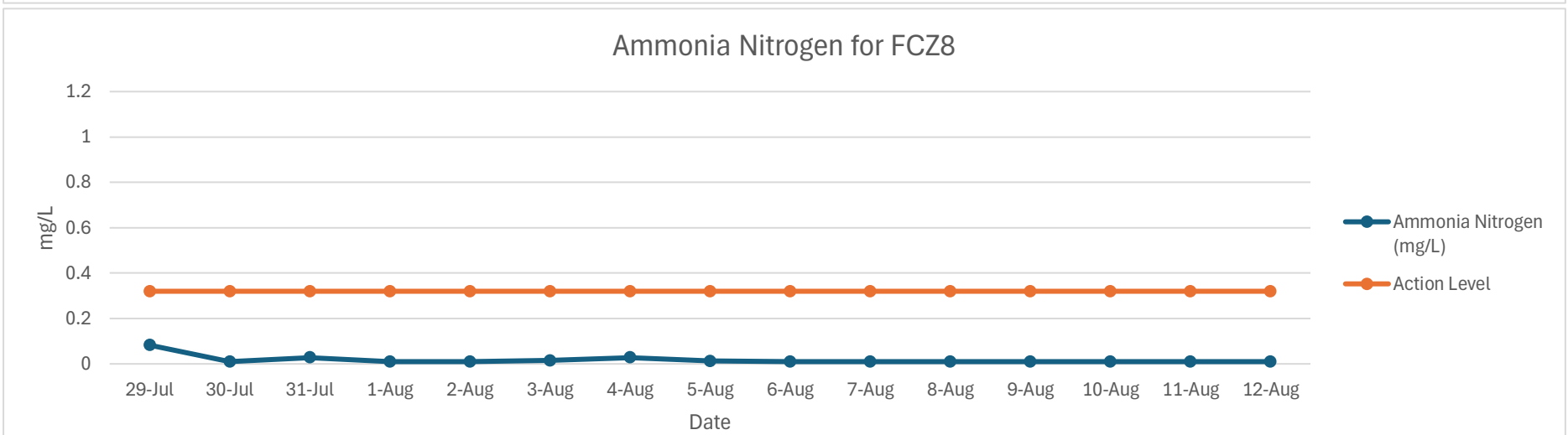

Total Nitrogen for N2
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)
Action Level

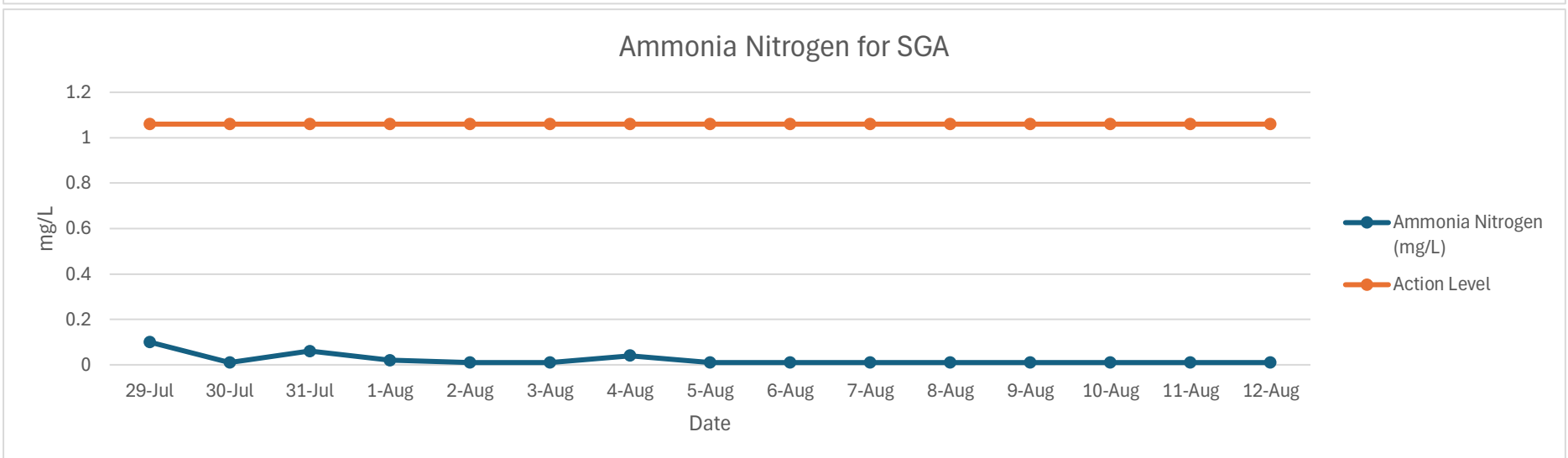

Total Nitrogen for C
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Nitrogen (mg/L)

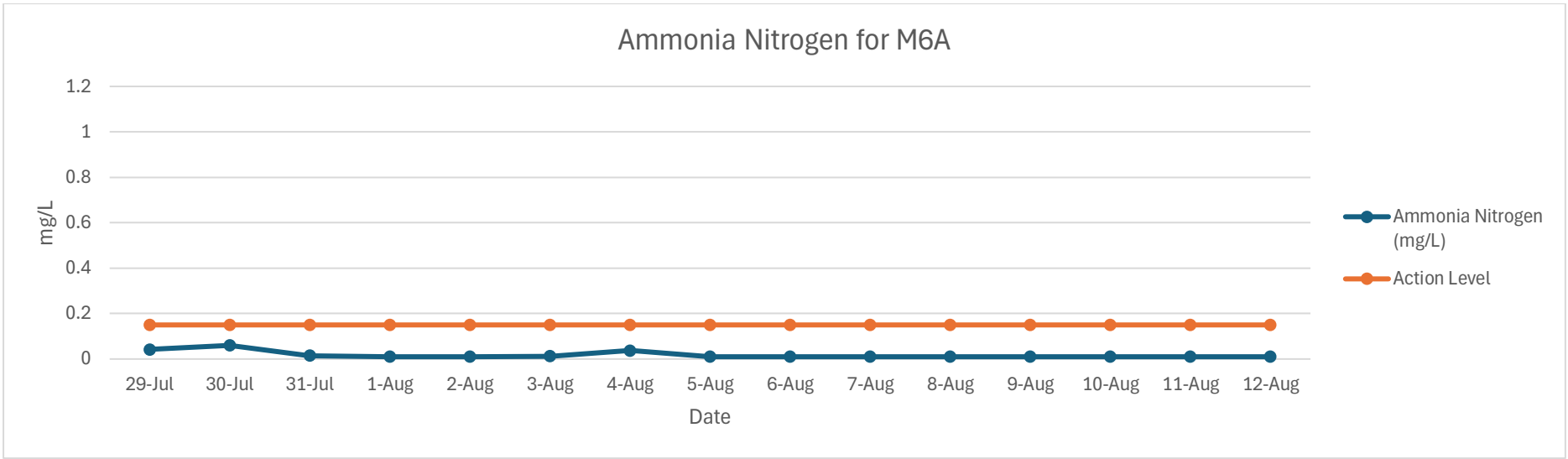

Ammonia Nitrogen for FCZ1A
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)
Action Level

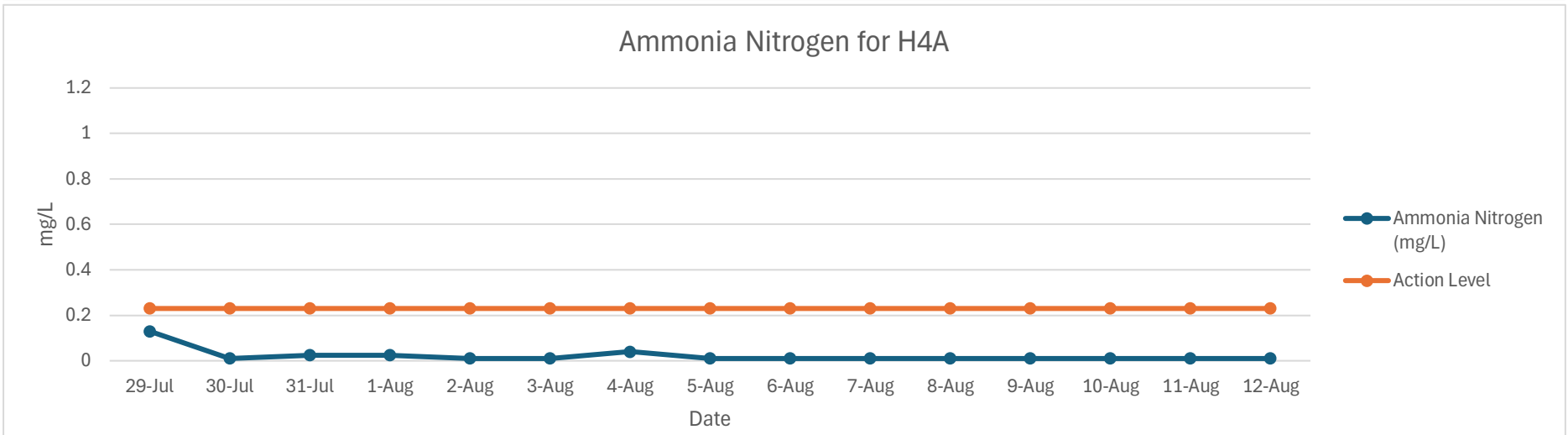

Ammonia Nitrogen for FCZ2
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)
Action Level

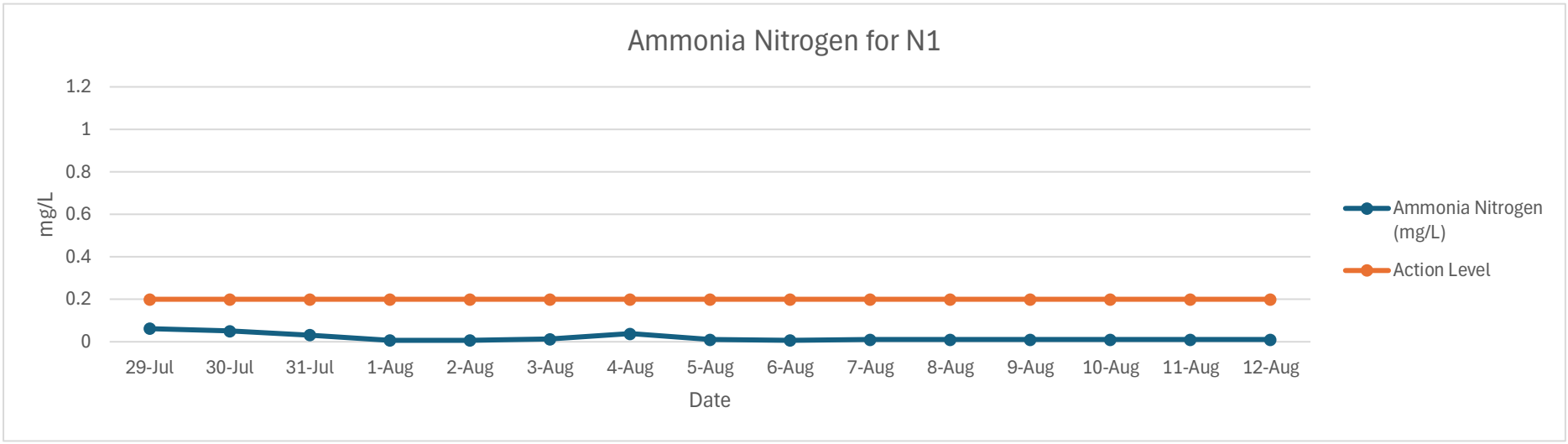

Ammonia Nitrogen for FCZ7
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)
Action Level

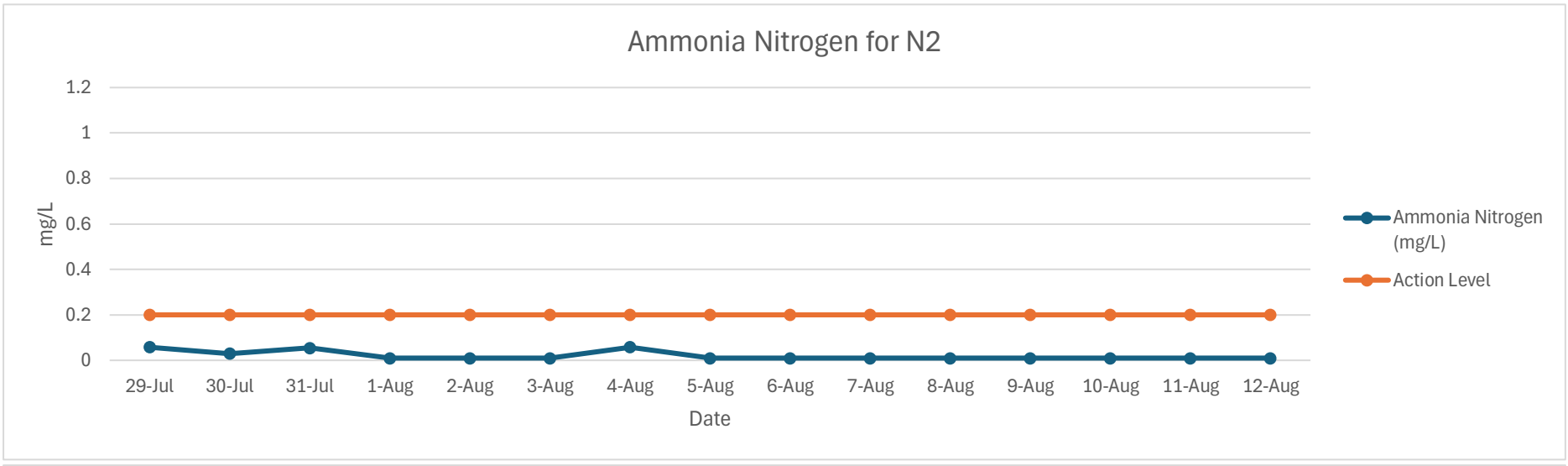

Ammonia Nitrogen for FCZ8
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)
Action Level

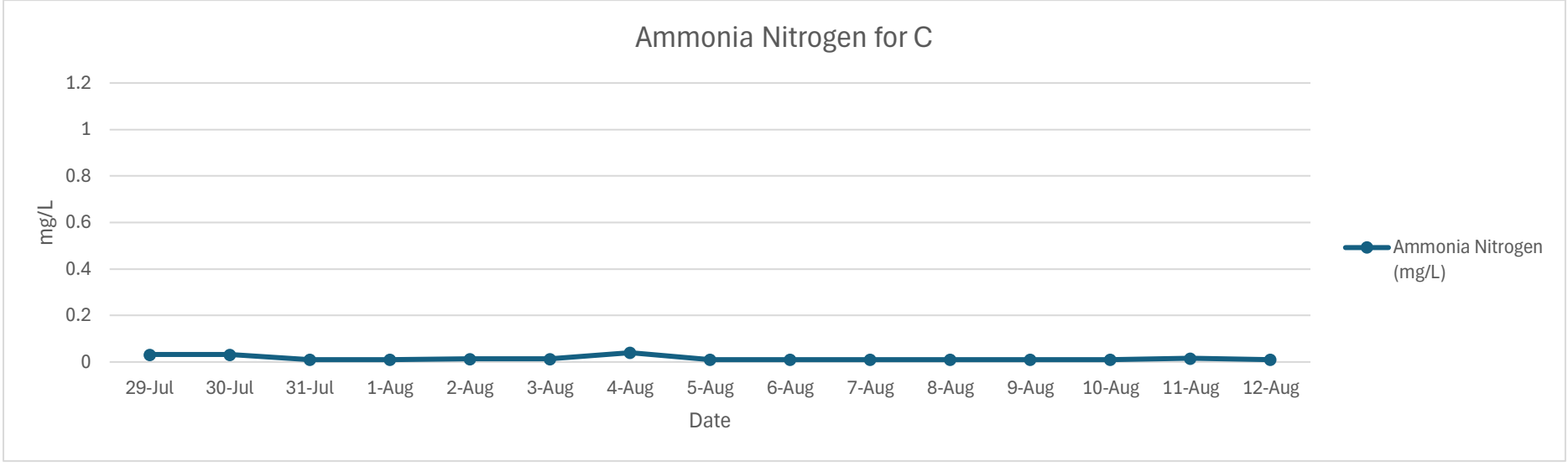

Ammonia Nitrogen for SGA
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)
Action Level

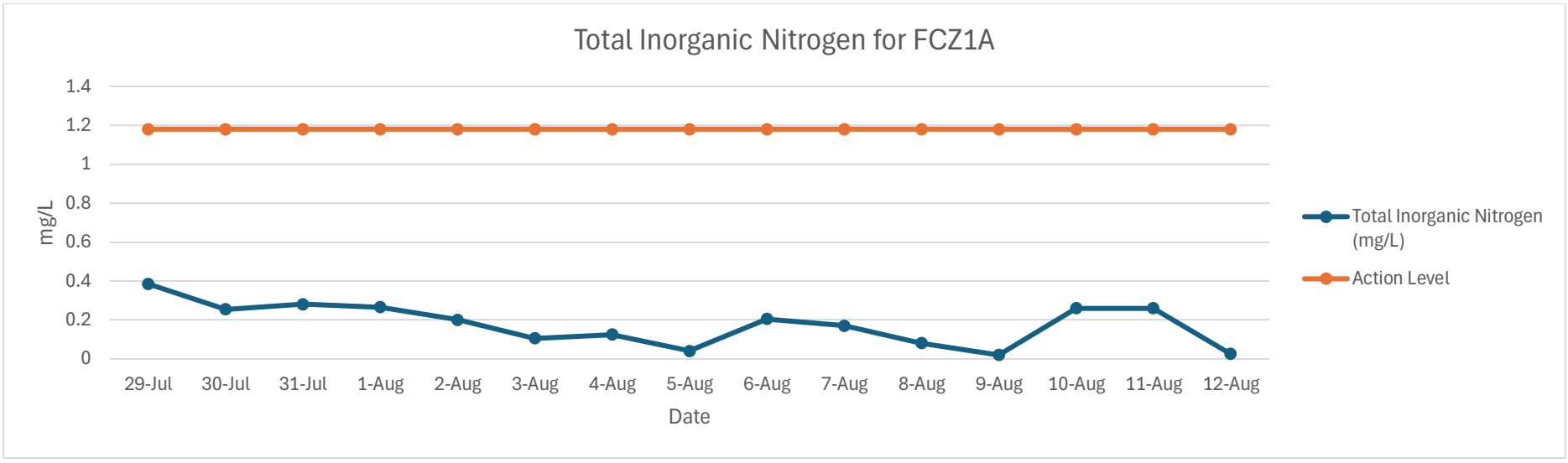

Ammonia Nitrogen for M6A
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)
Action Level

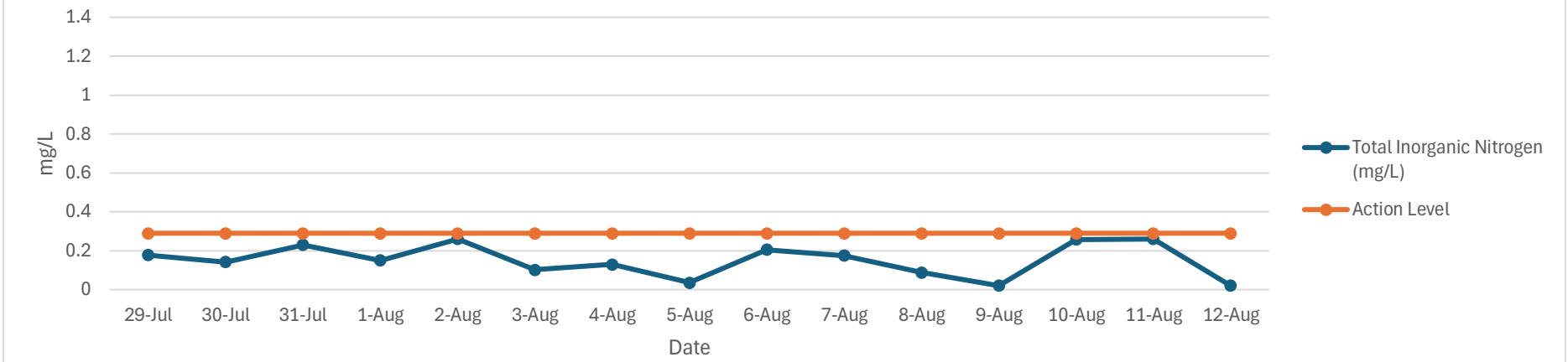

Ammonia Nitrogen for H4A
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)
Action Level

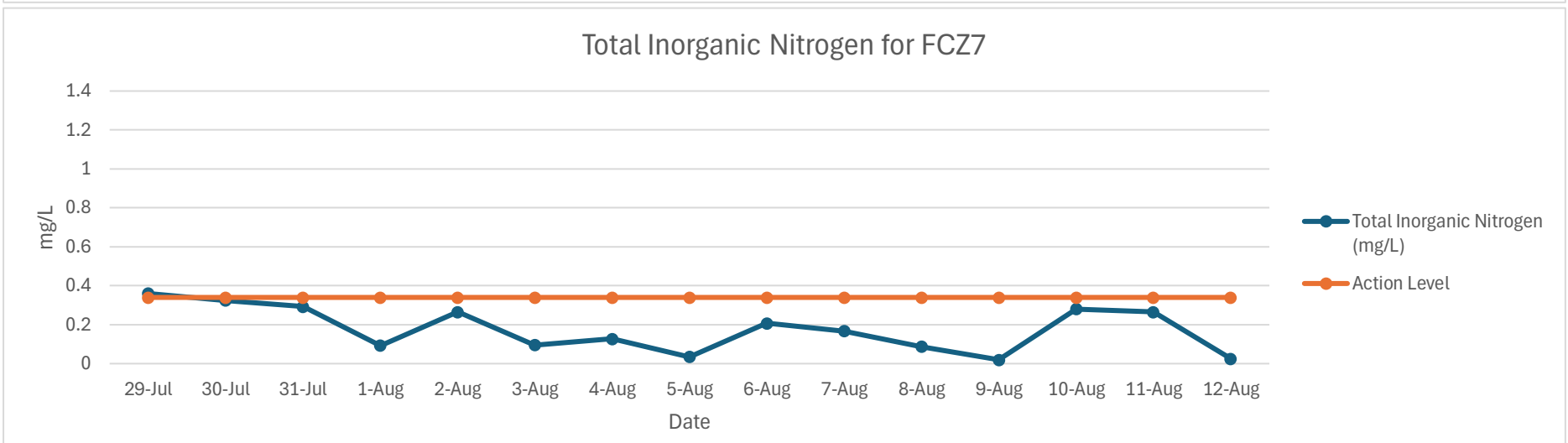

Ammonia Nitrogen for N1
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)
Action Level

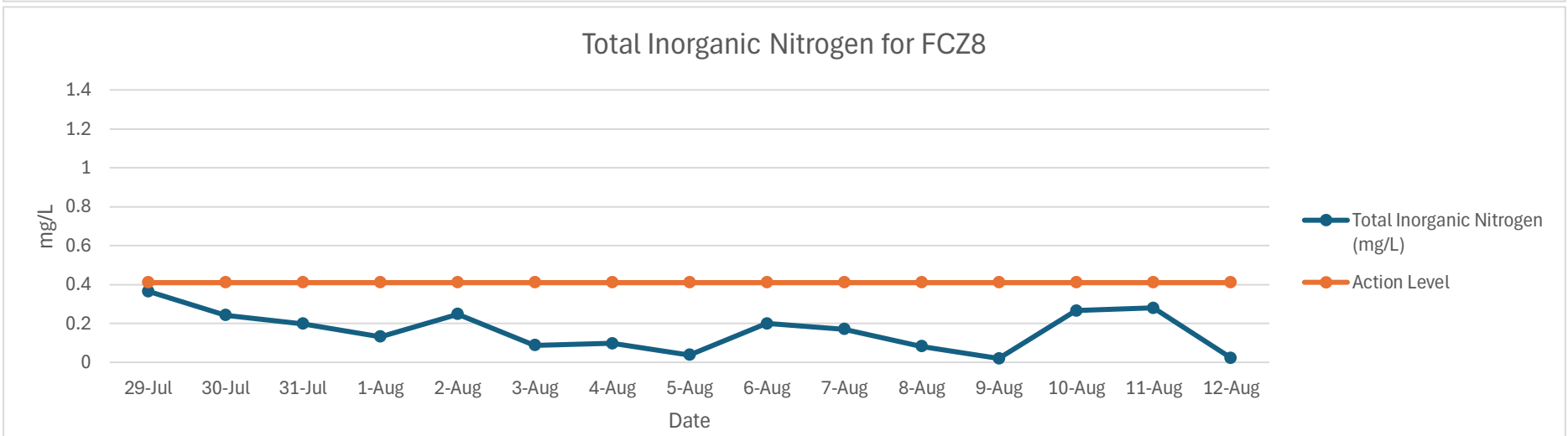

Ammonia Nitrogen for N2
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)
Action Level

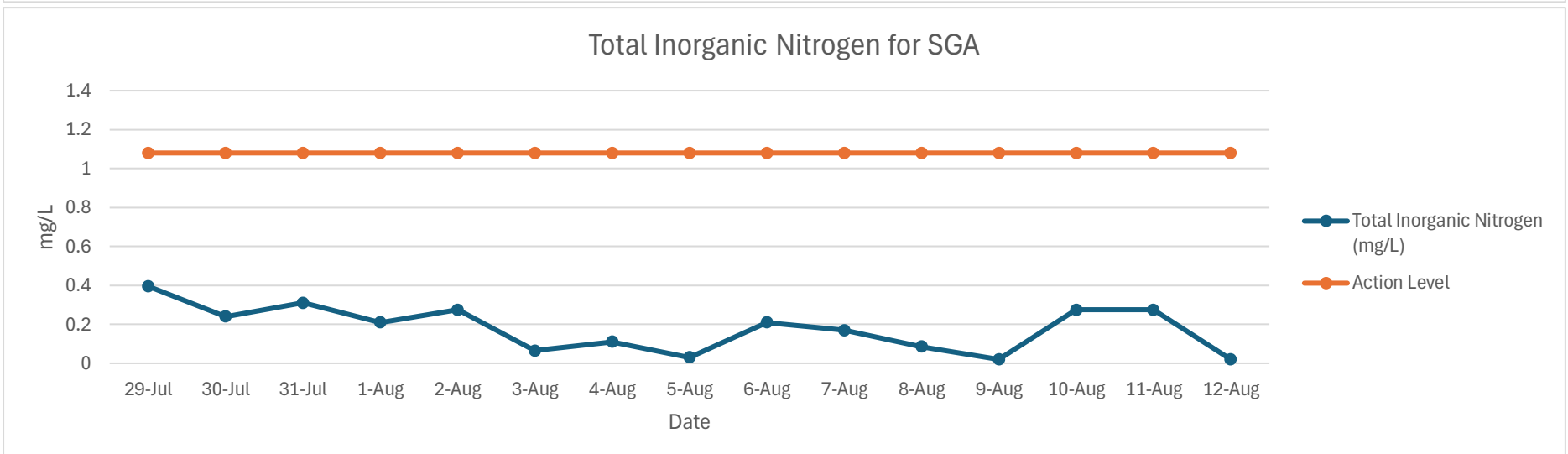

Ammonia Nitrogen for C
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Ammonia Nitrogen (mg/L)

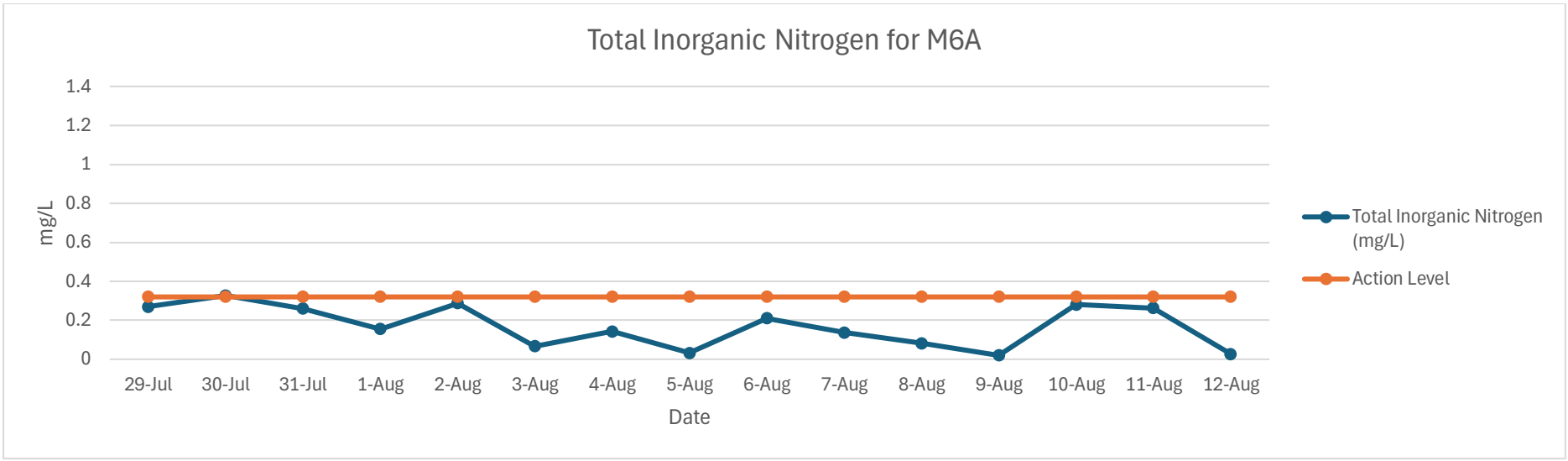

Total Inorganic Nitrogen for FCZ1A
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)
Action Level

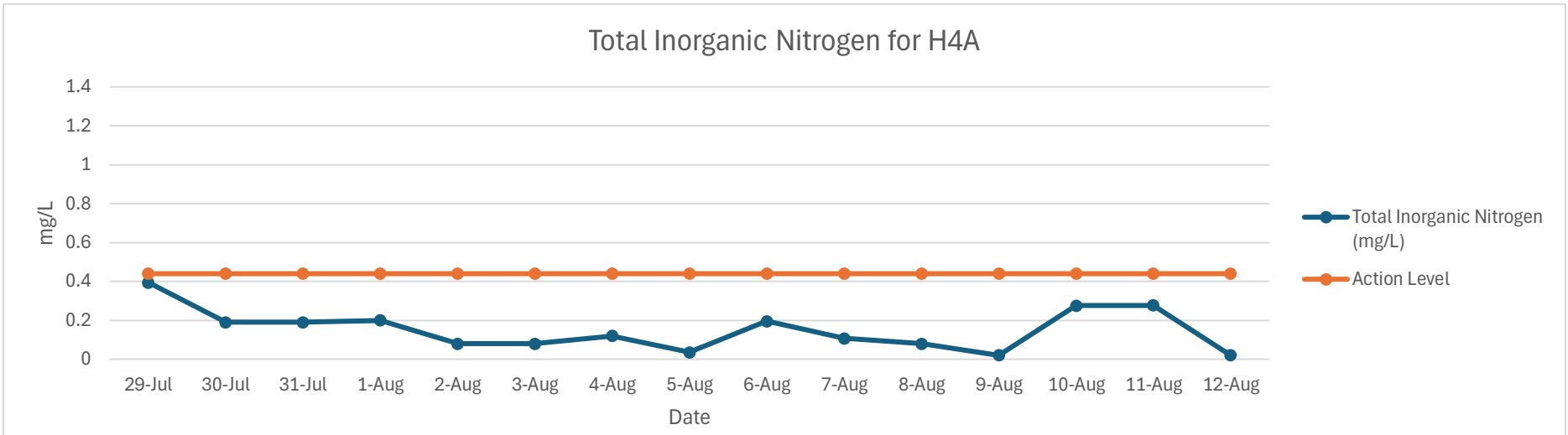

Total Inorganic Nitrogen for FCZ2
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)
Action Level

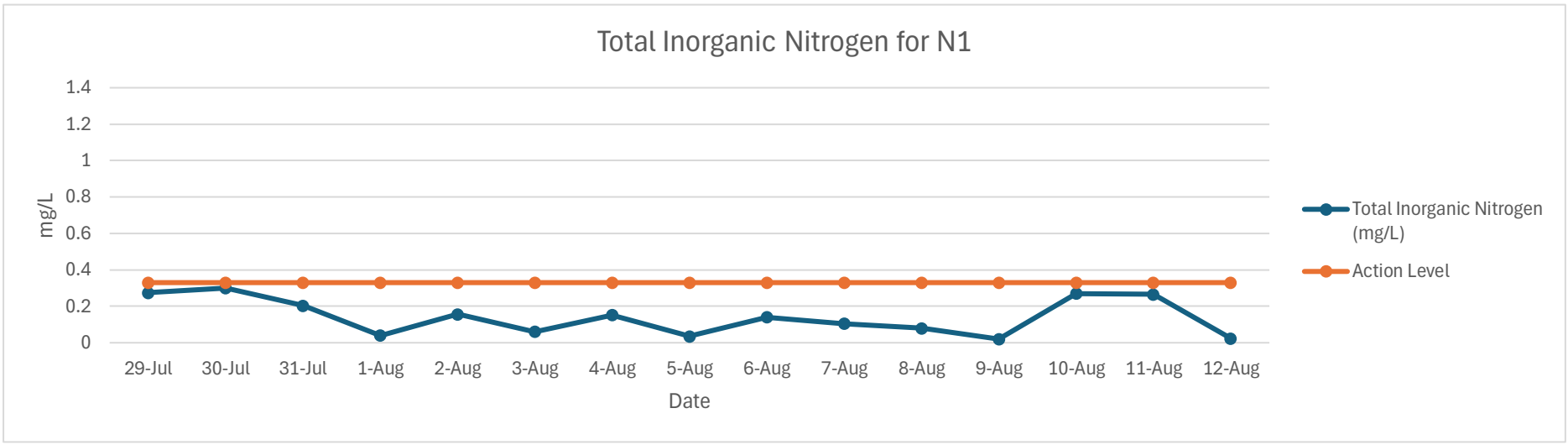

Total Inorganic Nitrogen for FCZ7
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)
Action Level

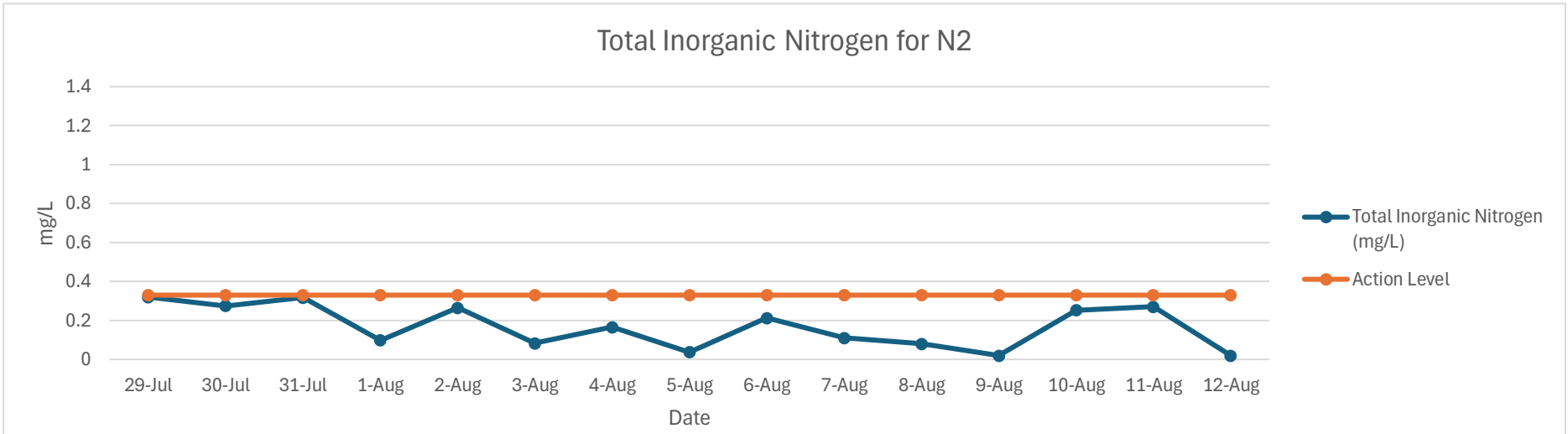

Total Inorganic Nitrogen for FCZ8
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)
Action Level

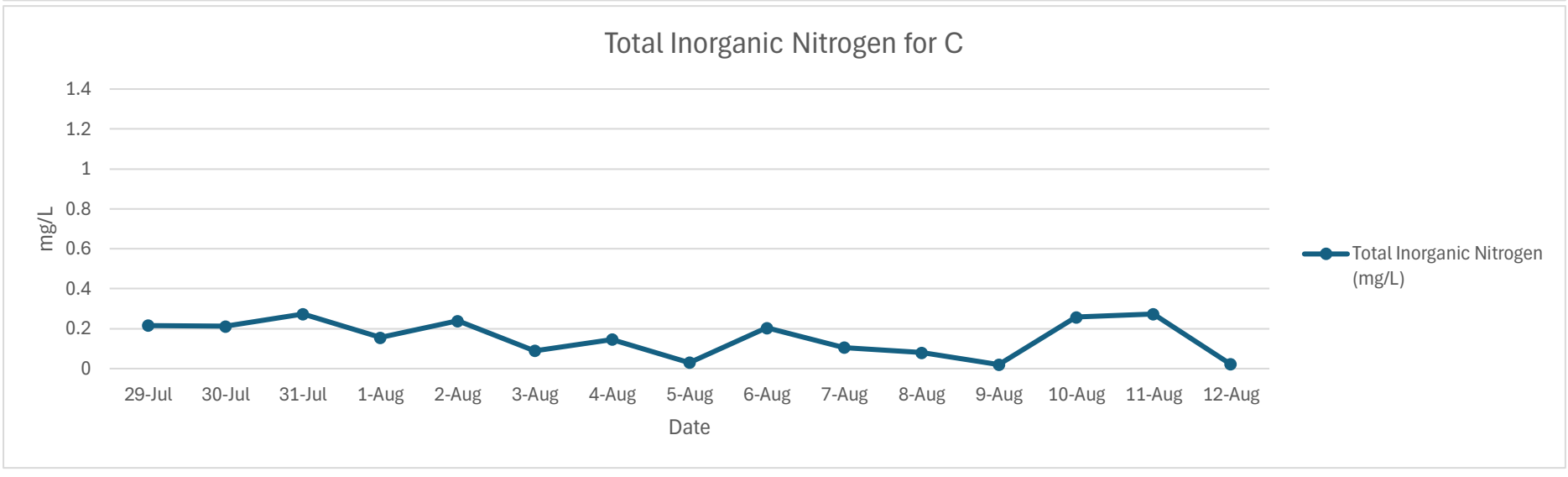

Total Inorganic Nitrogen for SGA
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)
Action Level

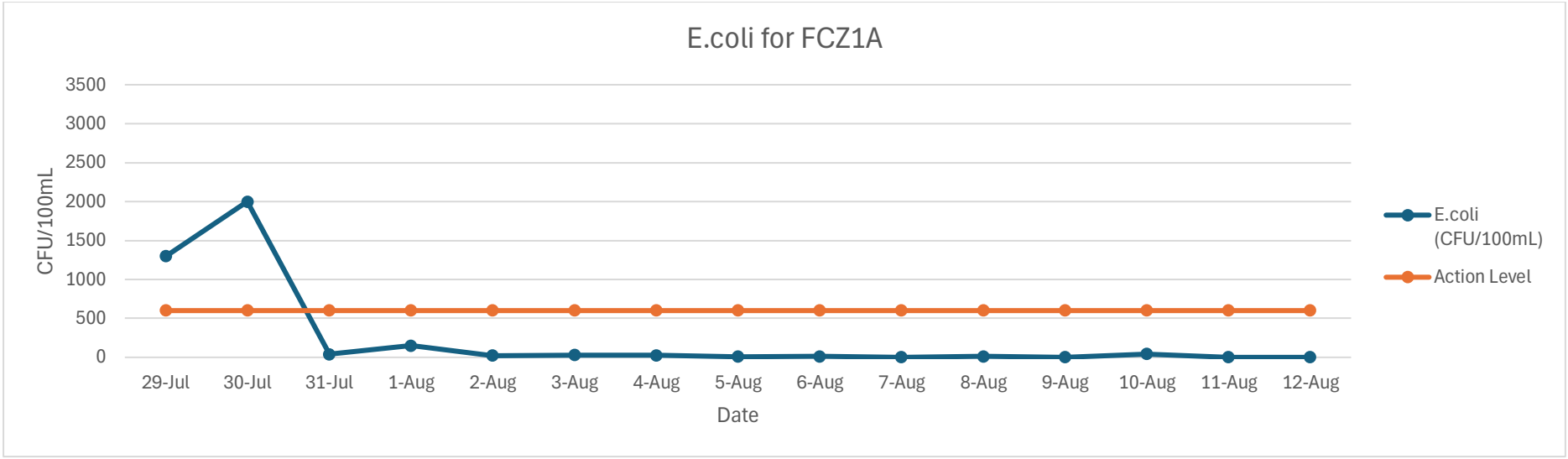

Total Inorganic Nitrogen for M6A
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)
Action Level

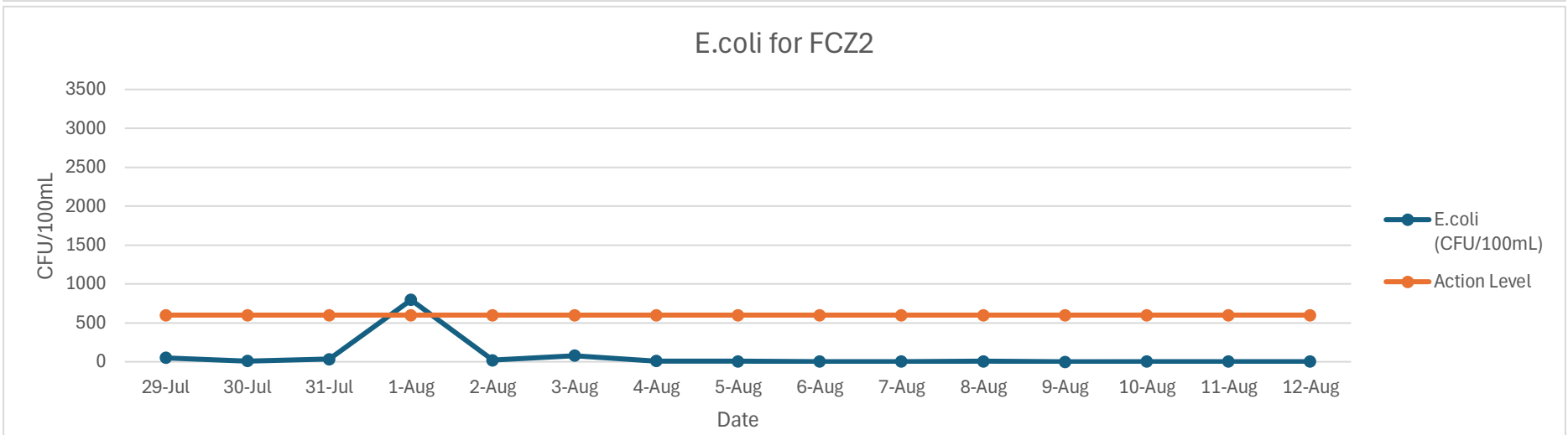

Total Inorganic Nitrogen for H4A
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)
Action Level

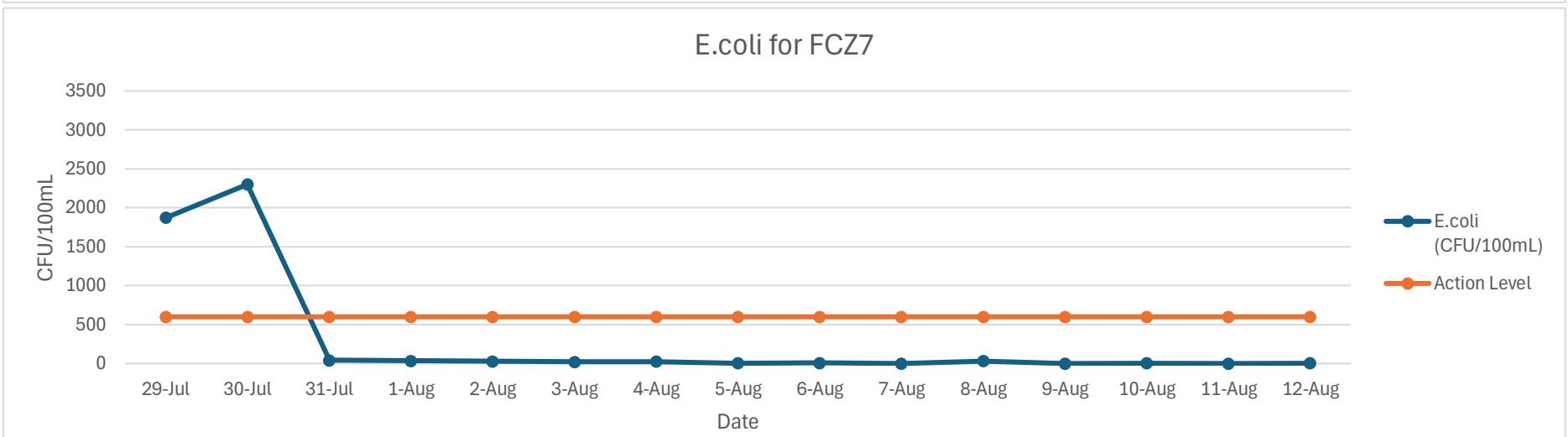

Total Inorganic Nitrogen for N1
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)
Action Level

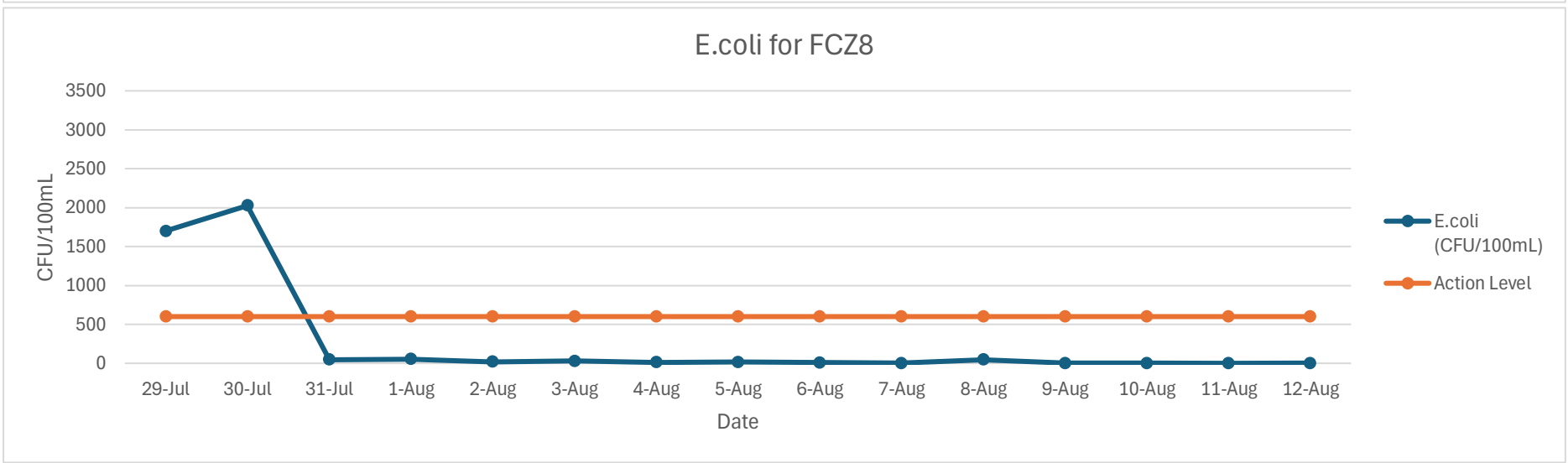

Total Inorganic Nitrogen for N2
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)
Action Level

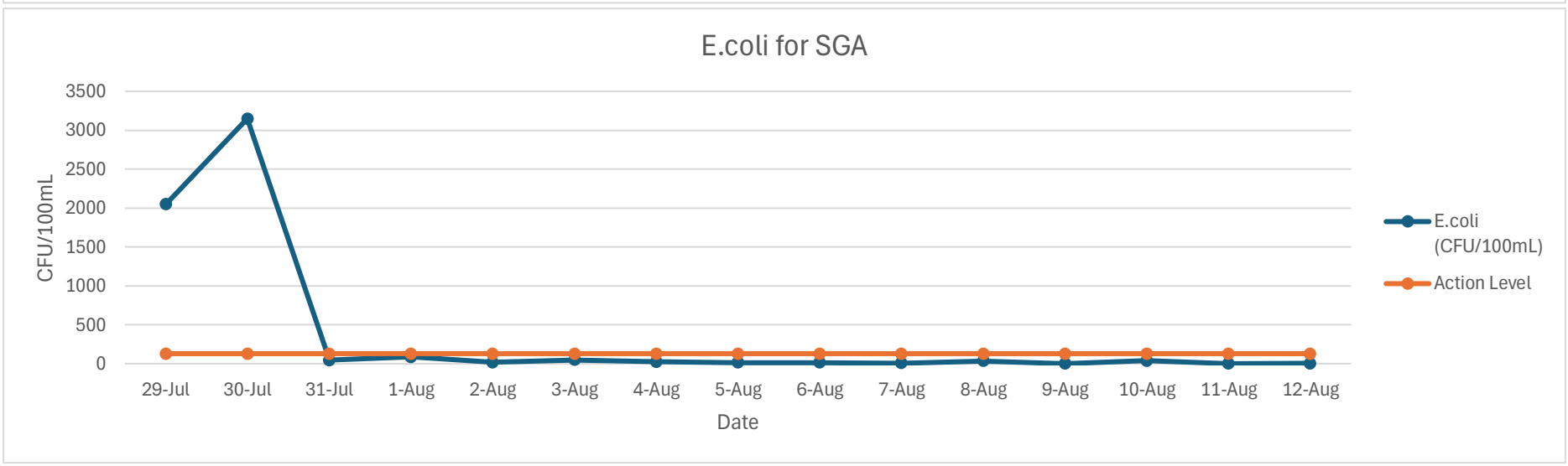

Total Inorganic Nitrogen for C
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
Total Inorganic Nitrogen (mg/L)

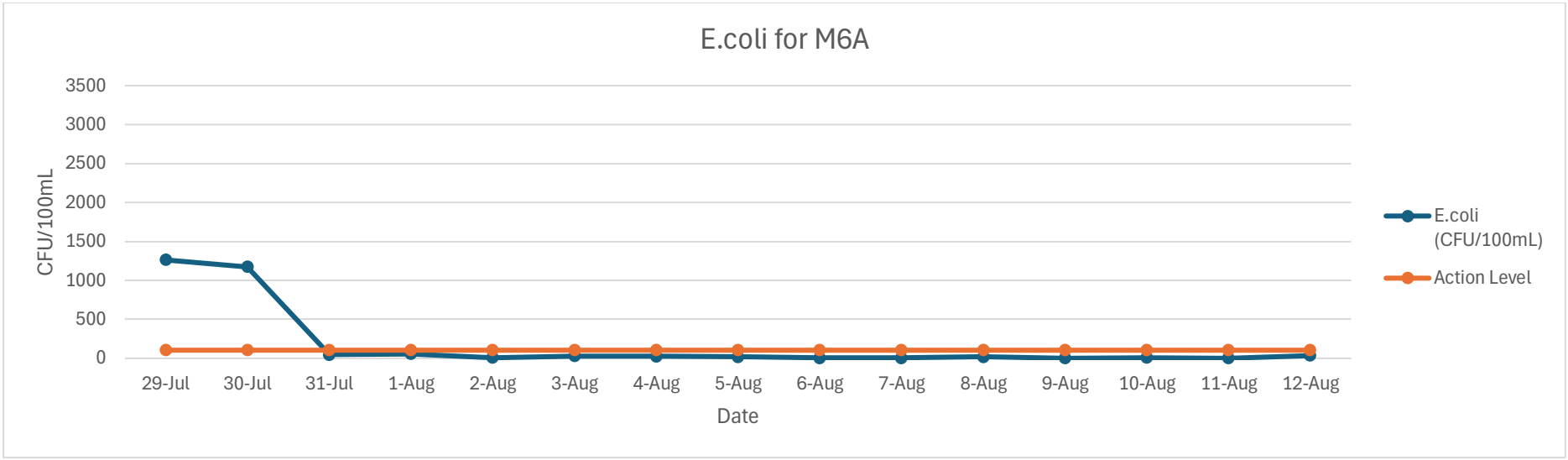

E.coli for FCZ1A
3500
3000
2500
2000
1500
1000
500
0
CFU/100mL
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
E.coli (CFU/100mL)
Action Level

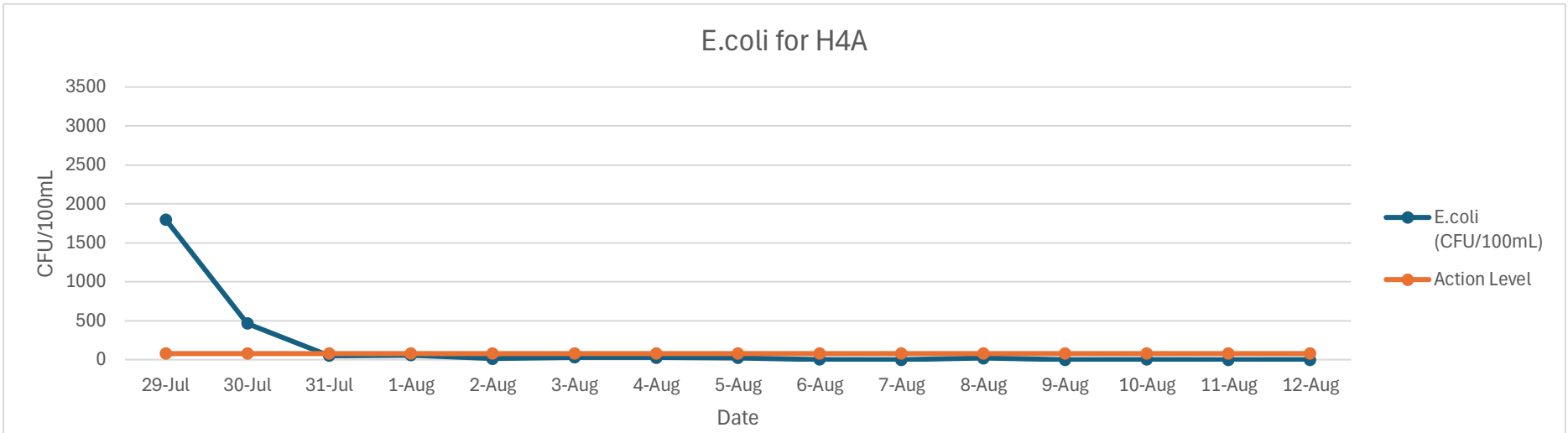

E.coli for FCZ2
3500
3000
2500
2000
1500
1000
500
0
CFU/100mL
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
E.coli (CFU/100mL)
Action Level

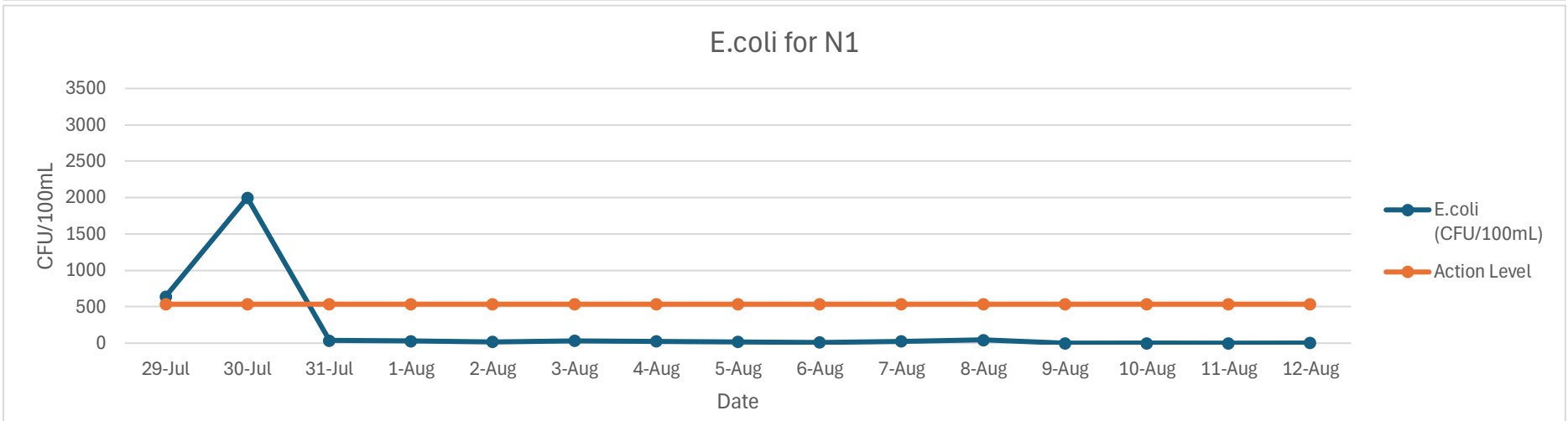

E.coli for FCZ7
3500
3000
2500
2000
1500
1000
500
0
CFU/100mL
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
E.coli (CFU/100mL)
Action Level

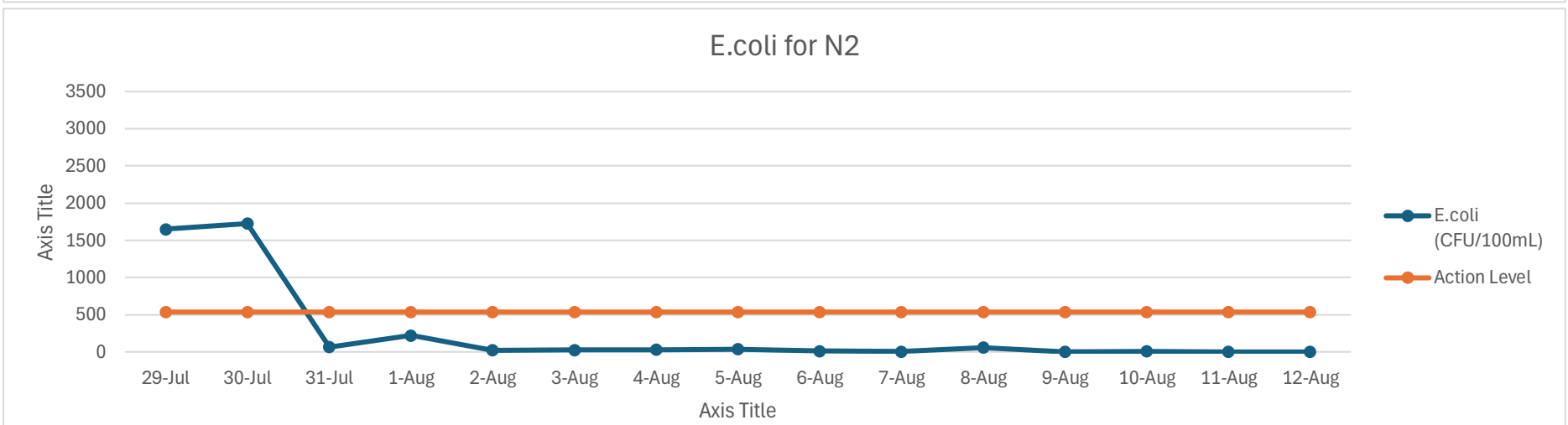

E.coli for FCZ8
3500
3000
2500
2000
1500
1000
500
0
CFU/100mL
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
E.coli (CFU/100mL)
Action Level

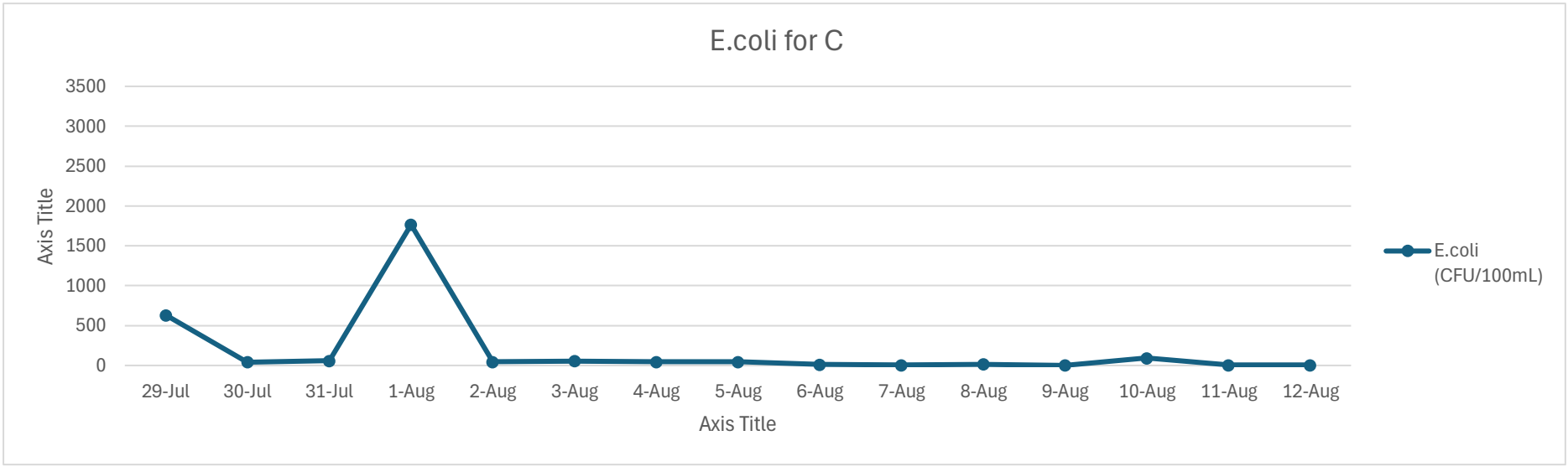

E.coli for SGA
3500
3000
2500
2000
1500
1000
500
0
CFU/100mL
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
E.coli (CFU/100mL)
Action Level


E.coli for M6A
3500
3000
2500
2000
1500
1000
500
0
CFU/100mL
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
E.coli (CFU/100mL)
Action Level


E.coli for H4A
3500
3000
2500
2000
1500
1000
500
0
CFU/100mL
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
E.coli (CFU/100mL)
Action Level


E.coli for N1
3500
3000
2500
2000
1500
1000
500
0
CFU/100mL
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Date
E.coli (CFU/100mL)
Action Level


E.coli for N2
3500
3000
2500
2000
1500
1000
500
0
Axis Title
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Axis Title
E.coli (CFU/100mL)
Action Level


E.coli for C
3500
3000
2500
2000
1500
1000
500
0
Axis Title
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
Axis Title
E.coli (CFU/100mL)

Appendix B The Action and Limit Level

The Action Level and Limit Level of Water Quality Monitoring

		DO (mg/L)		Turbidity (NTU)		Total Suspended (mg/L)		BOD5 (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L-N)		Ammonia Nitrogen (mg/L-N)		Total Inorganic Nitrogen (mg/L-N)		E.coli (cfu/100mL)	
Monitoring Location		AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
FCZ1A	S&M	5.1	5.0	8	10.5	13	21	3	3	0.03	0.04	0.67	0.7	1.1	1.96	1.18	2.03	600	838
	B	5.1	5.0																
FCZ2	S&M	5.1	5.0	2.6	5	5	6	3	4	0.01	0.02	0.69	1	0.22	0.26	0.29	0.33	600	610
	B	5.1	5.0																
FCZ7	S&M	5.1	5.0	6	6.4	5	5	3	3	0.02	0.03	0.5	0.56	0.21	0.22	0.34	0.36	600	610
	B	5.1	5.0																
FCZ8	S	5.1	5.0	5.2	9.1	6	7	5	6	0.04	0.04	0.6	0.8	0.32	0.62	0.41	0.7	600	610
	B	5.1	5.0																
SGA	M	6.0	5.9	6	6.2	10	11	3	3	0.03	0.04	0.6	0.68	1.06	1.2	1.08	1.26	129	138
M6A	M	6.14	6.08	17.1	20.8	7	7	3	3	0.02	0.03	0.5	0.58	0.15	0.16	0.32	0.34	104	133
H4A	M	5.94	5.86	4.7	4.8	8	9	3	3	0.06	0.06	0.6	0.6	0.23	0.26	0.44	0.57	78	91
N1	S&M	5.36	5.34	7.5	13.1	5	8	3	4	0.02	0.02	0.5	0.6	0.2	0.21	0.33	0.36	536	707
	B	5.06	5.05																
N2	S&M	5.95	5.71	4.7	5.9	5	6	3	4	0.04	0.04	0.6	0.72	0.21	0.26	0.35	0.48	495	529
	B	5.56	5.53																

Appendix C Calibration Certificate for Water Quality Monitoring Equipment

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 5/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No. : R-BD050046
Date of Issue : 16 May 2024

PART A - CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited
Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

PART B - SAMPLE INFORMATION

Name of Equipment :	YSI ProDSS (Multi-Parameters)
Manufacturer :	YSI (a xylem brand)
Serial Number :	22D100436
Date of Received :	07 May 2024
Date of Calibration :	14 May 2024
Date of Next Calibration :	13 August 2024
Request No. :	D-BD050046

PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Test Parameter	Reference Method
pH value	APHA 21e 4500-H^+ B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure
Salinity	APHA 21e 2520 B
Dissolved oxygen	APHA 23e 4500-O G (Membrane Electrode Method)
Turbidity	APHA 21e 2130 B (Nephelometric Method)

PART D - CALIBRATION RESULT

(1) pH value

Target (pH unit)	Display Reading (pH unit)	Tolerance	Result
4.00	4.03	0.03	Satisfactory
7.42	7.37	-0.05	Satisfactory
10.01	10.10	0.09	Satisfactory

Tolerance of pH value should be less than ± 0.2 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Display Reading (°C)	Tolerance	Result
16.5	16.3	-0.2	Satisfactory
26.0	25.0	-1.0	Satisfactory
33.0	31.6	-1.4	Satisfactory

Tolerance of Temperature should be less than ± 2.0 (°C)

(3) Salinity

Expected Reading (g/L)	Display Reading (g/L)	Tolerance (%)	Result
10	9.54	-4.60	Satisfactory
20	19.66	-1.70	Satisfactory
30	29.94	-0.20	Satisfactory

Tolerance of Salinity should be less than ± 10.0 (%)

--- CONTINUED ON NEXT PAGE ---

AUTHORIZED SIGNATORY:

LEE Chun-ning
Assistant Manager

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 5/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No. : R-BD050046
Date of Issue : 16 May 2024

(4) Dissolved oxygen

Expected Reading (mg/L)	Display Reading (mg/L)	Tolerance	Result
7.95	7.77	-0.18	Satisfactory
4.04	4.07	0.03	Satisfactory
3.17	3.55	0.38	Satisfactory
0.40	0.47	0.07	Satisfactory

Tolerance of Dissolved oxygen should be less than ± 0.5 (mg/L)

(5) Turbidity

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)	Result
0	0.06	--	Satisfactory
10	9.73	-2.7	Satisfactory
20	19.38	-3.1	Satisfactory
100	96.38	-3.6	Satisfactory
800	721.14	-9.9	Satisfactory

Tolerance of Turbidity should be less than ± 10.0 (%)

Remark(s)

·The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.

·The results relate only to the calibrated equipment as received

·The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

·"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.

·The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

--- END OF REPORT ---

Document prepared by

Aurecon Hong Kong Limited

Unit 1608, 16/F, Tower B, Manulife Financial Centre,
223 – 231 Wai Yip Street, Kwun Tong, Kowloon
Hong Kong S. A. R.

T +852 3664 6888
F +852 3664 6999
E hongkong@aurecongroup.com
W aurecongroup.com

aurecon

Bringing ideas to life

Document prepared by

Aurecon Hong Kong Limited

Unit 1608, 16/F, Tower B, Manulife Financial Centre,
223 – 231 Wai Yip Street, Kwun Tong, Kowloon
Hong Kong S. A. R.

T +852 3664 6888
F +852 3664 6999
E hongkong@aurecongroup.com
W aurecongroup.com

aurecon

Bringing ideas to life