ACUITY sustainability
Member of the Aurecon Group

aurecon

水務署
Water Supplies Department

Contract No. 13/WSD/17

Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Annual EM&A Review Report No.4 (Period from May 2023 to April 2024)

Document No.

ASCL	/	200168078	/	AEMAR04	/	3
Publisher		Project Code		Sequential No.		Revision Index

	Reviewed and Certified by:
Name	Toby Wan
Position	Environmental Team Leader
Signature	
Date:	18 November 2024

Acuity Sustainability Consulting Limited
Flat/RM E, 12/F, Ford Glory Plaza,
Nos. 37-39 Wing Hong Street, Kowloon, Hong Kong
tel +852 2698 6833
fax +852 2698 9383 | e-mail admin@acuityhk.com
http www.acuityhk.com | www.aurecongroup.com

Our ref.: LES/J2024-01/CS/L049
Date : 18 Nov 2024

By Post and Email

Water Supplies Department
New Works Branch
Consultants Management Division
6/F, Sha Tin Government Offices,
1 Sheung Wo Che Road, Sha Tin,
New Territories

Attn: Mr. W F Cheung/ S K Wong

Dear Sirs,

Independent Environmental Checker (IEC) for Construction and Operation of the First Stage Desalination Plant at Tseung Kwan O (Quotation Ref. No. TKO1/IEC/003)

Verification of Operation Phase Monthly Environmental Monitoring and Audit (EM&A) Report for October 2024

Referring to the Operation Phase Monthly Environmental Monitoring and Audit Report (October 2024) Rev.3.0 as submitted by the Environmental Team on 18 November 2024, we hereby verify the captioned report for further submission to the Director's Representative of the Project according to Clause 3.5 of the Environmental Permit EP-503/2015/B and Further Environmental Permit FEP-01/503/2015/B.

Should you have any queries, please contact the undersigned at 61496683, or email at serenashek@lamenviro.com.

Yours sincerely,
For and On Behalf Of
Lam Environmental Services Limited

Serena Shek
Independent Environmental Checker

Binnies	(Attn.: Derek Lai)	By E-mail
Aurecon	(Attn.: Toby Wan)	By E-mail

ANEWR

Water Supplies Department
New Works Branch
Consultants Management Division
6/F Sha Tin Government Offices
1 Sheung Wo Che Road
Sha Tin
New Territories

Your reference:

Our reference: HKWSD202/50/110144

Date: 20 November 2024

Attention: Mr Cheung

BY EMAIL & POST
(email: wf_cheung@wsd.gov.hk)

Dear Sirs

Agreement No. CE 5/2019 (EP)
Independent Environmental Checker for First Stage of
Tseung Kwan O Desalination Plant– Investigation
Verification of 4th Annual EM&A Review Report (May 2023 – April 2024)

We refer to email of 19 November 2024 attaching the 4th Annual EM&A Review Report (May 2023 – April 2024) for the captioned project prepared by the ET.

We have no further comments and hereby verify the captioned report in accordance with Clause 3.5 of the Environmental Permit no. FEP-01/503/2015/A and FEP-01/503/2015/B.

Should you have any queries regarding the above, please do not hesitate to contact the undersigned on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

Alex Chan
Independent Environmental Checker

CYCA/thy

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

REVISION HISTORY

REV.	DESCRIPTION OF MODIFICATION	DATE
1.	First Issue	13/06/2024
2.	Revised According to Comments	03/09/2024
3.	Revised According to Comments	18/11/2024

CONTENTS

Executive Summary 4

1. Basic Contract Information 6
2. Noise 10
3. Water Quality 14
4. Waste 21
5. Landfill Gas Monitoring 22
6. Summary of Exceedance, Complaints, Notification of Summons and Prosecitions 1
7. EM&A Site Inspection 32
8. Conclusions and Recommendations 33

Appendix A	Master Programme
Appendix B	Overview of Desalination Plant in Tseung Kwan O
Appendix C	Summary of Implementation Status of Environmental Mitigation
Appendix D	Water Quality Graphical Presentation
Appendix E	Site Inspection Proforma
Appendix F	Waste Flow Table
Appendix G	Summary of Exceedances
Appendix H	Complaint Log
Appendix I	Event/Action Plan for Noise and Water Quality Monitoring Exceedance

EXECUTIVE SUMMARY

INTRODUCTION

A1. The Project, Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant (TKODP), is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is currently governed by a Further Environmental Permit (EP No. FEP – 01/503/2015/A and EP No. FEP – 01/503/2015/B) for the construction and operation of the Contract.

A2. In accordance with the Environmental Monitoring and Audit (EM&A) Manual for the Contract, EM&A works for marine water quality, noise, waste management and ecology should be carried out by Environmental Team (ET), Acuity Sustainability Consulting Limited (ASCL), during the construction phase of the Contract.

A3. This is the 4th Annual EM&A Review Report, prepared by ASCL, for the Contract summarizing the monitoring results and audit findings of the EM&A programme at and around Tseung Kwan O Area 137 (TKO 137) during the reporting period from 1 May 2023 to 30 April 2024.

A4. The EM&A programme for this contract has covered environmental monitoring on water quality, construction noise level at selected noise sensitive receivers, and Contractor's environmental performance auditing in the aspects of construction dust, construction noise, water quality, waste management, landscape and visual and ecology.

SUMMARY OF ENVIRONMENTAL MONITORING AND AUDIT WORKS

A5. A summary of the environmental monitoring and audit works undertaken in the reporting period are summarized in **Table I**.

A6. No construction noise monitoring was conducted during the reporting period since there are no Contract -related construction activities undertaken within a radius of 300m from the monitoring locations. No Action Level exceedance was recorded during the reporting period.

A7. Construction Phase Impact Water Quality Monitoring was conducted as schedule in the reporting period. One hundred and fourteen (114) action level exceedances and ninety-two (92) limit level exceedances of Suspended Solid were recorded in the reporting period. Pre-operation Phase Impact Water Quality Monitoring was conducted as schedule in the reporting period. One hundred and fifty-seven (157) action level exceedances and one hundred and nine (109) limit level exceedances of Suspended Solid were recorded in the reporting period. Summary of exceedances could be referring to **Appendix G**.

A8. All Action and Limit Level exceedance was concluded to be unrelated to the Project. Details of the exceedance could be referring to **Appendix L** of the corresponding Monthly EM&A Report.

A9. Total eleven (11) of dechlorinated effluent sample were taken during the discharge of dechlorinated effluent by contractor. No TRC exceedance of action or limit levels was obtained during the discharge of dechlorinated effluent.

A10. Nine hundred and seventy-three (973) times of landfill gas monitoring were conducted in the reporting period. No action or limit level exceedance was recorded in the reporting period.

A11. Pre-operation phase coral monitoring was commenced in December 2023. There were no AL/LL exceedances observed during the reporting period.

A12. Pre-operation phase fishery monitoring for dry season 2024 was carried out on 17 and 24 February 2024. There is no AL/LL exceedance during the reporting period.

Table I Summary of Environmental Monitoring Works

Environmental Monitoring works	Frequency
Noise Monitoring	N/A
Construction Phase Water Quality Monitoring	52
Pre-operation Phase Water Quality Monitoring	61
Pre-operation Phase Coral Monitoring	5
Pre-operation Phase Fishery Monitoring	2
Landfill Gas Monitoring	973
Environmental Site Inspection	53

COMPLAINT HANDLING AND PROSECUTION

A13. One environmental complaint was received from the EPD in the reporting period, no notifications of summons and prosecution was received during the reporting period.

REPORTING CHANGE

A14. There was no change to be reported that may affect the on-going EM&A programme.

1. BASIC CONTRACT INFORMATION

1.1. BACKGROUND

The Jardine Engineering Corporation, Limited, China State Construction Engineering (Hong Kong) Limited and Acciona Agua, S.A. Trading as AJC Joint Venture (AJCJV) is contracted to carry out the Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant (TKODP) under Contract No. 13/WSD/17 (the Contract).

Acuity Sustainability Consulting Limited (ASCL) is commissioned by AJCJV to undertake the Environmental Team (ET) services as required and/or implied, both explicitly and implicitly, in the Environmental Permit (EP), Environmental Impact Assessment Report (EIA Report) (Register No. AEIAR-192/2015) and Environmental Monitoring and Audit Manual (EM&A Manual) for the Contract; and to carry out the Environmental Monitoring and Audit (EM&A) programme in fulfillment of the EIA Report's EM&A requirements and Contract No. 13/WSD/17 Specification requirements.

Pursuant to the Environmental Impact Assessment Ordinance (EIAO), the Director of Environmental Protection granted the Environmental Permit (No. EP-01/503/2015) and Variation of Environmental Permit (No. EP-01/503/2015/A and No. EP-01/503/2015/B) to Water Supplies Department (WSD); and granted the Further Environmental Permit (No. FEP-01/503/2015/A and No. EP-01/503/2015/B) to AJCJV for the Contract.

1.2. THE REPORTING SCOPE

This is the 4th Annual EM&A Review Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 May 2023 to 30 April 2024.

1.3. CONTRACT ORGANIZATION

The Contract Organization structure for Construction Phase is presented in **Figure 1.1** and contact details of the key personnel are presented in **Table 1.1** below:

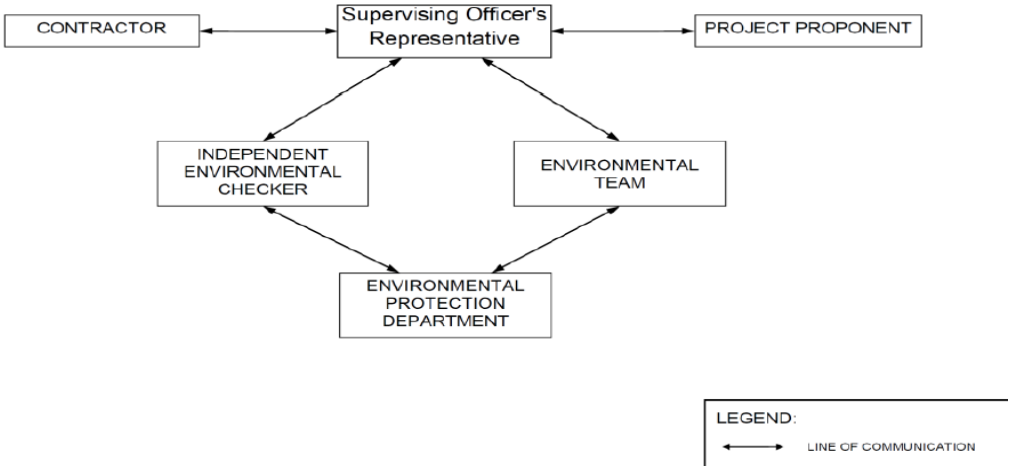


Figure 1.1 Contract Organization Chart

Table 1.1 Contact Details of Key Personnel

Party	Position	Name	Telephone no.	Remark
Project Proponent (WSD)	SE/CM2	Milton Law	2634-3573	-
Supervising Officer (Binnies Hong Kong Limited)	Project Manager	Christina Ko	2608-7302	-
	Chief Resident Engineer	Roger Wu	6343-1002	-
The Jardine Engineering Corporation, Limited, China State Construction Engineering (Hong Kong) Limited and Acciona Agua, S.A. Trading	Project Manager	Stephen Yeung	2807-4665	-
	Environmental Monitoring Manager	Brian Kam	9456-9541	-
	Environmental Monitoring Manager	Joy Chan	6468-1782	Until 24 March 2024
	Environmental Monitoring Manager	Tommy Law	6468-1782	On the position from 25 April 2024
Acuity Sustainability Consulting Limited	Environmental Team Leader (ETL)	Jacky Leung	2698-6833	Until 21 April 2024
		Toby Wan	9719-5422	On the position from 22 April 2024
ANewR Consulting Limited	Independent Environmental Checker (IEC)	Louis Kwan	2618-2831	Until 31 May 2023
		Alex Chan		Until 31 January 2024
Lam Environmental Services Limited	Independent Environmental Checker (IEC)	Serena Shek	6149-6683	On the position from 1 February 2024

1.4. SUMMARY OF CONSTRUCTION WORKS

The construction programme is presented in **Appendix A**. Detail of the major construction activities undertaken could be referred to Section 1.8 in each monthly EM&A Report.

The status for all environmental aspects is presented in **Table 1.2**.

Table 1.2 Summary of Status for Key Environmental Aspects under the EM&A Manual

Parameters	Status
Water Quality	
Baseline Monitoring under EM&A Manual	The baseline water quality monitoring was conducted between 12 May 2020 to 6 June 2020

Parameters	Status
Construction Phase Marine Impact Monitoring	Ceased from 1 September 2023
Pre-Operation Phase Marine Impact Monitoring	On-going from 12 December 2023
Impact Monitoring of Effluent Discharge from Main Disinfection	Complete in November 2023 and December 2024
Noise	
Baseline Monitoring	The baseline noise monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under EP Condition 3.4.
Impact Monitoring	Completed
Ecology (Coral)	
Pre-operation phase Regular Coral Monitoring (Monthly)	On-going (Started from December 2023)
Ecology (Fishery)	
Pre-operation phase Regular Fishery Monitoring (Monthly)	On-going (Started from December 2023)
Ecology (Landscape)	
Pre-operation phase Landscape and Visual Site Inspection	On-going
Waste Management	
Mitigation Measures in Waste Management Plan	On-going
Landfill Gas	
Regular Monitoring when construction works are within the 250 m Consultation Zone	On-going
Environmental Audit	
Site Inspection covering Measures of Air Quality, Noise Impact, Water Quality, Waste, Ecological Quality, Fisheries, Landscape and Visual	On-going

Other than the EM&A work by ET, environmental briefings, trainings and regular environmental management meetings were conducted, in order to enhance environmental awareness and closely monitor the environmental performance of the contractors.

The EM&A programme has been implemented in accordance with the recommendations presented in the approved EIA Report and the EM&A Manual. A summary of implementation status of the environmental mitigation measures for the construction phase and pre-operation phase of the Contract during the reporting period is provided in **Appendix C**.

2. NOISE

2.1. MONITORING REQUIREMENTS

To ensure no adverse noise impact, noise monitoring is recommended to be carried out within 300m radius from the nearby noise sensitive receivers (NSRs), during construction phase. The NSRs selected as monitoring station are (i) NSR4 – Creative Secondary School, (ii) NSR24 – PLK Laws Foundation College, and (iii) NSR31 – School of Continuing and Professional Studies – CUHK respectively.

2.2. MONITORING LOCATIONS

The monitoring locations were normally made at a point 1m from the exterior of the NSRs building façade and be at a position 1.2m above the ground. A correction of +3dB(A) was made to the free-field measurements.

According to the environmental findings detailed in the EIA report and Baseline Monitoring Report, the designated locations for the construction noise monitoring are listed in **Table 2.1** below.

Table 2.1 Noise Sensitive Receivers

NSR ID	Noise Sensitive Receivers	Monitoring Location	Position
NSR 4	Creative Secondary School	Roof Floor	1 m from facade
NSR 24	PLK Laws Foundation College	Pedestrian Road on Ground Floor	Free field
NSR 31	School of Continuing and Professional Studies - CUHK	Roof Floor	1 m from facade

Three noise monitoring locations for impact monitoring at the nearby sensitive receivers are shown in **Figure 2.1-2.3**.

Figure 2.1 NSR4 Creative Secondary School

Figure 2.2 NSR24 PLK Laws Foundation College

Figure 2.3 NSR31 School of Continuing and Professional Studies - CUHK

2.3. MONITORING PARAMETER, FREQUENCY AND DURATION

Construction noise level were measured in terms of the A-weighted equivalent continuous sound pressure level (LAeq). Leq 30min was used as the monitoring parameter for the time period between 0700 and 1900 on normal weekdays. **Table 2.2** summarizes the monitoring parameters, frequency, and duration of the impact noise monitoring.

Table 2.2 Noise Monitoring Parameters, Time, Frequency and Duration

Time	Duration	Interval	Parameters
Daytime: 0700-1900	Day time: 0700-1900 (during normal weekdays)	Continuously in Leq_{5min}/Leq_{30min} (Average of 6 consecutive Leq 5min)	$L_{eq\ 30min}$ $L_{10\ 30min}$ & $L_{90\ 30min}$

2.4. IMPACT MONITORING METHODOLOGY

The monitoring methodology and QA/QC procedure could be referring to Section 2.3 of the Monthly EM&A Report.

2.5. ACTION AND LIMIT LEVELS

The Action/Limit Levels are in line with the criteria of Practice Note for Professional Persons (ProPECC PN 2/93) "Noise from Construction Activities – Non-statutory Controls" and Technical Memorandum on Environmental Impact Assessment Process issued by

HKSAR Environmental Protection Department ["EPD"] under the Environmental Impact Assessment Ordinance, Cap 499, S.16 are presented in **Table 2.3**.

Table 2.3 Action and Limit Levels for Noise per EM&A Manual

Time Period	Action	Limit (dB(A))
0700-1900 on normal weekdays	When one documented complaint is received from any one of the noise sensitive receivers	• 70 dB(A) for school and • 65 dB(A) during examination period

Notes: Limits specified in the GW-TM and IND-TM for construction and operation noise, respectively.

If exceedances were found during noise monitoring, the actions in accordance with the Event and Action Plan shall be carried out according to **Appendix G**.

2.6. MONITORING RESULTS AND OBSERVATIONS

Referring to EM&A manual Section 4.1.2, the impact noise monitoring should be carried out when there are Contract-related construction activities undertaken within a radius of 300m from the monitoring stations. No monitoring station was located within a radius of 300m of the Contract site as shown in **Figure 2.4**, no impact monitoring for noise impact was conducted in the reporting period.

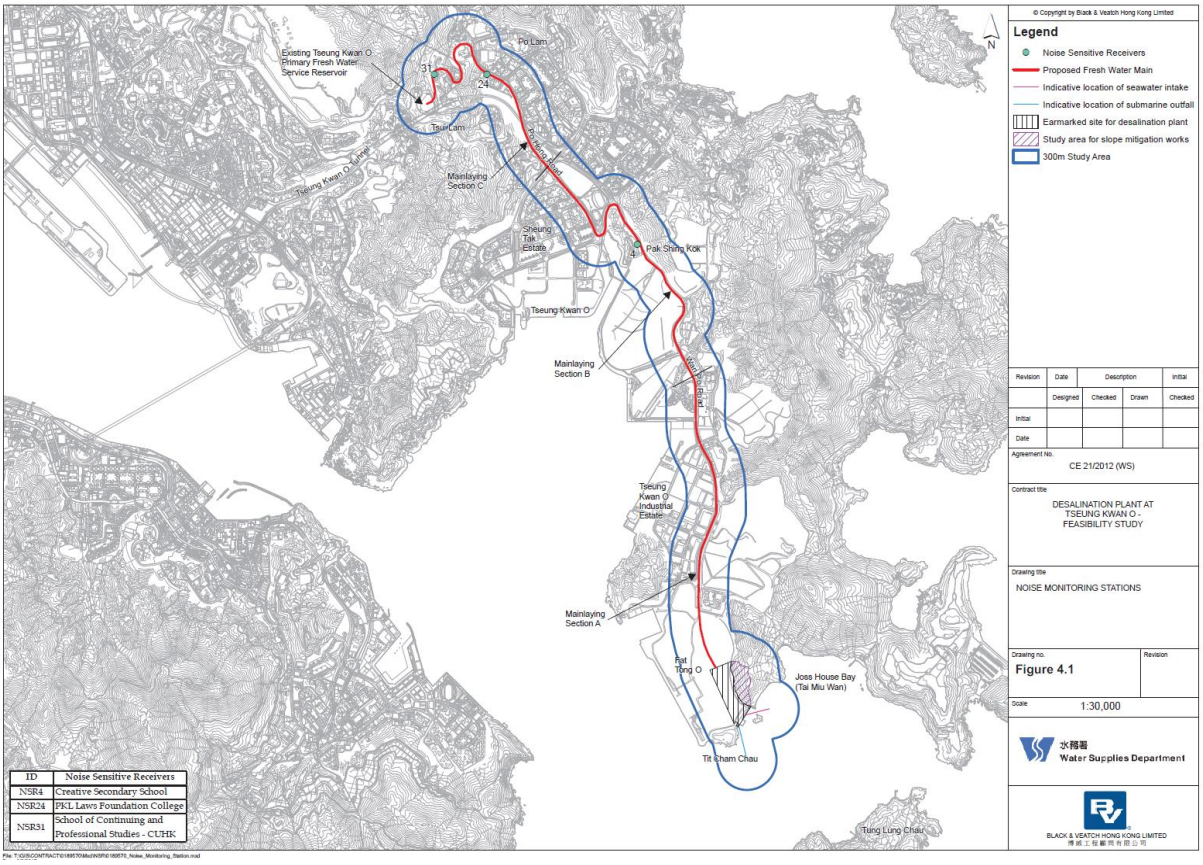


Figure 2.4 Site Layout Plan with Noise Sensitive Receivers and Desalination Plant

3. WATER QUALITY

In accordance with the recommendations of the EIA, water quality EM&A is required during dredging for the submarine pipelines and, during operation phase. In addition, baseline water quality monitoring was prior to the commencement of marine construction activities.

The following Section provides details of the water quality monitoring to be undertaken by the Environmental Team (ET) to verify the distance of sediment and brine plume dispersion and to identify whether the potential exists for any indirect impacts to occur to ecological sensitive receivers.

Water quality monitoring for the Contract can be divided into the following stages:

- Dredging activities during construction phase;
- Discharge of effluent from main disinfection during construction phase;
- Pre-operation – before operation phase
- Operation phase – first year upon commissioning; and,
- Continuous monitoring of effluent quality (Operation phase)

In addition, the marine works contractor is required to complete a silt curtain efficiency test for the combined use of floating silt curtain type and cage type silt curtain for dredging at seawater intake to confirm the silt curtain reduction efficiency assumptions of the assessment. The details of testing plan together with the silt curtain deployment plan shall be submitted by the ET to seek approval from the IEC and EPD.

3.1. WATER QUALITY PARAMETERS

Marine Water Quality Monitoring

The parameters that have been selected for measurement in situ and in the laboratory are those that were either determined in the EIA to be those with the most potential to be affected by the construction works or are a standard check on water quality conditions. Parameters to be measured in the impact water quality monitoring are listed in **Table 3.1**.

Table 3.1 Parameters measured in the impact marine water quality monitoring

Parameters	Unit	Abbreviation	Stage	
			Construction	Pre-operation
In-situ measurements				
Dissolved oxygen	mg/L	DO	✓	✓
Temperature	°C	-	✓	✓
pH	-	-	✓	✓
Turbidity	NTU	-	✓	✓
Salinity	0/00	-	✓	✓
Total Residual Chlorine	mg/L	TRC	-	✓

Parameters	Unit	Abbreviation	Stage	
			Construction	Pre-operation
Laboratory measurements				
Suspended Solids	mg/L	SS	✓	✓
Iron	mg/L	Fe		✓

In addition to the water quality parameters, other relevant data was measured and recorded in Water Quality Monitoring Logs, including the location of the sampling stations, water depth, time, weather conditions, sea conditions, tidal stage, current direction and velocity, special phenomena and work activities undertaken around the monitoring and works area that may influence the monitoring results.

3.2. MONITORING EQUIPMENT

The monitoring methodology, monitoring equipment and QA/QC procedure could be referring to Section 3.1.2 - 3.1.4 of the Monthly EM&A Report.

3.3. MONITORING LOCATION

Marine Water Quality Monitoring

The impact water quality monitoring locations are in accordance with the EM&A Manual and detailed in **Table 3.2** and **Figure 3.1** below.

Table 3.2 Location of Impact Water Quality Monitoring Station

Station	Easting	Northing	Description
CE	843550	815243	Upstream control station at ebb tide
CF	846843	810193	Upstream control station at flood tide
WSR1	846864	812014	Ecological sensitive receiver at Tung Lung Chau
WSR2	847645	812993	Fisheries sensitive receiver at Tung Lung Chau
WSR3	848023	813262	Ecological sensitive receiver at Tung Lung Chau
WSR4	847886	814154	Ecological sensitive receiver at Tai Miu Wan
WSR16	845039	815287	Ecological sensitive receiver at Fat Tong Chau
WSR33	847159	814488	Ecological sensitive receiver at Tai Miu Wan
WSR36	846878	814081	Ecological sensitive receiver at Kwun Tsai
WSR37	846655	813810	Ecological sensitive receiver at Tit Cham Chau

Station	Easting	Northing	Description
NF1*	846542	813614	Edge of mixing zone, ~ 200m west of outfall diffuser
NF2*	846942	813614	Edge of mixing zone, ~ 200m east of outfall diffuser
NF3*	846742	813414	Edge of mixing zone, ~ 200m south of outfall diffuser

Remark*: NF1 to NF3 are added for the operation phase of TKODP in accordance with Table 5.3 in the approved EM&A Manual.

WSR1 to WSR37 were identified in accordance with Annex 14 of the EIAO-TM as well as Clause 3.4.4.2 of the Environmental Impact Assessment Study Brief for Desalination Plant at Tseung Kwan O (No. ESB-266/2013). WSR1 to WSR3 are sited near the Tung Lung Chau Fish Culture Zone; WSR16 and WSR36 are sited near the coral assemblages along the coastlines of Fat Tong Chau and Kwun Tsai respectively; WSR 4 and WSR33 are sited near the Coastal Protection Area and coral assemblages in waters of Tai Miu Wan; WSR37 is sited near the fisheries resource including spawning and nursery grounds at the coastal water of Tit Cham Chau. NF1 to NF3 are the Edge of Mixing zone.

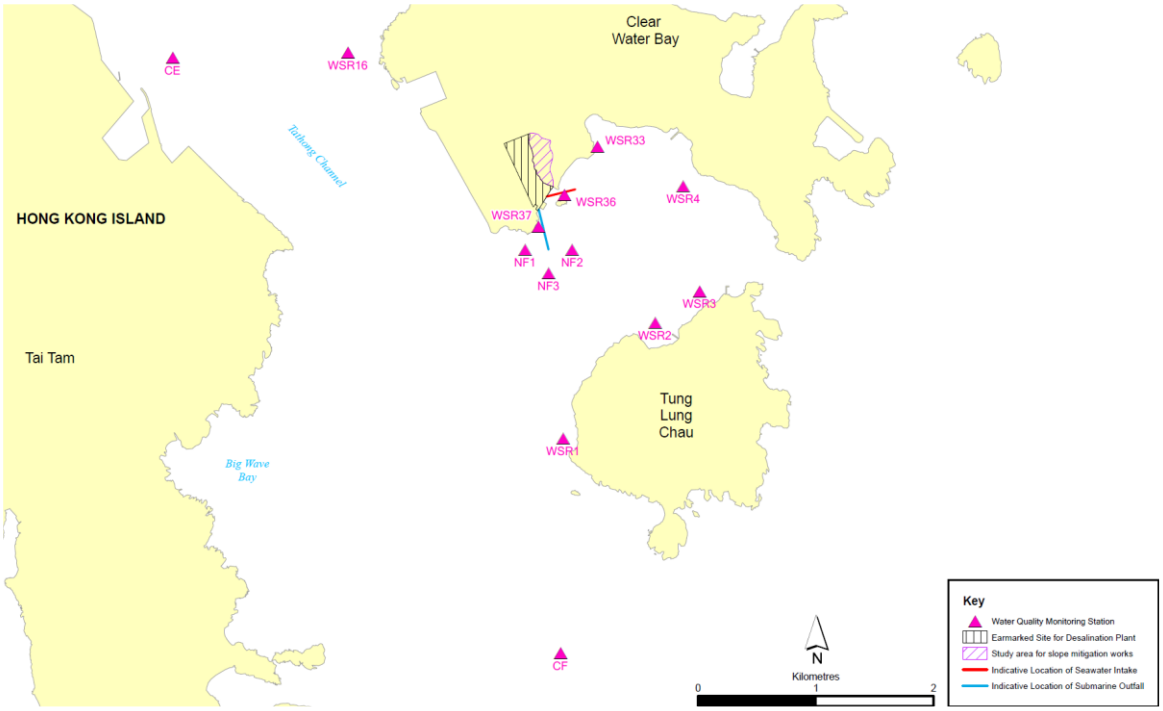


Figure 3.1 Impact water quality monitoring locations under EM&A Manual

Effluent Monitoring from Main Disinfection

According to the approved Flushing and Disinfection Procedure and Supplementary of the Disinfection Procedure for Desalination Plant at Tseung Kwan O, the sampling point of the dechlorinated effluent was located at Contact tank/Product Water Tank (PWT) and T1GKC01AA502/manhole 18. The approved sampling location was shown in Table 3.3, Figure 3.2 and Figure 3.3 below.

Table 3.43 Sampling location of dechlorinated effluent

System/Loop	Discharge location	Sampling Location
Contact tank/ Product Water Tank (PWT)	Culvert	Contact tank/PWT
Connection to dist. network	Manhole 18 in connection point	Sampling point T1GKC01AA502/manhole 18

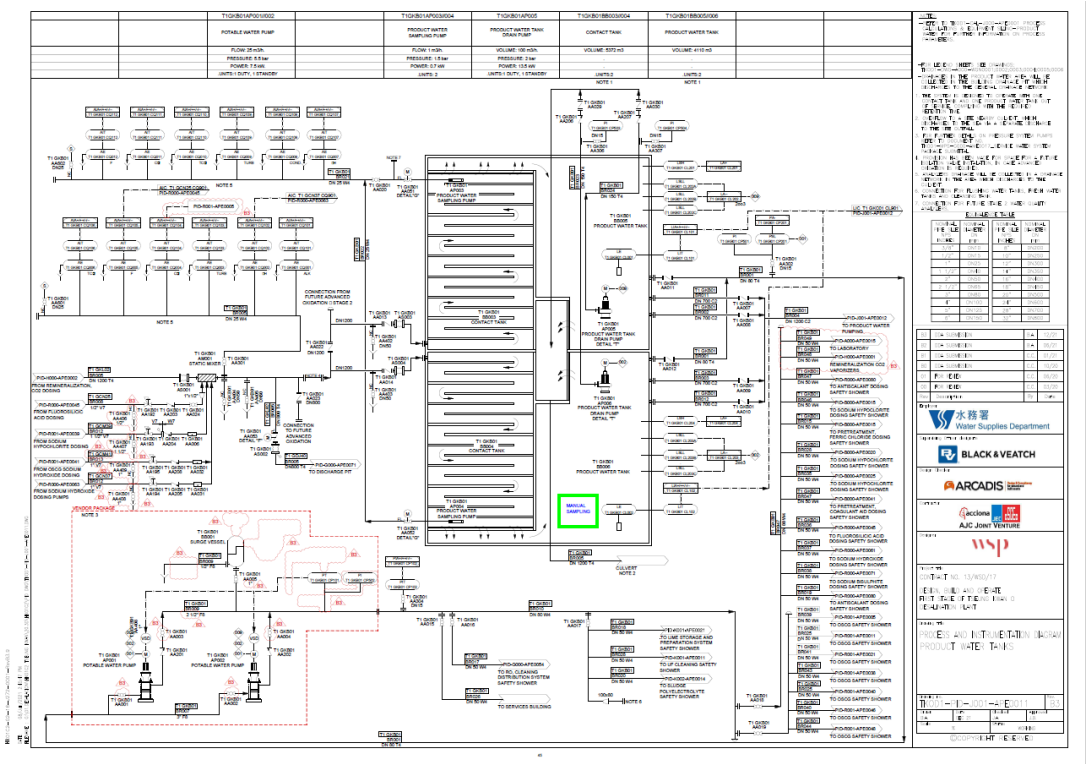


Figure 3.2 Impact water quality monitoring point for dechlorinated effluent (Contact tank/PWT)

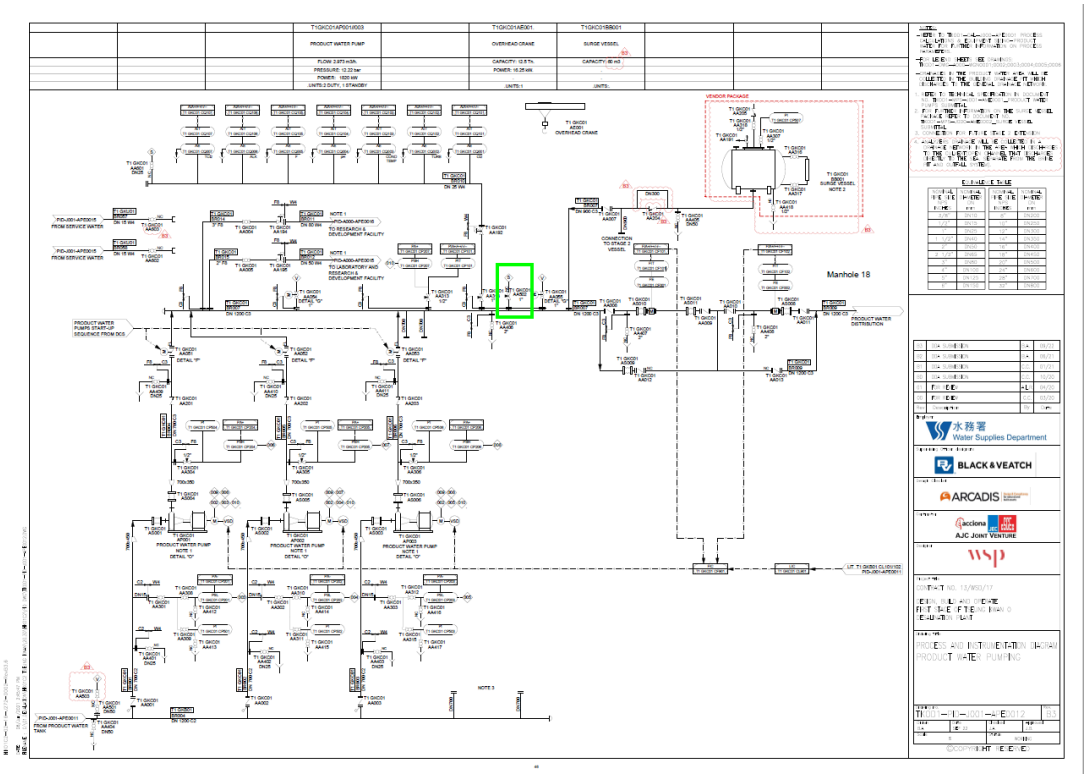


Figure 3.3 Impact water quality monitoring point for dechlorinated effluent (Sampling point T1GKC01AA502/manhole 18)

3.4. ACTION AND LIMIT LEVELS

Marine Water Quality Monitoring

The Action and Limit Levels have been set based on the derivation criteria specified in the EM&A Manual. Based on the baseline water quality monitoring data and the derivation criteria, the Action/Limit Levels have been derived and are presented in **Table 3.4**.

Table 3.4 Derived Action and Limit Levels for Water Quality

Parameters	Action	Limit
Marine Water Quality Monitoring		
DO in mg/L	Surface and Middle 7.30 mg L^{-1} Bottom 7.31 mg L^{-1} Tung Lung Chau Fish Culture Zone 5.1 mgL^{-1} or level at control station (Whichever the lower)	Surface and Middle 4 mg L^{-1} Bottom 2 mg L^{-1} Tung Lung Chau Fish Culture Zone 5.0 mgL^{-1} or level at control station (Whichever the lower)

Parameters	Action	Limit
Marine Water Quality Monitoring		
SS in mg/L (Depth-averaged)	5.00 mg L^{-1} or 20% exceedance of value at any impact station compared with corresponding data from control station	6.00 mg L^{-1} or 30% exceedance of value at any impact station compared with corresponding data from control station
Turbidity in NTU (Depth-averaged)	2.41 NTU or 20% exceedance of value at any impact station compared with corresponding data from control station	2.84 NTU or 30% exceedance of value at any impact station compared with corresponding data from control station
Salinity in PSU (Depth-averaged)	34.25 PSU or 9% exceedance of value at any impact station compared with corresponding data from control station	34.56 PSU or 10% exceedance of value at any impact station compared with corresponding data from control station
Iron in mg/L (Depth-averaged)	0.3 mg/L	0.3 mg/L
Total residual chlorine in mg/L	0.01 mg/L	0.01 mg/L
Total residual chlorine in mg/L (Disinfection)	0.1 mg/L	0.1 mg/L

Notes:
i. "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.
ii. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
iii. For Turbidity, SS, iron and Salinity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
iv. For the Action and Limit Levels adopted during First-year Operation Phase Monitoring, further review would be made according to the EM&A Manual during Operation Phase.
v. Monitoring of Total Residual Chlorine (Disinfection) will be conducted when cleaning and sterilization of the new freshwater main is carried out.
vi. Monitoring of Iron and Total Residual Chlorine were conducted during the pre-operation phase.

3.5. MONITORING PROGRAMME

Marine Water Quality Monitoring

The ET of the Contract had conducted the construction phase impact water quality monitoring between 1 May 2023 and 31 August 2023 at the ten designated monitoring stations and the additional pre-operation phase marine water quality monitoring between

12 December 2023 and 30 April 2024 at the thirteen designated monitoring stations near TKO in accordance with the EM&A Manual and Contract Specification.

Effluent Monitoring from Main Disinfection

According to the approved EM&A Manual Section 5.1.6(b), Flushing and Disinfection Procedure and Supplementary of the Disinfection Procedure was prepared by ET and approved by EPD. The dechlorinated effluent was conducted by the contractor on 24 November 2023, 2 December 2023 and 3 December 2023 in accordance with the EM&A Manual and Contract Specification

3.6. MONITORING RESULTS AND OBSERVATIONS

Marine Water Quality Monitoring

The construction phase water quality monitoring was suspended on 1 September 2023 following the completion of marine-related construction works, and the pre-operation phase marine impact monitoring commenced in December 2023.

The water quality monitoring at the designated locations were conducted by the ET as scheduled in the reporting period. The graphical presentation of the water quality monitoring result was shown in **Appendix D**.

Construction Phase Impact Water Quality Monitoring was conducted as schedule in the reporting period. One hundred and fourteen (114) action level exceedances and ninety-two (92) limit level exceedances of Suspended Solid were recorded in the reporting period.

Pre-operation Phase Impact Water Quality Monitoring was conducted as schedule in the reporting period. One hundred and fifty-seven (157) action level exceedances and One hundred and nine (109) limit level exceedances of Suspended Solid were recorded in the reporting period

Details of the exceedance could be referring to **Appendix L** of the Monthly EM&A Report.

Effluent Monitoring from Main Disinfection

Total eleven (11) of dechlorinated effluent sample were taken during the discharge of dechlorinated effluent by contractor. No TRC exceedance of action or limit levels was obtained during the discharge of dechlorinated effluent. Monitoring results are summarized in **Table 3.5**.

Table 3.5 Summary of dechlorinated effluent Monitoring Results

Location	**Contact Tank / Product Water Tank Flushing after Neutralization**										
Date	**24 Nov 2023**				**2 Dec 2023**	**3 Dec 2023**					
Time	16:00	17:00	18:00	19:00	23:59	01:00	02:00	03:00	04:00	05:00	06:00
TRC (mg/L)	0.08	0.03	0.02	0.01	0.04	0.04	0.03	0.02	0.01	0.00	0.01

4. WASTE

The waste generated from this Project includes inert construction and demolition (C&D) materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. Details of cumulative waste management data are presented as a waste flow table in **Appendix F**.

5. LANDFILL GAS MONITORING

5.1. MONITORING REQUIREMENT

In according with Section 11 of the EM&A Manual, monitoring of landfill gas is required for construction works within the 250m Consultation Zone. Part of the desalination plant and the indicative area of natural slope mitigation works fall within the SENT Landfill Extension Consultation Zone; and part of the 1,200 mm diameter freshwater mains along Wan Po Road falls within the SENT Landfill and SENT Landfill Extension Consultation Zones, TKO Stage II/III Restored Landfill and TKO Stage I Restored Landfill Consultation Zones.

Since part of the desalination plant (Wan Po Road and MIC compound/Basketball Court) and the indicative area of natural slope mitigation works fall within the SENT Landfill Extension Consultation Zone in this contract (Figure 5.1), landfill gas monitoring would be required for Wan Po Road and MIC compound/Basketball Court (Figure 5.2) if excavations were conducted at more than 300mm deep. Although SENT Landfill Extension has commenced operation since November 2021, no excavation works were conducted at MIC compound/Basketball Court. Hence no landfill gas monitoring would be scheduled for MIC compound/Basketball Court at the current stage.

Figure 5.1 Overview of the SENT Extension Consultation Zone and the Contract Site Area

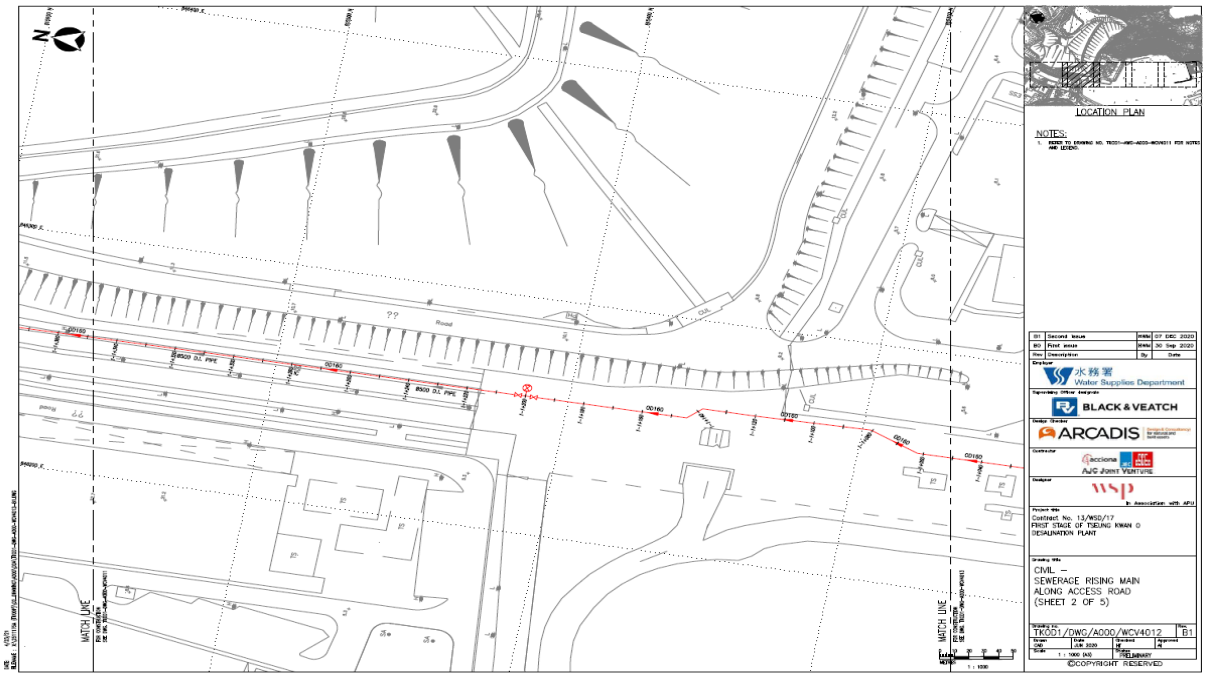


Figure 5.2 Location Map for Landfill Gas Monitoring at Wan Po Road

5.2. MONITORING PARAMETERS

LFG monitoring was carried out to identify any migration between the landfill and the Contract and to ensure the safety of the construction, operation and maintenance personnel working on-site, visitors and any other person within the Contract area.

The following parameters were monitored:

- Methane
- Oxygen
- Carbon Dioxide
- Barometric Pressure

5.3. MONITORING EQUIPMENT

Landfill Gas monitoring was carried out using intrinsically safe, portable multi-gas monitoring instruments. Detail of monitoring equipment used in the reporting period could be referred to Section 5.10 of the corresponding Monthly EM&A Report.

5.4. MONITORING RESULTS AND OBSERVATIONS

Nine hundred and seventy-three (973) times of landfill gas monitoring were conducted in the reporting period. No action or limit level exceedance was recorded in the reporting period.

Action and Limit Level are provided in **Table 5.1**.

Table 5.1 Action / Limit Levels and Event and Action Plan for LFG Hazard

Parameters	Level	Action
Oxygen (O_2)	Action Level < 19% O_2	Ventilate trench/void to restore O_2 to > 19%
	Limit Level < 19% O_2	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore O_2 to > 19%
Methane (CH_4)	Action Level >10% LEL	Post "No Smoking" signs Prohibit hot works Increase ventilation to restore CH_4 to <10% LEL
	Limit Level >20% LEL	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CH_4 to<10% LEL
Carbon Dioxide (CO_2)	Action Level >0.5% CO_2	Ventilate to restore CO_2 to < 0.5%
	Limit Level >1.5% CO_2	Stop works Evacuate personnel / prohibit entry Increase ventilation to restore CO_2 to <0.5%

6. ECOLOGY (CORAL MONITORING)

Under the approval conditions of the EIA Report for the Project, an EM&A programme on coral for the pre-operation phase of the Project is recommended. Pursuant to these EIA approval conditions and Condition 3.1 of the EP and FEP, details of the regular coral monitoring programme have been proposed based on the baseline coral monitoring results in the Report on Pre-Operation Baseline Coral Monitoring and Regular Coral Monitoring Methodology.

MONITORING LOCATION

In accordance with Appendix B Section 5.1 of the approved supplementary EM&A Manual, two indirect impact sites (C2 and C3) and one control site (C8) as shown in **Figure 6.1** should be monitored during the pre-operation Phase. Pre- operation coral survey should be conducted at the indirect impact and control sites. Ten selected hard coral colonies with similar species should be tagged at each of the control and indirect impact sites before commencement of the operation phase. Tagged hard coral colonies should be monitored in open waters during the pre- operation phase and operation phase.

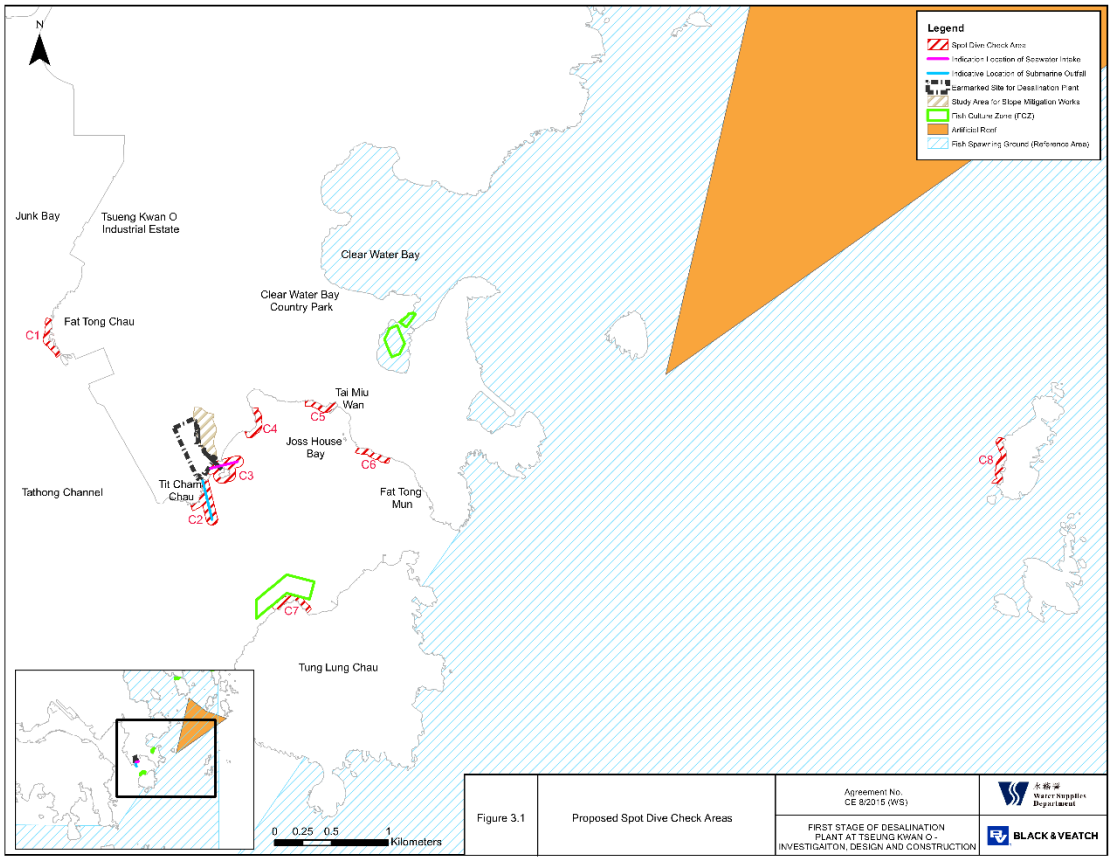


Figure 6.1 Spot Dive Check Areas Two Proposed Indirect Impact Sites (C2 and C3) and one control site (C8) during pre-operation Phase

ACTION AND LIMIT LEVELS

The Action and Limit Levels have been set based on the derivation criteria specified in the EM&A Manual. The Action/Limit Levels have been derived and are presented in **Table 6.1**.

Table 6.1 Action and Limit Level for Coral Monitoring Equipment

Parameter	Action Level Definition	Limit Level Definition
Mortality	If during Impact Monitoring a 15% increase in the percentage of partial mortality on the corals occurs at more than 20% of the tagged indirect impact site coral colonies that is not recorded on the tagged corals at the control site, then the Action Level is exceeded	If during Impact Monitoring a 25% increase in the percentage of partial mortality on the corals occurs at more than 20% of the tagged indirect impact site coral colonies that is not recorded on the tagged corals at the control site, then the Limit Level is exceeded

Note: If the defined Action Level or Limit Level for coral monitoring is exceeded, the actions as set out in **Table E3 of Appendix E** will be implemented.

If non-compliance were found during the construction works, the actions in accordance with the Event and Action Plan will be carried out according to **Appendix G.**

MONITORING FREQUENCY

Pre-operation phase coral monitoring shall be monitored once per month as the requirement of the first year of operational phase.

MONITORING RESULT AND OBSERVATION

Pre-operation phase coral monitoring was commenced in December 2023. There were no AL/LL exceedances observed during the reporting period. The detailed result of the monitoring is presented in Appendix I of the Monthly EM&A Report**.**

7. ECOLOGY (FISHERY MONITORING)

The purpose of the pre-operation phase regular fisheries monitoring programme is to monitor the potential impacts on fisheries resources in the vicinity of the project site. Apart from the regular fisheries monitoring programme, a water quality monitoring programme in addition to the water quality monitoring programme in the approved EM&A Manual is also described in Section 2.4 to (i) provide supplementary information in the interpretation of the findings of the fisheries monitoring and (ii) assist the monitoring of the potential impact on the Tung Lung Chau Fish Culture Zone (FCZ) in Joss House Bay.

MONITORING LOCATION

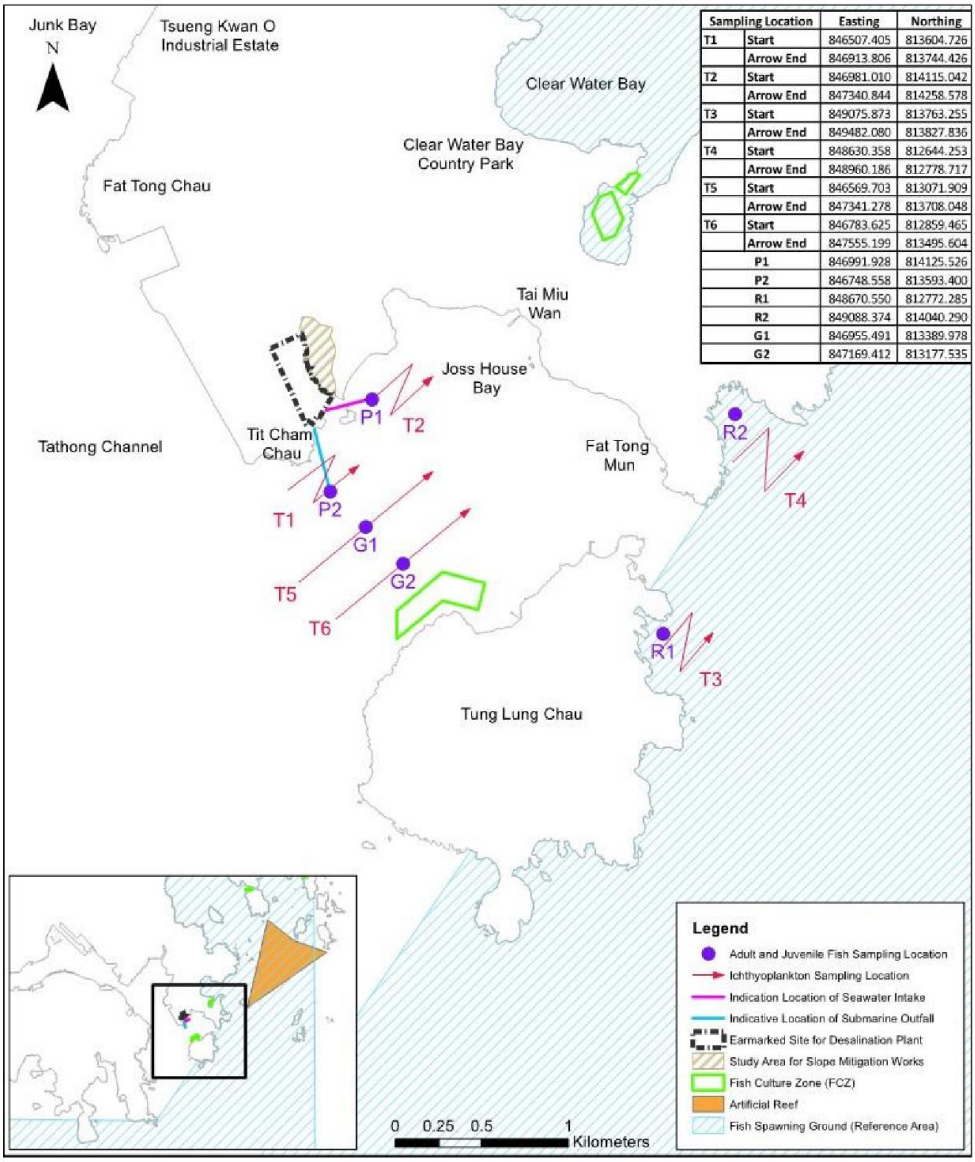
In accordance with Section 2.3 of the approved Methodology Paper on Regular Fisheries Monitoring, it is recommended to set up six (6) fisheries monitoring locations in Joss House Bay and its vicinity to monitor the fisheries resources.

Two (2) sampling locations are set up in close proximity of the direct footprint of the proposed submarine utilities around TKO Area 137. These sampling locations represent the potential Project impact zones (i.e. areas at and in close proximity to the footprint of the proposed submarine utilities that will be directly affected by the Project works).

Two (2) gradient locations are proposed between the proposed submarine utilities and Tung Lung Chau FCZ to assist in the interpretation and identification of any potential fisheries impact in the vicinity of the FCZ.

Two (2) reference locations are proposed in the outer Joss House Bay between the waters of Tung Lung Chau and Fat Tong Mun. These reference locations are further away and will not be affected by the Project discharge (based on the EIA prediction) and will serve as control stations. Any significant fisheries impact identified at the reference locations should be caused by other natural factors or non-Project activities. The trends of fisheries conditions recorded in the reference locations will be used to assist in the interpretation of the trends of fisheries impact identified in the impact and gradient locations.

The coordinates of the proposed monitoring locations are shown in **Figure 7.1.**



Sampling Location		Easting	Northing
T1	Start	846507.405	813604.726
	Arrow End	846913.806	813744.426
T2	Start	846981.010	814115.042
	Arrow End	847340.844	814258.578
T3	Start	849075.873	813763.255
	Arrow End	849482.080	813827.836
T4	Start	848630.358	812644.253
	Arrow End	848960.186	812778.717
T5	Start	846569.703	813071.909
	Arrow End	847341.278	813708.048
T6	Start	846783.625	812859.465
	Arrow End	847555.199	813495.604
	P1	846991.928	814125.526
	P2	846748.558	813593.400
	R1	848670.550	812772.285
	R2	849088.374	814040.290
	G1	846955.491	813389.978
	G2	847169.412	813177.535

Figure 7.1 Monitoring location of regular fishery monitoring during pre-operation Phase

MONITORING FREQUENCY

Pre-operation phase fishery monitoring shall be carried out 2 times in wet season (April to October) and 2 times in dry season (November to March) to examine the following:

- Fish species composition;
- Abundance: number of fish captured;
- Diversity of fish resources: species diversity and evenness;
- Size: range of total length; Biomass in weight; and
- Values of catches of commercial species: catch per unit effort (CPUE) and yield per unit effort (YPUE).

MONITORING RESULT AND OBSERVATION

Pre-operation phase fishery monitoring for dry season 2024 was carried out on 17 and 24 February 2024. There is no AL/LL exceedance during the reporting period. The detailed result of the monitoring is presented in **No. 50 April 2024 Monthly EM&A Report**.

8. SUMMARY OF EXCEEDANCE, COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

The Environmental Complaint Handling Procedure is shown in below **Figure 8.1:**

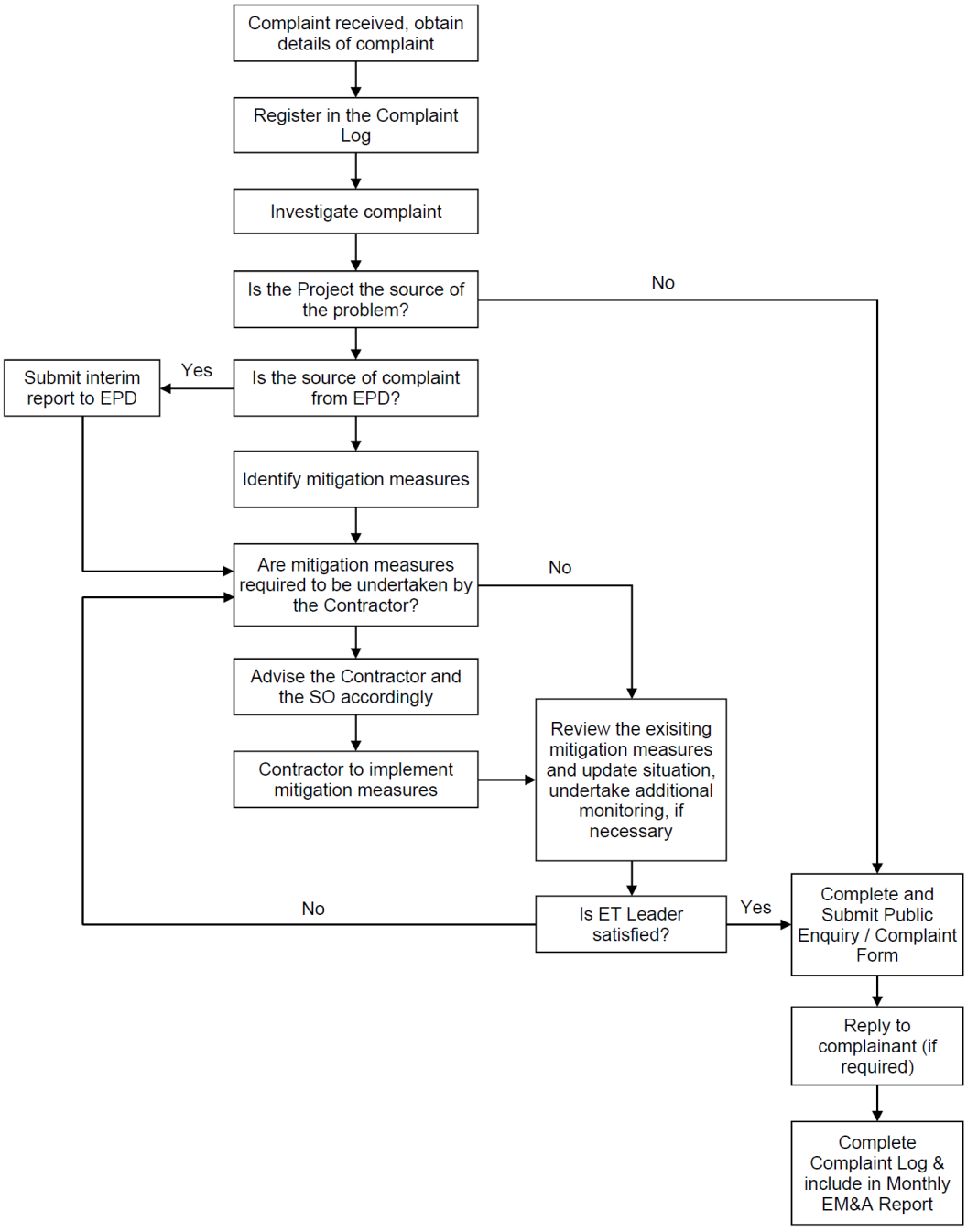


Figure 8.1 Environmental Complaint Handling Procedures

No noise monitoring was conducted during the reporting period since there are no Contract-related construction activities undertaken within a radius of 300m from the monitoring locations.

The construction phase water quality monitoring was suspended on 1 September 2023 following the completion of marine-related construction works, and the pre-operation phase marine impact monitoring commenced in December 2023.

Seven hundred and fifty-two (752) of the general water quality monitoring results of SS obtained had exceeded the Action level. Six hundred and eighteen (618) of the general water quality monitoring results of SS obtained during the reporting period had exceeded the Limit Level.

Details of the exceedance could be referring to **Appendix L** of the corresponding Monthly Report.

Total eleven (11) of dechlorinated effluent sample were taken during the discharge of dechlorinated effluent by contractor. No TRC exceedance of action or limit levels was obtained during the discharge of dechlorinated effluent.

Nine hundred and seventy-three (973) times of landfill gas monitoring were conducted in the reporting period. No action or limit level exceedance was recorded in the reporting period.

Pre-operation phase coral monitoring was commenced in December 2023. There were no AL/LL exceedances observed during the reporting period.

One environmental complaint was received from EPD on 22 January 2024 in the reporting period. Detailed information could be referred January 2024 Monthly EM&A Report. No notification of summons and prosecution was received in the reporting period. Summary of complaint log are presented **in Appendix H**.

9. EM&A SITE INSPECTION

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, site inspections were carried out from May 2023 to April 2024.

Fifty-three (53) site inspection were carried out in the reporting period.

Environmental deficiencies were observed during weekly site inspection. Key observations during the site inspections and during the reporting period could be referring to **Appendix E** and corresponding Monthly Report.

According to the EIA Study Report, Environmental Permit, contract documents and EM&A Manual, the mitigation measures detailed in the documents should be implemented as much as practical during the reporting period. An updated Implementation Status of Environmental Mitigation Measures (EMIS) is provided in **Appendix C.**

10. CONCLUSIONS AND RECOMMENDATIONS

This is the 4th Annual EM&A Review Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 May 2023 to 30 April 2024, in accordance with the EM&A Manual and the requirement under FEP – 01/503/2015/A and FEP – 01/503/2015/B.

No noise monitoring was conducted in the reporting period due to the over distant monitoring station from the works location, in which construction activities were not undertaken within a radius of 300m from the monitoring locations.

The EM&A works for water quality were conducted during the reporting period in accordance with the EM&A Manual.

Construction Phase Impact Water Quality Monitoring was conducted as schedule in the reporting period. One hundred and fourteen (114) action level exceedances and ninety-two (92) limit level exceedances of Suspended Solid were recorded in the reporting period. Pre-operation Phase Impact Water Quality Monitoring was conducted as schedule in the reporting period. One hundred and fifty-seven (157) action level exceedances and one hundred and nine (109) limit level exceedances of Suspended Solid were recorded in the reporting periodAll Action and Limit Level exceedances were unrelated to the project.

Details of the exceedance could be referring to **Appendix L** of the corresponding Monthly EM&A Report.

Total eleven (11) of dechlorinated effluent sample were taken during the discharge of dechlorinated effluent by contractor. No TRC exceedance of action or limit levels was obtained during the discharge of dechlorinated effluent.

Nine hundred and seventy-three (973) times of landfill gas monitoring were conducted in the reporting period. No action or limit level exceedance was recorded in the reporting period.

Pre-operation phase coral monitoring was commenced in December 2023. There were no AL/LL exceedances observed during the reporting period.

Pre-operation phase fishery monitoring for dry season 2024 was carried out on 17 and 24 February 2024. There is no AL/LL exceedance during the reporting period.

Weekly environmental site inspection was conducted during the reporting period. Minor deficiency was observed during site inspection. The environmental performance of the project was therefore considered satisfactory.

According to the environmental site inspections performed in the reporting period, the Contractor is reminded to pay attention on maintaining proper materials storage, site tidiness and chemical storage on site.

One (1) environmental complaint was received from EPD on 23 January 2024 in the reporting period. Detailed information could be referred January 2024 monthly EM&A report. No notification of summons or prosecution was received in the reporting period.

The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Appendix A

Master Programme

Activity ID	Activity Name	Baseline Duration	Baseline Start	Baseline Finish	Remaining Duration	Actual / Planned Start	Actual / Planned Finish	Actual % Complete	Variance Finish Date	Total Float
Project Programme Updated as at 30 Apr 2024										
Key Dates										
Commencement and Completion Date										
KD0000100	Letter of Acceptance	0	15-Nov-19		0	15-Nov-19 A		100%	0	
KD0000110	Commencement of the Works	0	30-Dec-19		0	30-Dec-19 A		100%	0	
KD0000120	Original Completion of the Works (1170 Days)	0		13-Mar-23	0		13-Mar-23 A	100%	0	
KD0000130	Revised Completion of the Works (324 Days EOT Granted)	0			0	14-Mar-23 A	31-Jan-24 A	100%		
KD0000510	Planned Completion of the Works	0			0		17-Aug-24	0%		-199
KD0000520	Target Completion of the Works (Best Endeavour)	0			0		19-Dec-23 A	100%		
Possession of Site										
KD0000200	Possession of First Stage Portion A	0	30-Dec-19		0	30-Dec-19 A		100%	0	
KD0000210	Possession of First Stage Portion B	0	30-Dec-19		0	30-Dec-19 A		100%	0	
KD0000220	Possession of Area for Access Road	0	30-Dec-19		0	30-Dec-19 A		100%	0	
KD0000230	Possession of Temporary Works Area 1	0	30-Dec-19		0	30-Dec-19 A		100%	0	
KD0000240	Possession of Temporary Works Area 2	0	30-Dec-19		0	30-Dec-19 A		100%	0	
KD0000250	Possession of Temporary Works Area 3	0	30-Dec-19		0	30-Dec-19 A		100%	0	
KD0000260	Possession of Temporary Works in Clear Water Bay Country Park	0	30-Dec-19		0	30-Dec-19 A		100%	0	
Executive Summaries										
Preliminary Setup										
ES0001000	Mobilization and Preliminary Set Up	191	30-Dec-19	07-Jul-20	0	30-Dec-19 A	20-Jul-20 A	100%	-13	
Civil Design AIP and DDA										
ES0001010	AIP Civil Design Submission and Approval	330	30-Dec-19	23-Nov-20	0	30-Dec-19 A	31-Aug-20 A	100%	84	
ES0001020	DDA Civil Design Submission and Approval	414	28-Feb-20	16-Apr-21	0	22-Jan-20 A	01-Sep-21 A	100%	-138	
M&E Design AIP and DDA										
ES0002000	M&E AIP Process Mechanical Submission and Approval	477	30-Dec-19	19-Apr-21	0	30-Dec-19 A	22-Dec-20 A	100%	118	
ES0002010	M&E DDA Process Mechanical Submission and Approval	679	08-Feb-20	17-Dec-21	0	21-Jul-20 A	02-Sep-21 A	100%	106	
ES0002020	M&E AIP Instrumentation & Control Submission and Approval	607	31-Jan-20	28-Sep-21	0	04-Feb-20 A	25-Feb-20 A	100%	581	
ES0002030	M&E DDA Instrumentation & Control Submission and Approval	514	22-Jul-20	17-Dec-21	0	13-Feb-21 A	14-Apr-23 A	100%	-482	
ES0002050	M&E DDA Renewable Energy Submission and Approval	382	16-Aug-20	01-Sep-21	0	17-Aug-20 A	31-Dec-20 A	100%	244	
ES0002060	M&E AIP Building Services Submission and Approval	226	30-Dec-19	11-Aug-20	0	30-Dec-19 A	30-Oct-20 A	100%	-80	
ES0002065	M&E Design Basis & Civil Guidance Dwg	112	30-Dec-19	19-Apr-20	0	30-Dec-19 A	24-Jul-20 A	100%	-96	
ES0002070	M&E DDA Building Services Submission and Approval	306	28-Feb-20	29-Dec-20	0	01-Mar-20 A	30-Jun-21 A	100%	-183	
ES0002085	M&E AIP Site Wide Electrical Submission and Approval	155	09-Jun-20	10-Nov-20	0	21-Mar-20 A	22-Jul-20 A	100%	111	
ES0002090	M&E CMS Lift Submission and Approval	140	27-Aug-20	13-Jan-21	0	01-Oct-20 A	20-Jul-21 A	100%	-188	
ES0002095	M&E DDA Site Wide Electrical Submission and Approval	140	11-Nov-20	30-Mar-21	0	23-Jul-20 A	04-Jun-21 A	100%	-66	
ES0002100	M&E DDA T&C Design Submission and Approval	155	29-Mar-22	30-Aug-22	0	01-Aug-21 A	05-Oct-23 A	100%	-401	
Procurement of Major Plant & Equipment Schedule										
ES0002320	M&E Procurement of Major Plant, Equipment, Material and Delivery	901	14-Mar-20	31-Aug-22	0	04-Feb-20 A	16-Jan-23 A	100%	-137	
ES2420	M&E Procurement of Mechanical Equipment - Intake Pumps	595	18-May-20	02-Jan-22	0	04-Feb-20 A	11-May-22 A	100%	-128	
ES2430	M&E Procurement of Mechanical Equipment - ActiDAFF Underdrain	333	30-Oct-20	27-Sep-21	0	02-Aug-20 A	14-Mar-22 A	100%	-168	
ES2440	M&E Procurement of Mechanical Equipment - ActiDAFF Media	298	15-Mar-21	06-Jan-22	0	23-Jul-20 A	14-Oct-22 A	100%	-281	
ES2450	M&E Procurement of Mechanical Equipment - RO and ERD Rack	274	22-Feb-21	22-Nov-21	0	22-Jul-20 A	28-Dec-21 A	100%	-36	
ES2460	M&E Procurement of Mechanical Equipment - RO Membrane	755	29-Mar-20	22-Apr-22	0	12-Feb-20 A	28-Dec-22 A	100%	-249	

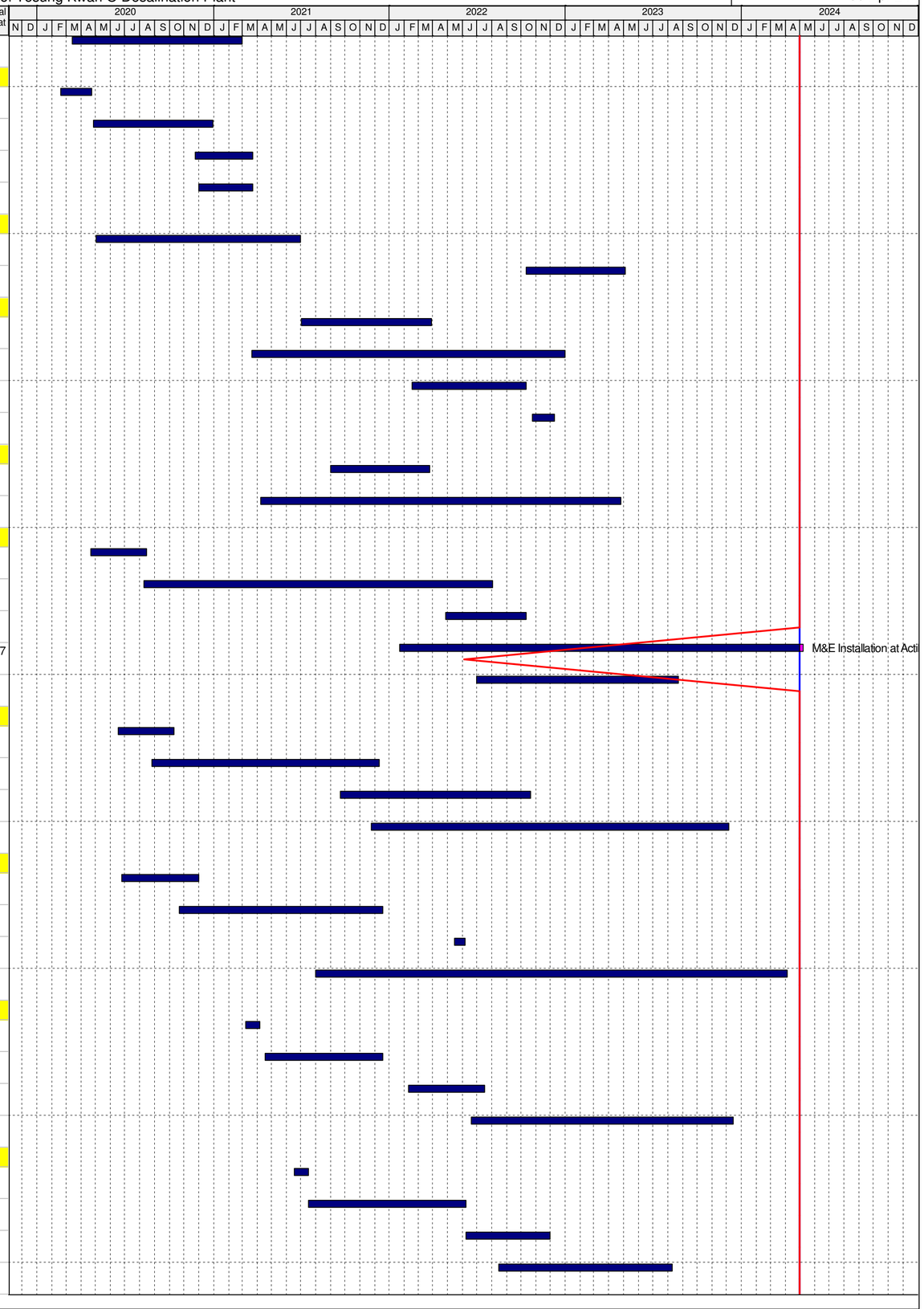
Summary Bar | Actual Work | Target Milestone
Actual Level of Effort | Early Bar | Milestone
Target Bar | Critical Bar

Appendix D - Critical Path

file: MPR202404_d

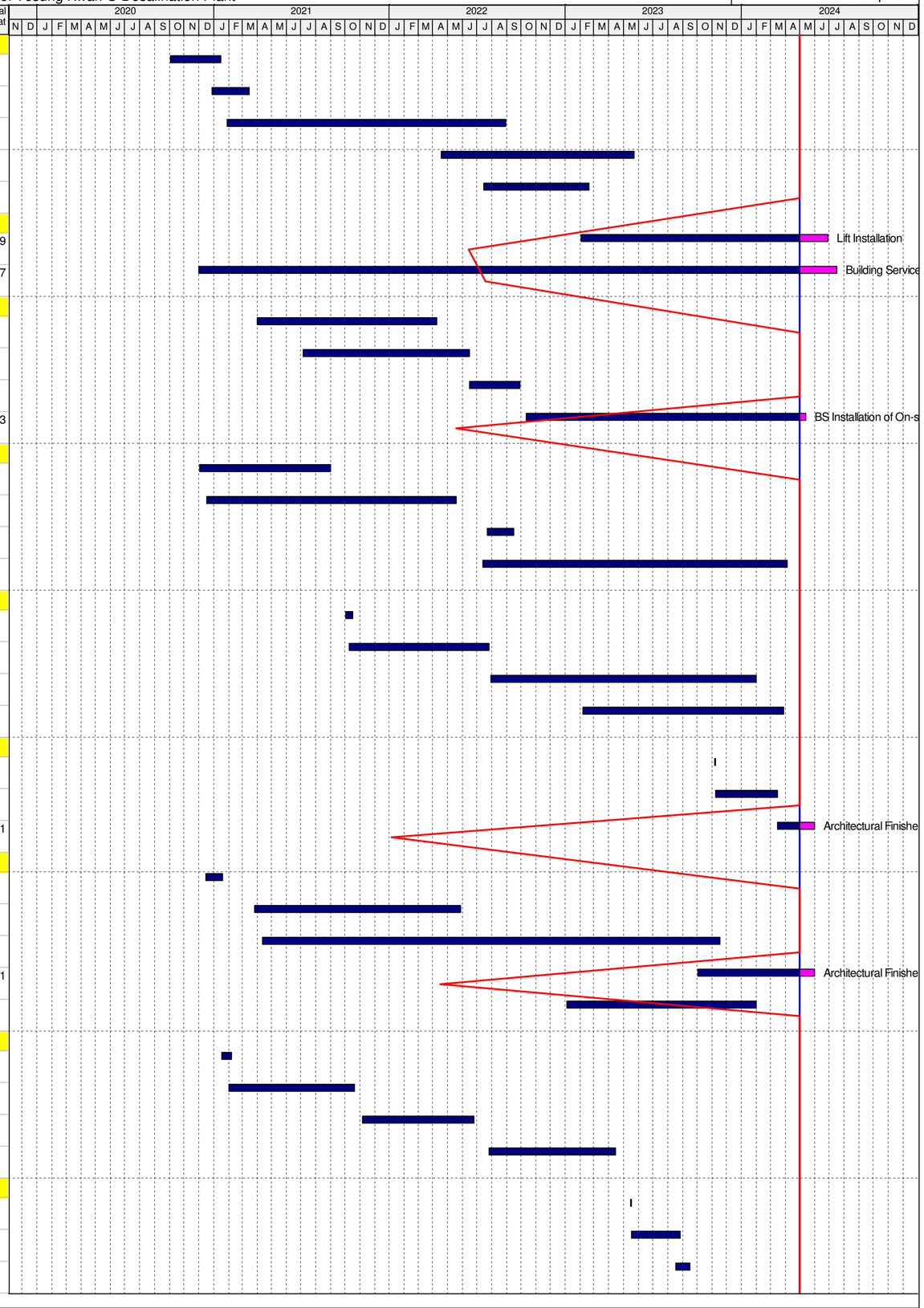
AJC JOINT VENTURE

Activity ID	Activity Name	Baseline Duration	Baseline Start	Baseline Finish	Remaining Duration	Actual / Planned Start	Actual / Planned Finish	Actual % Complete	Variance Finish Date	Total Float
ES2470	M&E Procurement of Electrical Equipment - CLP Substation for LV Switchboard / Genset / Building Services	300	14-Mar-20	07-Jan-21	0	14-Mar-20 A	28-Feb-21 A	100%	-52	
132kV Substation										
ES0001460	Excavation and Formation Works for 132kV Substation	15	16-Mar-20	30-Mar-20	0	19-Feb-20 A	23-Apr-20 A	100%	-24	
ES0001470	Construction of 132kV Substation	233	31-Mar-20	18-Nov-20	0	27-Apr-20 A	30-Dec-20 A	100%	-42	
ES0001480	Architectural Finishes for 132kV Substation	126	11-Sep-20	14-Jan-21	0	23-Nov-20 A	22-Mar-21 A	100%	-67	
ES0002240	M&E Installation of 132kV Substation	93	20-Nov-20	20-Feb-21	0	01-Dec-20 A	22-Mar-21 A	100%	-30	
Combine Shaft										
ES0001060	Construction of Combine Shaft	257	27-Mar-20	08-Dec-20	0	02-May-20 A	30-Jun-21 A	100%	-204	
ES0002120	M&E Installation at Combine Shaft	160	03-Jan-22	11-Jun-22	0	11-Oct-22 A	06-May-23 A	100%	-328	
Intake										
ES0001070	DN2500 Pipe Jacking for Intake Pipeline	163	09-Dec-20	20-May-21	0	02-Jul-21 A	28-Mar-22 A	100%	-312	
ES0001080	Receiving Pit and Marine Intake Structure	416	11-Nov-20	31-Dec-21	0	22-Mar-21 A	30-Dec-22 A	100%	-364	
ES0001110	Construction of Intake Land Structure (Combined Shaft)	193	21-May-21	29-Nov-21	0	17-Feb-22 A	10-Oct-22 A	100%	-315	
ES0001120	Architectural Finishes for Intake Land Structure	32	30-Nov-21	31-Dec-21	0	24-Oct-22 A	08-Dec-22 A	100%	-342	
OutFall										
ES0001090	DN1650 Pipe Jacking for Outfall Pipeline	140	29-Dec-20	17-May-21	0	01-Sep-21 A	24-Mar-22 A	100%	-311	
ES0001100	Receiving Pit, Outfall and Diffuser Pipeline	343	18-Dec-20	25-Nov-21	0	08-Apr-21 A	25-Apr-23 A	100%	-516	
ActiDAFF										
ES0001140	Excavation for ActiDAFF	97	02-May-20	06-Aug-20	0	22-Apr-20 A	15-Aug-20 A	100%	-9	
ES0001150	Construction of ActiDAFF Structure	393	11-Sep-20	08-Oct-21	0	10-Aug-20 A	03-Aug-22 A	100%	-299	
ES0001160	Architectural Finishes for ActiDAFF	183	07-Jul-21	05-Jan-22	0	28-Apr-22 A	10-Oct-22 A	100%	-278	
ES0002130	M&E Installation at ActiDAFF	257	28-Sep-21	11-Jun-22	7	22-Jan-22 A	07-May-24	98%	-696	-97
ES0002140	M&E Installation of Filter Water Tank and Pumping Station	137	29-Nov-21	14-Apr-22	0	01-Jul-22 A	24-Aug-23 A	100%	-496	
Reverse Osmosis Building										
ES0001170	Excavation at RO Building	270	24-Jun-20	20-Mar-21	0	18-Jun-20 A	10-Oct-20 A	100%	161	
ES0001180	Construction of RO Building	321	16-Nov-20	02-Oct-21	0	25-Aug-20 A	11-Dec-21 A	100%	-70	
ES0001190	Architectural Finishes for RO Building	106	09-Aug-21	22-Nov-21	0	20-Sep-21 A	21-Oct-22 A	100%	-333	
ES0002150	M&E Installation of RO Building	315	23-Nov-21	03-Oct-22	0	24-Nov-21 A	05-Dec-23 A	100%	-428	
Product Water Storage Tank										
ES0001240	Excavation and Soil Nail System for Product Water Storage Tank	106	10-Aug-20	23-Nov-20	0	24-Jun-20 A	01-Dec-20 A	100%	-8	
ES0001250	Construction of Product Water Storage Tank	276	24-Nov-20	26-Aug-21	0	21-Oct-20 A	18-Dec-21 A	100%	-114	
ES0001260	Architectural Finishes for Product Water Storage Tank	70	27-Aug-21	04-Nov-21	0	16-May-22 A	07-Jun-22 A	100%	-215	
ES0002210	M&E Installation of Product Water Tank	78	12-Jan-22	30-Mar-22	0	31-Jul-21 A	04-Apr-24 A	100%	-736	
Product Water Pumping Station										
ES0001270	Excavation for Product Water Pump Station	47	22-Oct-20	07-Dec-20	0	08-Mar-21 A	07-Apr-21 A	100%	-121	
ES0001280	Construction of Product Water Pump Station	270	22-Jan-21	18-Oct-21	0	17-Apr-21 A	18-Dec-21 A	100%	-61	
ES0001290	Architectural Finishes for Product Water Pumping Station	106	25-Sep-21	08-Jan-22	0	10-Feb-22 A	16-Jul-22 A	100%	-189	
ES0002215	M&E Installation of Product Water Pump Station	78	12-Jan-22	30-Mar-22	0	20-Jun-22 A	14-Dec-23 A	100%	-624	
Chemical Building										
ES0001300	Excavation for Chemical Building	42	12-Aug-20	22-Sep-20	0	17-Jun-21 A	17-Jul-21 A	100%	-298	
ES0001310	Construction of Chemical Building	255	23-Sep-20	04-Jun-21	0	17-Jul-21 A	09-Jun-22 A	100%	-370	
ES0001320	Architectural Finishes for Chemical Building	73	05-Jun-21	16-Aug-21	0	09-Jun-22 A	30-Nov-22 A	100%	-470	
ES0002220	M&E Installation of Chemical Building	264	02-Sep-21	23-May-22	0	15-Aug-22 A	10-Aug-23 A	100%	-443	



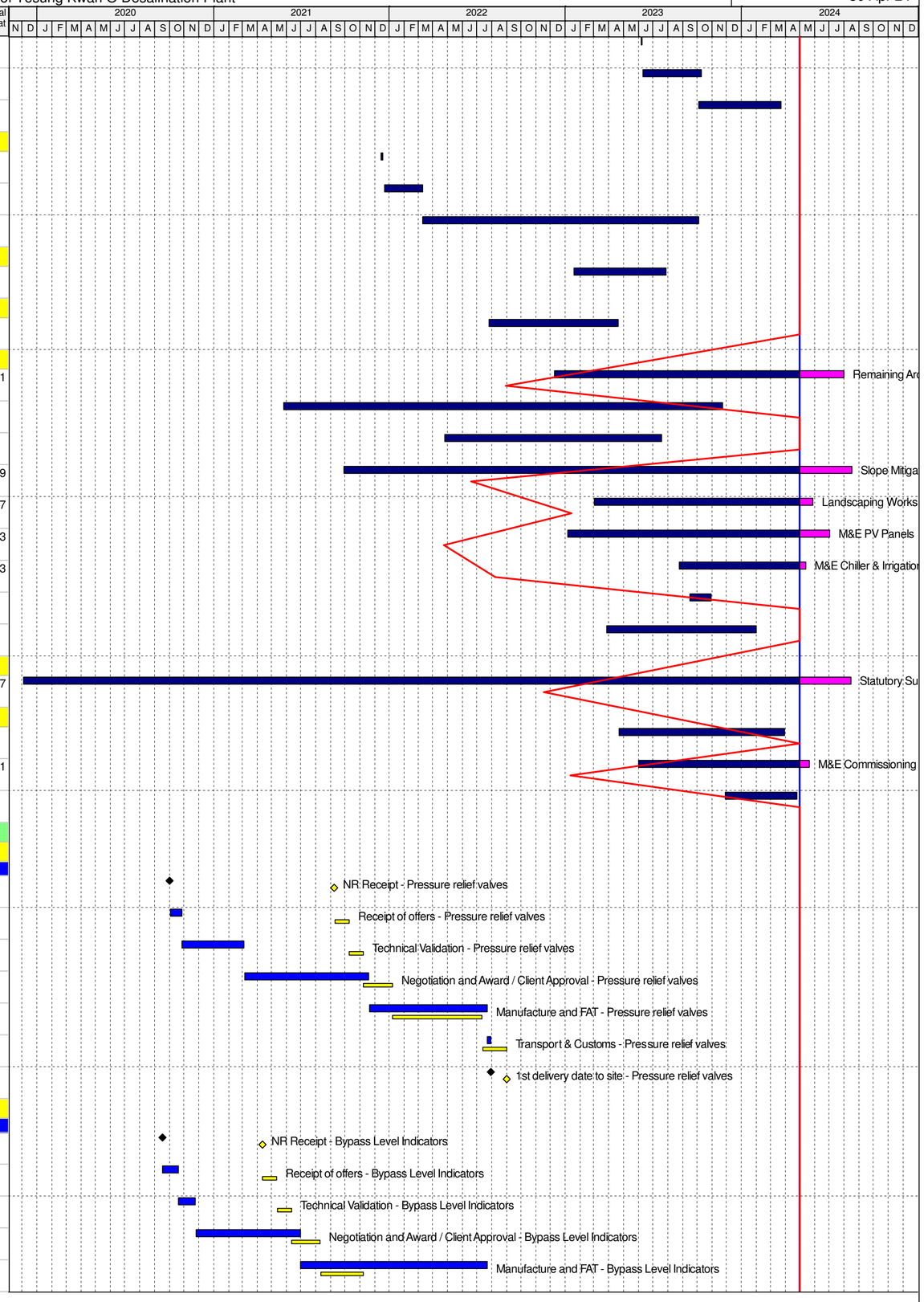
Summary Bar | Actual Work | Target Milestone
Actual Level of Effort | Early Bar | Milestone
Target Bar | Critical Bar

Activity ID	Activity Name	Baseline Duration	Baseline Start	Baseline Finish	Remaining Duration	Actual / Planned Start	Actual / Planned Finish	Actual % Complete	Variance Finish Date	Total Float
Administration Building										
ES0001330	Piling Works for Administration Building	110	19-Oct-20	05-Feb-21	0	03-Oct-20 A	16-Jan-21 A	100%	20	
ES0001340	Excavation for Administration Building	31	06-Feb-21	08-Mar-21	0	28-Dec-20 A	15-Mar-21 A	100%	-7	
ES0001350	Construction of Administration Building	339	09-Mar-21	10-Feb-22	0	28-Jan-21 A	29-Aug-22 A	100%	-200	
ES0001360	Architectural Finishes for Administration Building	204	26-Aug-21	17-Mar-22	0	19-Apr-22 A	22-May-23 A	100%	-431	
ES0002230	M&E Installation of Admin Building	184	16-Nov-21	18-May-22	0	15-Jul-22 A	18-Feb-23 A	100%	-276	
Building Services & Lift Installation										
ES0002270	Lift Installation	147	18-Mar-22	11-Aug-22	59	02-Feb-23 A	28-Jun-24	55%	-687	-149
ES0002280	Building Services Installation	676	27-Nov-20	03-Oct-22	77	01-Dec-20 A	16-Jul-24	70%	-652	-167
OSCG Building										
ES0001400	Excavation for On-site Chlorine Generation Building	25	11-Dec-20	04-Jan-21	0	01-Apr-21 A	09-Apr-22 A	100%	-460	
ES0001410	Construction of On-site Chlorine Generation Building	291	05-Jan-21	22-Oct-21	0	05-Jul-21 A	15-Jun-22 A	100%	-236	
ES0001420	Architectural Finishes for On-site Chlorine Generation Building	59	23-Oct-21	20-Dec-21	0	16-Jun-22 A	28-Sep-22 A	100%	-282	
ES0002200	BS Installation of On-site Chlorine Generation Building (DG inspection)	162	21-Dec-21	31-May-22	13	11-Oct-22 A	13-May-24	90%	-713	-103
Post Treatment Building										
ES0001210	Excavation and ELS for Post Treatment Building	126	19-Dec-20	23-Apr-21	0	03-Dec-20 A	01-Sep-21 A	100%	-131	
ES0001220	Construction of Post Treatment Building	209	14-Apr-21	08-Nov-21	0	17-Dec-20 A	19-May-22 A	100%	-192	
ES0001230	Architectural Finishes for Post Treatment Building	59	11-Oct-21	08-Dec-21	0	22-Jul-22 A	16-Sep-22 A	100%	-282	
ES0002180	M&E Installation of Post Treatment Building	199	09-Dec-21	25-Jun-22	0	14-Jul-22 A	04-Apr-24 A	100%	-649	
Sludge Thickener										
ES0001680	Excavation for Sludge Thickener	73	19-Apr-21	30-Jun-21	0	02-Oct-21 A	16-Oct-21 A	100%	-108	
ES0001690	Construction of Sludge Thickener	121	02-Jul-21	30-Oct-21	0	08-Oct-21 A	26-Jul-22 A	100%	-269	
ES0001700	Architectural Finishes for Sludge Thickener	44	01-Nov-21	14-Dec-21	0	29-Jul-22 A	31-Jan-24 A	100%	-778	
ES0002190	M&E Installation of Sludge Thickener	141	15-Dec-21	04-May-22	0	06-Feb-23 A	28-Mar-24 A	100%	-693	
Workshop										
ES0001560	Excavation for Workshop	7	21-May-21	27-May-21	0	06-Nov-23 A	07-Nov-23 A	100%	-894	
ES0001570	Construction of Workshop	179	28-May-21	22-Nov-21	0	08-Nov-23 A	15-Mar-24 A	100%	-844	
ES0001580	Architectural Finishes for Workshop	81	17-Nov-21	05-Feb-22	31	16-Mar-24 A	31-May-24	55.4%	-846	-121
Inspection Corridor										
ES0001590	Piling for Inspection Corridor (Elevated Walkway)	60	09-Jan-21	09-Mar-21	0	15-Dec-20 A	19-Jan-21 A	100%	49	
ES0001600	Excavation for Inspection Corridor	121	14-Apr-21	12-Aug-21	0	26-Mar-21 A	28-May-22 A	100%	-289	
ES0001610	Construction of Inspection Corridor	299	06-May-21	28-Feb-22	0	12-Apr-21 A	16-Nov-23 A	100%	-626	
ES0001620	Architectural Finishes for Inspection Corridor	99	08-Feb-22	17-May-22	31	03-Oct-23 A	31-May-24	92%	-745	-121
ES0001625	Building Services for Inspection Corridor	0			0	03-Jan-23 A	01-Feb-24 A	100%		
Main Electrical and Central Chiller Plant Building										
ES0001430	Excavation for Main Electrical and Central Chiller Plant Building	20	11-Jan-21	30-Jan-21	0	18-Jan-21 A	06-Feb-21 A	100%	-7	
ES0001440	Construction of Main Electrical and Central Chiller Plant Building	227	01-Feb-21	15-Sep-21	0	01-Feb-21 A	20-Oct-21 A	100%	-35	
ES0001450	Architectural Finishes for Main Electrical and Central Chiller Plant Building	99	20-Jul-21	26-Oct-21	0	06-Nov-21 A	25-Jun-22 A	100%	-242	
ES0002260	M&E Installation for Main Electrical and Central Chiller Plant Building	152	25-Jan-22	25-Jun-22	0	27-Jul-22 A	14-Apr-23 A	100%	-293	
Guard House										
ES0001490	Excavation for Guard House at Main Gate	7	15-Sep-21	21-Sep-21	0	16-May-23 A	17-May-23 A	100%	-603	
ES0001500	Construction of Guard House at Main Gate	149	23-Sep-21	18-Feb-22	0	18-May-23 A	26-Aug-23 A	100%	-554	
ES0001510	Architectural Finishes for Guard House at Main Gate	76	19-Feb-22	05-May-22	0	18-Aug-23 A	15-Sep-23 A	100%	-498	



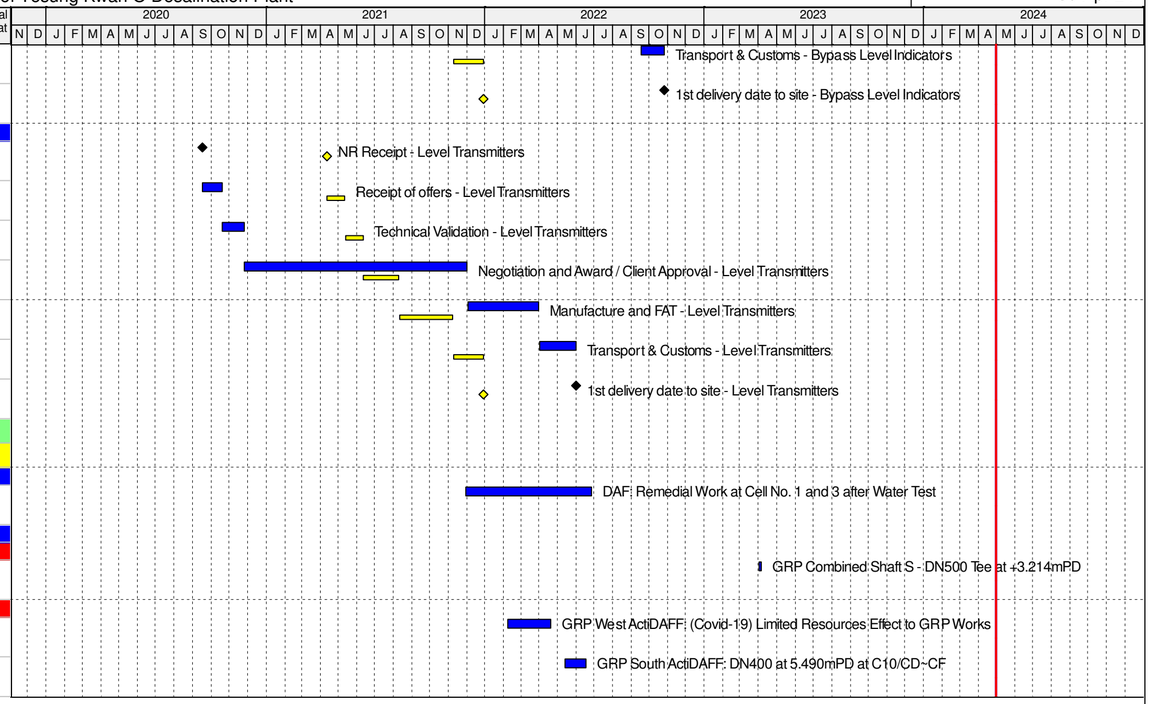
Summary Bar | Actual Work | Target Milestone
Actual Level of Effort | Early Bar | Milestone
Target Bar | Critical Bar

Activity ID	Activity Name	Baseline Duration	Baseline Start	Baseline Finish	Remaining Duration	Actual / Planned Start	Actual / Planned Finish	Actual % Complete	Variance Finish Date	Total Float
ES0001520	Excavation for Guard House near Pier	8	21-May-21	28-May-21	0	07-Jun-23 A	09-Jun-23 A	100%	-742	
ES0001530	Construction of Guard House near Pier	147	29-May-21	22-Oct-21	0	10-Jun-23 A	10-Oct-23 A	100%	-718	
ES0001540	Architectural Finishes for Guard House near Pier	74	23-Oct-21	04-Jan-22	0	05-Oct-23 A	23-Mar-24 A	100%	-809	
CO2 Tanks Areas										
ES0001370	Filling to Formation for CO2 Tanks Area	29	22-Jun-21	20-Jul-21	0	14-Dec-21 A	17-Dec-21 A	100%	-150	
ES0001380	Construction of CO2 Tanks Area	116	21-Jul-21	13-Nov-21	0	21-Dec-21 A	10-Mar-22 A	100%	-117	
ES0002170	M&E Installation of CO2 Tanks Area	84	27-Jan-22	20-Apr-22	0	11-Mar-22 A	03-Oct-23 A	100%	-531	
Diesel Emergency Generator										
ES0002250	M&E Diesel Emergency Generator	57	25-Feb-22	22-Apr-22	0	18-Jan-23 A	28-Jul-23 A	100%	-462	
Switch Room and Transformer Installation										
ES0002300	M&E Installation of HV/LV Switchroom and Transformer (Admin)	242	16-Nov-21	15-Jul-22	0	27-Jul-22 A	20-Apr-23 A	100%	-279	
Miscellaneous										
ES0001630	Remaining Architectural Finishes for All Buildings	322	11-Jan-22	28-Nov-22	91	09-Dec-22 A	30-Jul-24	94%	-610	-181
ES0001640	External Process and Non Process Pipe	655	18-Dec-20	03-Oct-22	0	27-May-21 A	23-Nov-23 A	100%	-416	
ES0001650	Drainage and Cable Duct	518	04-Jun-21	03-Nov-22	0	25-Apr-22 A	18-Jul-23 A	100%	-257	
ES0001660	Slope Mitigation Works	684	23-Nov-20	07-Oct-22	109	28-Sep-21 A	17-Aug-24	50%	-680	-199
ES0001670	Landscaping Works	469	28-Oct-21	08-Feb-23	27	01-Mar-23 A	27-May-24	94%	-474	-117
ES0002290	M&E PV Panels	215	23-Nov-21	25-Jun-22	63	05-Jan-23 A	02-Jul-24	40%	-738	-153
ES0002310	M&E Chiller & Irrigation System Installation	298	27-Oct-21	20-Aug-22	13	25-Aug-23 A	13-May-24	50%	-632	-103
ES0002350	M&E Installation of Surge Vessel	70	24-Feb-22	04-May-22	0	15-Sep-23 A	30-Oct-23 A	100%	-544	
ES0002390	M&E Installation of Thickened Sludge Holding Tank	42	09-Dec-21	19-Jan-22	0	27-Mar-23 A	31-Jan-24 A	100%	-742	
Statutory Submission & Inspection										
ES0002330	Statutory Submission & Inspection	1148	11-Jan-20	03-Mar-23	107	03-Dec-19 A	15-Aug-24	100%	-531	-197
Testing and Commissioning										
ES0002400	M&E Precomissioning	229	12-Jun-22	26-Jan-23	0	22-Apr-23 A	29-Mar-24 A	100%	-428	
ES0002410	M&E Commissioning	213	04-Jul-22	01-Feb-23	21	02-Jun-23 A	21-May-24	100%	-475	-111
ES0002420	M&E Performance Test	40	02-Feb-23	13-Mar-23	0	28-Nov-23 A	26-Apr-24 A	100%	-409	
Procurement of Major Plant & Equipment Schedule										
Pipes, Fittings and Valves										
Pressure Relief Valves										
P-PV-A51IK-0	NR Receipt - Pressure relief valves	0		08-Sep-21	0		02-Oct-20 A	100%	341	
P-PV-A51IK-0	Receipt of offers - Pressure relief valves	30	09-Sep-21	08-Oct-21	0	03-Oct-20 A	27-Oct-20 A	100%	346	
P-PV-A51IK-0	Technical Validation - Pressure relief valves	30	09-Oct-21	07-Nov-21	0	28-Oct-20 A	05-Mar-21 A	100%	248	
P-PV-A51IK-0	Negotiation and Award / Client Approval - Pressure relief valves	60	08-Nov-21	06-Jan-22	0	06-Mar-21 A	19-Nov-21 A	100%	49	
P-PV-A51IK-0	Manufacture and FAT - Pressure relief valves	187	07-Jan-22	12-Jul-22	0	20-Nov-21 A	22-Jul-22 A	100%	-9	
P-PV-A51IK-0	Transport & Customs - Pressure relief valves	50	13-Jul-22	31-Aug-22	0	23-Jul-22 A	31-Jul-22 A	100%	32	
P-PV-A51IK-0	1st delivery date to site - Pressure relief valves	0		31-Aug-22	0		31-Jul-22 A	100%	32	
Instrumentation, Control & Automation										
Bypass Level Indicators										
P-IC-A08FK2-	NR Receipt - Bypass Level Indicators	0		12-Apr-21	0		16-Sep-20 A	100%	208	
P-IC-A08FK2-	Receipt of offers - Bypass Level Indicators	30	13-Apr-21	12-May-21	0	17-Sep-20 A	20-Oct-20 A	100%	205	
P-IC-A08FK2-	Technical Validation - Bypass Level Indicators	30	13-May-21	11-Jun-21	0	21-Oct-20 A	25-Nov-20 A	100%	199	
P-IC-A08FK2-	Negotiation and Award / Client Approval - Bypass Level Indicators	60	12-Jun-21	10-Aug-21	0	26-Nov-20 A	30-Jun-21 A	100%	42	
P-IC-A08FK2-	Manufacture and FAT - Bypass Level Indicators	90	11-Aug-21	08-Nov-21	0	01-Jul-21 A	22-Jul-22 A	100%	-255	



Summary Bar | Actual Work | Target Milestone
Actual Level of Effort | Early Bar | Milestone
Target Bar | Critical Bar

Activity ID	Activity Name	Baseline Duration	Baseline Start	Baseline Finish	Remaining Duration	Actual / Planned Start	Actual / Planned Finish	Actual % Complete	Variance Finish Date	Total Float
P-IC-A08FK2-	Transport & Customs - Bypass Level Indicators	50	09-Nov-21	28-Dec-21	0	18-Sep-22 A	26-Oct-22 A	100%	-301	
P-IC-A08FK2-	1st delivery date to site - Bypass Level Indicators	0		28-Dec-21	0		26-Oct-22 A	100%	-301	
	Level Transmitters									
P-IC-A08FK1-	NR Receipt - Level Transmitters	0		12-Apr-21	0		16-Sep-20 A	100%	208	
P-IC-A08FK1-	Receipt of offers - Level Transmitters	30	13-Apr-21	12-May-21	0	17-Sep-20 A	20-Oct-20 A	100%	204	
P-IC-A08FK1-	Technical Validation - Level Transmitters	30	13-May-21	11-Jun-21	0	21-Oct-20 A	26-Nov-20 A	100%	198	
P-IC-A08FK1-	Negotiation and Award / Client Approval - Level Transmitters	60	12-Jun-21	10-Aug-21	0	26-Nov-20 A	02-Dec-21 A	100%	-113	
P-IC-A08FK1-	Manufacture and FAT - Level Transmitters	90	11-Aug-21	08-Nov-21	0	03-Dec-21 A	31-Mar-22 A	100%	-142	
P-IC-A08FK1-	Transport & Customs - Level Transmitters	50	09-Nov-21	28-Dec-21	0	02-Apr-22 A	01-Jun-22 A	100%	-154	
P-IC-A08FK1-	1st delivery date to site - Level Transmitters	0		28-Dec-21	0		01-Jun-22 A	100%	-154	
	Construction									
	Civil & Structure Construction									
	ActiDAFF Structure (DAF)									
CC0200906k	DAF: Remedial Work at Cell No. 1 and 3 after Water Test	0			0	30-Nov-21 A	27-Jun-22 A	100%		
	Yard Piping - Process & Non Process									
	Yard Piping - Combined Shaft Zone									
CC2401356k	GRP Combined Shaft S - DN500 Tee at +3.214mPD	0			0	01-Apr-23 A	06-Apr-23 A	100%		
	Yard Piping - ActiDAFF Zone									
CC2401311k	GRP West ActiDAFF: (Covid-19) Limited Resources Effect to GRP Works	0			0	08-Feb-22 A	19-Apr-22 A	100%		
CC2401349k	GRP South ActiDAFF: DN400 at 5.490mPD at C10/CD~CF	0			0	14-May-22 A	18-Jun-22 A	100%		



Summary Bar | Actual Work | Target Milestone
Actual Level of Effort | Early Bar | Milestone
Target Bar | Critical Bar

N

846 500 E

847 000 E

814 500 N

814 000 N

TEMPORARY WORKS AREA 1

GLA-TSK 692 TGLA

GLA-TSK 692 TGLA

GLA/TRD-088

ROW FOR GLA/TRD-088

GLA-TSK 745 TGLA

GLA-TSK 567

PORTION A

PORTION B

PROPOSED WORKS LIMIT FOR SLOPE MITIGATION WORKS IN COUNTRY PARK

INDICATIVE LOCATION OF PROPOSED SEAWATER INTAKE

INDICATIVE LOCATION OF PROPOSED OUTFALL

A B C D E F G H I J K L M N O

LEGEND:

- BOUNDARY OF SENT LANDFILL EXTENSION
- BOUNDARY OF WORKS AREA FOR TKO DESALINATION PLANT
- SITE PHASING
- ALLOCATED LAND BOUNDARIES

GLA-TSK 692 TGLA

B

NOTE: TEMPORARY WORKS AREA 1 WILL BE HANDED OVER AT +6 MPD WITH A TOLERANCE OF ±500mm.

POINT	EASTING	NORTHING
A	846581.93	814505.03
B	846610.11	813979.23
C	846614.73	813975.12
D	846629.09	813997.84
E	846644.75	813986.74
F	846646.80	813985.28
G	846677.24	814034.67
H	846686.56	814028.89
I	846766.21	814158.11
J	846459.65	814448.83
K	846578.45	814048.11
L	846613.89	814105.63
M	846614.60	814117.96
N	846676.84	814207.77
O	846756.68	814164.57

PRELIMINARY – NOT FOR CONSTRUCTION

Revision	Date	Description	Initial
B	10/03	UPDATE NOTES	YLC
A	07/18	UPDATE COORDINATES	YLC

	Designed	Checked	Drawn	Checked
Initial	YLC	CKH	SZ	WLS
Date	02/18	02/18	02/18	02/18

Approved

Agreement No.
CE 8/2015 (WS)

Contract No.
13/WSD/17

Contract Title
DESIGN, BUILD AND OPERATE FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

Drawing Title
SITE HANDOVER WORKS AREAS

Drawing No.
190495/K/TEND/10/0003

Revision
B

Scale
A1 1 : 1500
A3 1 : 3000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

BUILDINGS IN FIRST STAGE

CODE	NAME OF BUILDING	TOTAL G.F.A. (m^2)	SITE COVERAGE (m^2)
B	COMBINE SHAFT	759,876	759,876
C	ACTIDAFF	10027,547	5455,346
G	REVERSE OSMOSIS BUILDING AND ELECTRICAL BUILDING	4511,455	5367,935
H	CO2 TANKS AREA	-	-
J	PRODUCT WATER STORAGE TANK, PUMP STATION AND ELECTRICAL BUILDING	1974,610	2833,980
K	SLUDGE TREATMENT BUILDING, TANK AND PUMP ROOM	2531,044	1228,361
M	ADMINISTRATION BUILDING & ELECTRICAL BUILDING C	2459,713	1114,062
N	MAIN ELECTRICAL AND CENTRAL CHILLER PLANT BUILDING	-	459,893
R1	ELECTROCHLORINATION BUILDING & ELECTRICAL BUILDING A	657,992	525,776
S	132 kV SUBSTATION	-	943,560
T	IRRIGATION WATER TANK AND PUMP ROOM	-	156,148
R2	CHEMICAL BUILDING	813,056	813,056
V	VISITOR GALLERY	1330,410	1330,410
X1	GUARD HOUSE AND FS CONTROL ROOM	39,585	39,585
X2	GUARD HOUSE	22,035	22,035
Y	R + D OUTDOOR	-	-
Z	WASTE WATER TREATMENT PLANT	48,000	48,000
	TOTAL =	25175,323	21498,023

LEGEND / ABBREVIATION

H/L WINDOW	HIGH LEVEL WINDOW
M.L.	METAL LOUVRES
C.L.	CAT LADDER
A.U.T.	ACCESSIBLE UNISEX TOILET
⊕	PROPOSED FINISH FLOOR LEVEL IN METER ABOVE P.D.
⊕	STRUCTURAL FLOOR LEVEL IN METER ABOVE P.D.
MV/AL	MECHANICAL VENTILATION & ARTIFICIAL LIGHTING
F.E.	4.5kg CO^2 FIRE EXTINGUISHER
H.R.	HOSE REEL
Ⓐ	FIREMAN'S LIFT
Ⓓ	LIFT FOR THE BARRIER FREE ACCESS
P.D.	PIPE DUCT

PLOT RATIO & SITE COVERAGE CALCULATION:

SITE AREA OF THE FIRST STAGE = 56108 m²

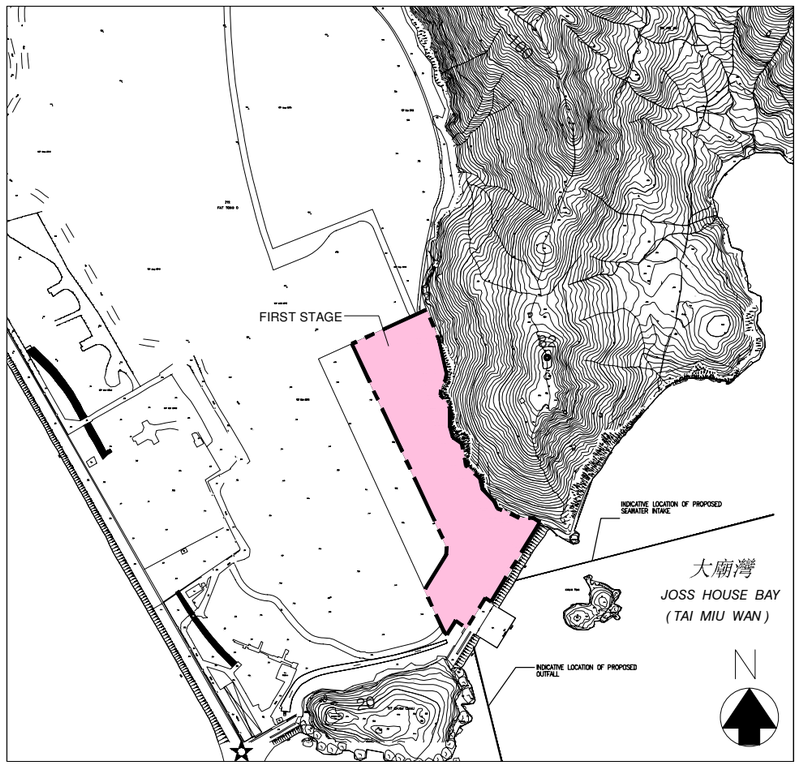
TOTAL G.F.A. = 25092.141 m²
TOTAL SITE COVERAGE = 21414.841 m²

PLOT RATIO = 25092.141 / 56108
= 0.447 < PERMITTED

SITE COVERAGE = 21414.841 / 56108 x 100
= 38.167%

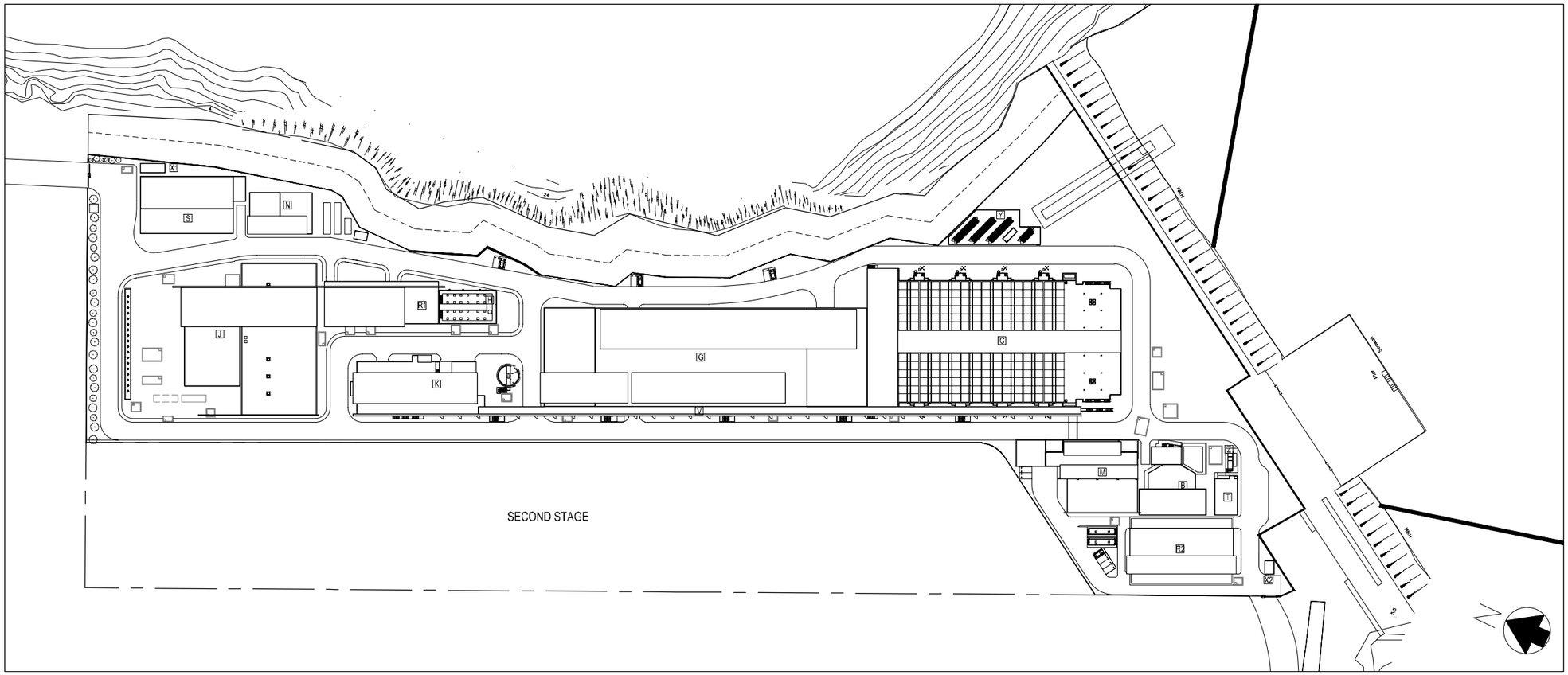
SITE LOCATION PLAN

1 : 5000



FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

1 : 1000



Rev	Description	By	Date
0	TENDER SUBMISSION	CAD	JAN 19

Employer
水務署
Water Supplies Department

Employer's Consultant
BLACK & VEATCH

Tenderer
acciona Agua JEC CSCEC
AJC JOINT VENTURE

Designer
wsp

Project title
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title
ARCHITECTURAL –
PLOT RATIO AND SITE COVERAGE
CALCULATION, LEGEND
ABBREVIATION

Drawing no.	Rev.
TKO/AJC/W/A000/AR/001	0

Drawn	Date	Checked	Approved
CKAL	JAN 19	S.C.	T.C.

Scale	Status
N.T.S.	–

Appendix C

Summary of Implementation Status of Environmental Mitigation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Air Quality								
S4.8.1	Impervious dust screen or sheeting will be provided to enclose scaffolding from the ground floor level of building for construction of superstructure of the new buildings.	Land site/ During Construction	Contractor(s)		✓		Implemented	Air Pollution Control (Construction Dust)
S4.8.1	Impervious sheet will be provided for skip hoist for material transport.	Land site/ During Construction, particularly dry season	Contractor(s)		✓		NA	-
S4.8.1	The area where dusty work takes place should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after dusty activities as far as practicable.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	All dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation.	Land site/ During Construction	Contractor(s)		✓		Implemented, reminder issued	-
S4.8.1	Dropping heights for excavated materials should be controlled to a practical height to minimize the fugitive dust arising from unloading.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	During transportation by truck, materials should not be loaded to a level higher than the side and tail boards and should be dampened or covered before transport.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	Wheel washing device should be provided at the exits of the work sites. Immediately before leaving a construction site, every vehicle shall be washed to remove any dusty material from its body and wheels as far as practicable.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	Road sections between vehicle-wash areas and vehicular entrance will be paved.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	Hoarding of not less than 2.4m high from ground level will be provided along the length of the Project Site boundary.	Land site/ During construction	Contractor(s)	✓	✓		N/A	-
S4.8.1	Haul roads will be kept clear of dusty materials and will be sprayed with water so as to maintain the entire road surface wet at all times.	Land site/ During construction	Contractor(s)		✓		Implemented, reminder issued	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S4.8.1	Temporary stockpiles of dusty materials will be either covered entirely by impervious sheets or sprayed with water to maintain the entire surface wet all the time.	Land site/ During construction	Contractor(s)		✓		Implemented, reminder issued	-
S4.8.1	Stockpiles of more than 20 bags of cement, dry pulverised fuel ash and dusty construction materials will be covered entirely by impervious sheeting sheltered on top and 3-sides.	Land site/ During construction	Contractor(s)		✓		N/A	-
S4.8.1	All exposed areas will be kept wet always to minimize dust emission.	Land site/ During construction	Contractor(s)		✓		Implemented, reminder issued	-
S4.8.1	Ultra-low-sulphur diesel (ULSD) will be used for all construction plant on-site, as defined as diesel fuel containing not more than 0.005% sulphur by weight) as stipulated in Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005 on Environmental Management on Construction Sites.	Land site/ During construction/ During Operation	Contractor(s)		✓	✓	Implemented	Environment, Transport and Works Bureau Technical Circular (ETWB- TC(W)) No 19/2005 on Environmental Management on Construction Sites
S4.8.1	The engine of the construction equipment during idling will be switched off.	Land site/ During construction	Contractor(s)		✓		Implemented	-
S4.8.1	Concrete batching plant will be required on site. control measures recommended in the Guidance Note on a Best Practicable Means for Cement Works (Concrete Batching Plant) (BPM 3/2 (93)) will be implemented. The control measures recommended in the Guidance Note on a Best Practicable Means for Cement Works (Concrete Batching Plant) (BPM 3/2 (93)) will be implemented.	Land site/ During construction	Contractor(s)		✓		N/A	-
S4.8.1	Regular maintenance of construction equipment deployed on-site will be conducted to prevent black smoke emission.	Land site/ During construction	Contractor(s)		✓		Implemented	-
S4.10	To ensure proper implementation of the recommended dust mitigation measures and good construction site practices during the construction phase, environmental site audits on weekly basis is recommended throughout the construction period.	Land site/ During construction	Contractor(s)/ ET & IEC		✓		Implemented	

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Noise								
S5.7	Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction phase.	All area/ During construction	Contractor(s)		✓		Implemented	A Practical Guide for the Reduction of Noise from Construction Works
S5.7	Silencers or mufflers on construction equipment will be utilised and will be properly maintained during the construction phase.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	Mobile plant, if any, will be sited as far away from NSRs as possible.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum.	Noise control/ During construction	Contractor(s)		✓		Implemented	
S5.7	Plants known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site construction activities.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	Use of Quite Powered Mechanical Equipment (QPME).	Noise control/ During construction	Contractor(s)		✓		Implemented	
S5.7	Movable noise barriers of 3m 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 o or gappeningss.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	The noise insulating sheet should be deployed such that there would be no opening or gaps on the joints.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	Construction activities (e.g. excavation/shoring, reinstatement (asphalt), and pipe jacking) will be planned and carried out in sequence, such that items of PME proposed for these activities will not be operated simultaneously.	Noise control/ During construction	Contractor(s)	✓	✓		Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S5.7	PMEs will not be used at the works areas near educational institutions with residual impact (ie the "influence area" within a radius of 40m) during school hours in order to reduce impact to the educational institutions.	Noise control / During construction	Contractor(s)		✓		N/A	
S5.7	Noise enclosures or acoustic sheds would be used to cover stationary PME such as generators. Portable/Movable noise enclosure made of material with superficial surface density of at least 7 kg m-2 may be used for screening the noise from operation of the saw/groover, concrete.	Noise control/ Pre-construction/ During construction	Contractor(s)	✓	✓		N/A	-
S5.9	Sawcutting pavement, breaking up of pavement, excavation /shoring, pipe laying, backfilling, reinstatement (concrete) and pipe jacking shall be scheduled outside the examination period.	Noise control/ Pre-construction/ During construction	Contractor(s)	✓	✓		N/A	--
S5.9	In view the duration of noise exceedance at Creative Secondary School, PLK Laws Foundation College, TKO Kei Tak Primary School and School of Continuing and Professional Studies-CUHK is limited to 8 weeks, the construction work in the influence areas near the four schools shall be scheduled during long school holidays (e.g., summer holiday, Easter holiday or Christmas holiday, etc.) as far as practicable. Scheduling the construction work for the four schools.	Noise control/ Pre-construction/ During construction	Contractor(s)	✓	✓		N/A	-
S5.10	A noise monitoring programme shall be implemented for the construction phase.	Designated monitoring stations as defined in EM&A Manual/During construction phase	ET		✓		N/A	-
S5.10	The effectiveness of on-site control measures could also be evaluated through the regular site audits.	All facilities/ During construction	Contractor(s)/ ET & IEC		✓		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Water Quality								
S6.9	Dredged marine sediment will be disposed of in a gazetted marine disposal area in accordance with marine dumping permit conditions of the Dumping at Sea Ordinance (DASO).	Marine Dredging/ During construction	Contractor(s)		✓		Implemented	Dumping at Sea Ordinance (DASO)
S6.9	Disposal vessels will be fitted with tight bottom seals in order to prevent leakage of material during transport.	Marine Dredging/ During construction	Contractor(s)		✓		Implemented	-
S6.9	Barges will be filled to a level, which ensures that material does not spill over during transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action.	Marine Dredging/ During construction	Contractor(s)		✓		Implemented	-
S6.9	After dredging, any excess materials will be cleaned from decks and exposed fittings before the vessel is moved from the dredging area.	Marine Dredging/ During construction	Contractor(s)		✓		Implemented	-
S6.9	All vessels should be well maintained and inspected before use to limit any potential discharges to the marine environment.	Marine Dredging/ During construction	Contractor(s)		✓		Implemented	-
S6.9	All vessels must have a clean ballast system.	Marine Dredging/ During construction	Contractor(s)		✓		Implemented	-
S6.9	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.	Marine Dredging/ During construction	Contractor(s)		✓		Implemented	-
S6.9	No soil waste is allowed to be disposed overboard.	Marine Dredging/ During construction	Contractor(s)		✓		N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S6.9	Silt removal facilities such as silt traps or sedimentation facilities will 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 will be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures will 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 will be removed regularly.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented reminder issued	ProPECC PN 1/94 TM Standard under the WPCO
S6.9	Earthworks to form the final surfaces will be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9	Appropriate surface drainage will be designed and provided where necessary.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9	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 summarized in Appendix A2 of ProPECC PN 1/94.	Land site & drainage/ During construction	Contractor(s)	✓	✓		Implemented	ProPECC PN 1/94
S6.9	Oil interceptors will 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.	Land site & drainage/ During construction	Contractor(s)		✓		N/A	-
S6.9	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge, if any, will be adequately designed for the controlled release of storm flows.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9	The temporary diverted drainage, if any, will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Land site & drainage/ During construction	Contractor(s)		✓		N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S6.9	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.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9 and S6.12	The sterilization water should be dechlorinated with total residual chlorine (TRC) level below 1 mg/L before discharge to public sewer. In situ testing of TRC should also be conducted for the discharge of chlorinated water for pipeline disinfection to ensure sufficient dichlorination before discharge to public sewer.	Sterilization of water mains prior to commissioning	Contractor(s)		✓	✓	Implemented	Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems
S6.9	The cleaning and flushing water should also be treated and desilted to the relevant discharge requirement stipulated in TM-DSS before discharging.	Sterilization of water mains prior to commissioning	Contractor(s)		✓	✓	Implemented, observation issued	Technical Memorandum for Effluents Discharged into Drainage and
S6.9	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 water streams.	Land site & drainage/ During construction/ During operation	Contractor(s)		✓	✓	Implemented, reminder issued	-
S6.12	Regular site inspections will be carried out in order to confirm that regulatory requirements are being met and that contractors are implementing the standard site practice and mitigation measures as proposed to reduce potential impacts to water quality.	During construction	Contractor(s)/ ET & IEC		✓		Implemented, reminder issued	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Waste Management								
S8.5	Nomination of approved personnel to be responsible for standard site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site.	Contract mobilization/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Training of site personnel in proper waste management and chemical handling procedures. Training will be provided to workers on the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling at the beginning of the construction works.	Contract mobilization/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Provision of sufficient waste disposal points and regular collection for disposal.	All area/ During construction/ During operation	Contractor(s)		✓	✓	Implemented, reminder issued	DEVB TC(W) No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	Appropriate measures to reduce windblown litter and dust transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	All area/ During construction	Contractor(s)		✓		Implemented	
S8.5	A waste management plan (WMP) as stated in the *"ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites"* for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established and implemented during the construction phase as part of the Environmental Management Plan (EMP). The Contractor will be required to prepare the EMP and submits it to the Architect/ Engineer under the Contract for approval prior to implementation.	All area/ During construction	Contractor(s)		✓		Implemented	
S8.5	Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre at Tsing Yi.	All area/ During construction	Contractor(s)		✓		Implemented	Chapters 2 & 3 Code of Practice on the Packaging, Labelling & Storage of Chemical Wastes published under the Waste Disposal Ordinance (Cap 354), Section 35

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	Land site/ During construction	Contractor(s)		✓		Implemented, reminder issued	Waste Disposal Ordinance (Cap 354)
S8.5	A recording system for the amount of wastes generated/ recycled and disposal sites. The trip- ticket system will be included as one of the contractual requirements and implemented by the contractor(s).	Land site/ During construction	Contractor(s)		✓		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	Prior to disposal of construction waste, wood, steel and other metals will be separated to the extent practical, for re-use and/or recycling to reduce the quantity of waste to be disposed of to landfill.	All areas/ During construction	Contractor(s)		✓		Implemented	
S8.5	Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal.	Land site/ During construction/ During operation	Contractor(s)		✓		Implemented, reminder issued	WBTC 32/92, The Use of Tropical Hard Wood on Construction Site
S8.5	Use of reusable non-timber formwork to reduce the amount of C&D materials.	All areas/ During construction	Contractor(s)		✓		Implemented	
S8.5	Encourage collection of aluminium cans and waste paper by individual collectors during construction with separate labelled bins provided to segregate these wastes from other general refuse by the workforce.	Land site/ During construction	Contractor(s)		✓		Implemented	ETWB TCW No. 33/2002, Management of Construction and Demolition Material Including Rock
S8.5	Any unused chemicals and those with remaining functional capacity will be recycled as far as possible.	Land site/ During construction	Contractor(s)		✓		N/A	-
S8.5	Proper storage and site practices to reduce the potential for damage or contamination of construction materials.	All areas/ During construction	Contractor(s)		✓		Implemented, reminder issued	-
S8.5	Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste.	All areas/ During construction	Contractor(s)		✓		Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	A Sediment Quality Report (SQR) for sampling and chemical testing of the sediment will be prepared and submitted to the EPD for approval. The approved detailed sampling and chemical testing will be carried out prior to the commencement of the dredging activities to confirm the sediment disposal method.	Marine works/ During construction	Contractor(s)		✓		N/A	ETWB TC(W) No. 34/2002 and Dumping at Sea Ordinance (DASO)
S8.5	The management of dredged/ excavated sediment management requirement from *ETWB TC(W) No. 34/2002* will be incorporated in the Specification of the Contract Documents.	Marine works/ During construction	WSD/ Contractor(s)		✓		Implemented	
S8.5	The contractor will open a billing account with EPD in accordance with the Waste Disposal (Charges for Disposal of Construction Waste) Regulation for the payment of disposal charges.	Contract mobilisation/ During construction	Contractor(s)		✓		Implemented	Cap 354N Waste Disposal (Charges for Disposal of Construction Waste) Regulation
S8.5	A trip-ticket system will be established in accordance with DEVB TC(W) No. 6/2010 to monitor the reuse of surplus excavated materials off-site and disposal of construction waste and general refuse at transfer facilities/ landfills, and to control fly-tipping.	Contract mobilisation/ During construction	Contractor(s)		✓		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	The project proponent will also conduct regular inspection of the waste management measures implemented on site as described in the Waste Management Plan.	All area/ During construction	Contractor(s)/ ET/ IEC		✓		Implemented	ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites
S8.5	A recording system (similar to summary table as shown in Annex 5 and Annex 6 of Appendix G of ETWB TC(W) No. 19/2005) for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established during the construction phase.	All area/ During construction	Contractor(s)		✓		Implemented	Annex 5 and Annex 6 of Appendix G of ETWB TC(W) No. 19/2005
S8.5	Inert C&D materials (public fill) will be reused within the Project as far as practicable.	All area/ During construction	Contractor(s)		✓		Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	Public fill and construction waste shall be segregated and stored in different containers or skips to facilitate reuse or recycling of materials and their proper disposal.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	To reduce the potential dust and water quality impacts of site formation works, C&D materials will be wetted as quickly as possible to the extent practice after filling.	All area/ During construction	Contractor(s)		✓		Implemented	Air Pollution Control (Construction Dust) Regulation (Cap 311R); WPCO (Cap 358)
S8.5	Open stockpiles of excavated/ fill materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	Land site/ During Construction, particularly dry season	Contractor(s)		✓		Implemented, rectified after observation	Air Pollution Control (Construction Dust) Regulation (Cap 311R)
S8.5	Chemical waste container shall be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented, reminder issued	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Chemical waste container shall have a capacity of less than 450 L unless the specifications have been approved by the EPD.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	A label in English and Chinese shall be displayed on the chemical container in accordance with instructions prescribed in Schedule 2 of the Regulations.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented, rectified after observed issued	
S8.5	Storage areas for chemical waste shall be enclosed on at least 3 sides.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	Storage areas for chemical waste shall have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	Storage areas for chemical waste shall have adequate ventilation.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	Storage areas for chemical waste shall be covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary).	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	Storage areas for chemical waste shall be arranged so that incompatible materials are appropriately separated.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	General refuse will be stored in enclosed bins or compaction units separately from construction and chemical wastes.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented, reminder and observation issued	
S8.5	Adequate number of waste containers will be provided to avoid over-spillage of waste.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	DEVB TC(W) No. 8/2010 Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	A reputable waste collector will be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimise odour, pest and litter impacts.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented, reminder issued	-
S8.5	Recycling bins will be provided at strategic locations within the Site to facilitate recovery of recyclable materials (including aluminium can, wastepaper, glass bottles and plastic bottles) from the Site. Materials recovered will be sold for recycling.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	-
S8.5	To avoid any odour and litter impact, accurate number of portable toilets will be provided for workers on-site.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	The burning of refuse on construction sites is prohibited by law.	All area/ During construction	Contractor(s)		✓		Implemented	Air Pollution Control Ordinance (Cap 311)
S8.7	To facilitate monitoring and control over the contractors' performance on waste management, a waste inspection and audit programme will be implemented throughout the construction phase.	All facilities/ During construction	ET/ IEC		✓		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Ecology								
S9.7	For slope mitigation works within the Clear Water Bay Country Park, to avoid tree felling and damages to trees, the exact locations of the flexible barrier foundation plates, soil nails and rock dowels can be adjusted during detailed design, and a setback distance from existing trees is recommended to be maintained as far as practical. A detailed specification describing the exact locations of the flexible barrier foundation plates, soil nails and rock dowels will be prepared to illustrate how the setback distance from existing trees would be implemented for tree avoidance.	Slope mitigation works area/ During detailed design/ During construction	Contractor(s)	✓	✓		N/A	-
S9.7	Pruning of tree canopies along the alignment of the flexible barriers shall be limited to a minimum.	Slope mitigation works area/ During construction	Contractor(s)		✓		N/A	
S9.7	The alignment of flexible barriers shall be optimized to preserve all species of conservation interest and minimize the impact to the existing vegetation as far as practicable. All individuals of *Marsdenia lachnostoma* within the slope mitigation areas shall be retained *in- situ*, by positioning the alignment of flexible barrier at a minimum 1.5m in a radius away from these individuals.	Slope mitigation works area/ During detailed design/ During construction	Contractor(s)	✓	✓		N/A	-
S9.7 and 9.10	At the detailed design stage prior to the commencement of the slope mitigation works, a vegetation survey shall be carried out at the slope mitigation areas within the Clear Water Bay Country Park to assess the condition and identify the location of each individual of *Marsdenia lachnostoma* and other flora species of conservation interest that may be directly affected by the construction works.	Slope mitigation works area/ During detailed design/ During construction	Contractor(s)	✓			Implemented	-
S9.7	Temporary fencing will be installed to fence off the concerned species either in groups of individually within the works area and in the close proximity to prevent from being damaged and disturbed during construction. A sign identifying the site shall be attached to the fence and flagging tape shall be attached to the individuals to visualize their locations.	Slope mitigation works area/ During construction	Contractor(s)		✓		N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S9.7 and S9.10	A specification for fencing and demarcating individuals of *Marsdenai lachnostoma* (or other flora species of conservation interest, if found) adjacent to the proposed alignment of the flexible barriers will be prepared to protect the species.	Slope mitigation works area/ During construction	Contractor(s)		✓		N/A	-
S9.7	Induction training shall also be provided to all site personnel in order to brief them on this flora of conservation interest including the locations and their importance.	Slope mitigation works area/ During construction	Contractor(s)		✓		N/A	-
S9.7	The resident site supervisory staff will closely monitor the conditions of concerned individuals during construction of flexible barriers in the close proximity.	Slope mitigation works area/ During construction	Contractor(s)		✓		N/A	-
S9.7	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.	All area/ During construction	Contractor(s)		✓		Implemented	-
S9.7	Regularly check the work site boundaries to ensure that they are not breached, and that damage does not occur to surrounding areas.	All area/ During construction	Contractor(s)/ Environmental Team (ET)		✓		Implemented.	-
S9.7	Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the surrounding habitats through proper management of waste disposal.	All area/ During construction	Contractor(s)		✓		Implemented	-
S9.7	Reinstate temporarily affected areas, particularly the habitats of plantation and shrubland-grassland immediately after completion of construction works, through on-site tree/shrub planting. The tree/shrub species will be chosen with reference to those in the surrounding area.	All area/ During construction	Contractor(s)		✓		N/A	-
S9.7	Affected habitats within the Clear Water Bay Country Bay shall be reinstated by hydro-seeding and planting of climbers and native shrub seedlings where practical upon completion of the slope mitigation works.	All area/ During construction	Contractor(s)		✓		N/A	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Landscape & Visual								
S11.10 & 11.11	The construction area and area allowed for temporary structures, such as the contractor's office, will be minimized to a practical minimum. (MM1)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-
S11.10 & 11.11	At the detailed design stage, the design team will seek to minimize the landscape footprint of the Project and above ground facilities, while satisfying all other requirements. (MM2)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-
S11.10 & 11.11	Design principles will be adopted to take into account the surrounding area, particularly Clear Water Bay Country Park behind and the nearby waterfront, with due consideration given to: - green roofs where practical (i.e. without equipment on the roof); - roadside planting; - aesthetic treatment of all structures; - vertical greening; - screen planting along application site; and - landscape enhancement with amenity planting where practical including planting along the edge (site boundary) fence with native shrubs where feasible, to reduce their visual impact and blend them into the surrounding landscape. (MM3)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-
S11.10 & 11.11	All trees within the Project Site or the potential slope mitigation works area will be carefully protected during construction according to DEVB TCW No. 10/2013 – Tree Preservation (MM4)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented, reminder issued	ETWB TCW No. 3/2006 - Tree Preservation.
S11.10 & 11.11	No tree within the Country Park will be felled. Trees within the Site unavoidably affected by the works will be transplanted where necessary and practical. For trees that need to be felled, compensatory planting will be provided to the satisfaction of relevant Government departments. A compensatory tree planting proposal including locations of tree compensation will be submitted to seek relevant government department's approval, in accordance with DEVB TC(W) No. 10/2013. (MM5)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	DEVB TC(W) No. 10/2013

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S11.10 & 11.11	Any slope mitigation works necessary to address natural terrain hazards, will be minimized to minimize any potential environmental impact to the Country Park e.g. soil nailing and rock stabilization will aim to avoid existing trees e.g. should any restoration of vegetation be necessary, the best planting matrix with native species will be established, with the aim of resembling the existing vegetation. (MM6)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	N/A	
S11.10 & 11.11	Dredging works for the installation of intake structures and outfall diffusers should be minimized to avoid or reduce any potential environmental impacts to as low as reasonably practicable (ALARP). The intake and outfall structures (e.g. intake openings and diffuser heads) will be prefabricated and transferred to site for installation. (MM7)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	
S11.10 & 11.11	All night-time lighting will be reduced to a practical minimum both in terms of number of level and will be hooded and directional. (MM8) units and lux level and will be hooded and directional. (MM8)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Landfill Gas Hazard								
S12.7	During all works, safety procedures should be implemented to minimise the risks of fires and explosions, asphyxiation of workers and toxicity effects resulting from contact with contaminated soil and groundwater.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	During trenching and excavation as well as creation of confined spaces at near to or below ground level, precautions should be clearly laid down and rigidly Gas detection equipment and appropriate breathing apparatus should be available and used when entering confined spaces or trenches deeper than 1 metre.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	The Contractor should make the workers are aware of potential hazards of working in confined spaces (any chamber, manhole or culvert which is large enough to permit access to personnel). Such work in confined spaces is controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance. Following the Safety Guide to Working in Confined Spaces ensures compliance with the above regulations.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Safety officers, specifically trained with regard to landfill gas and leachate related hazards and the appropriate actions to take in adverse circumstances, should be present on the site throughout the works, in particular, when works are undertaken below grade.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	All personnel who work on site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Monitoring for landfill gas should be undertaken in all excavations, manholes, chambers (particularly during pipe jacking) and any confined spaces through the use of an intrinsically safe portable instrument, appropriately calibrated and capable of measuring the concentrations of methane. carbon dioxide and oxygen.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S12.7	Monitoring frequency and areas to be monitored should be specified prior to commencement of groundwork, either by the Safety Officer, or by an appropriately qualified person. All measurements should be recorded and documented.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Proceed drilling with adequate care and precautions against the potential hazards which may be encountered.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Prior to the commencement of the site works, the drilling contractor should devise a 'method-of- working' statement covering all normal and emergency procedures (including but not limited to number of operatives, experience and special skills of operatives, normal method of operations, emergency procedures, supervisors responsibilities, storage and use of safety equipment, safety procedures and signs, barriers and guarding). The site supervisor and all operatives must be familiar with this statement.	All area/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Where below ground service entries are necessary to the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II), the entry point should be sealed to prevent gas entry. In addition, any below grade cable trenches entering the Incoming Switchgear Room and 132 kV Substation can become the pathway for landfill gas and hence grilled metal covers should be used.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	N/A	-
S12.7	It is recommended regular landfill gas monitoring should be carried out at the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II). The monitoring frequency will be monthly for the first year of operation. If the monitoring results show no sign of landfill gas migration, reduce the monitoring frequency to once every six months.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	N/A	-
S12.7	The manholes and utility pits within the Project Site and along the fresh water mains. Each manhole/ utility pit should be monitored with two measurements (at mid depth and base). Each measurement should be monitored for a minimum of 10 minutes. A steady reading and peak reading should be recorded at each manhole/ utility pit	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	and for each measurement. The need for venting the manhole/ utility pit and further monitoring will be reviewed after the initial monitoring.							
S12.7	All construction, operation and maintenance personnel working on-site as well as visitors should be made aware of the hazards of landfill gas and its possible presence on-site. This should be achieved through a combination of posting warning signs in prominent places and also by access to detailed information on landfill gas hazards and the designs and procedural means by which these hazards are being minimized on-site.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-

Note: D – Design stage C – Construction O – Operation

Appendix D

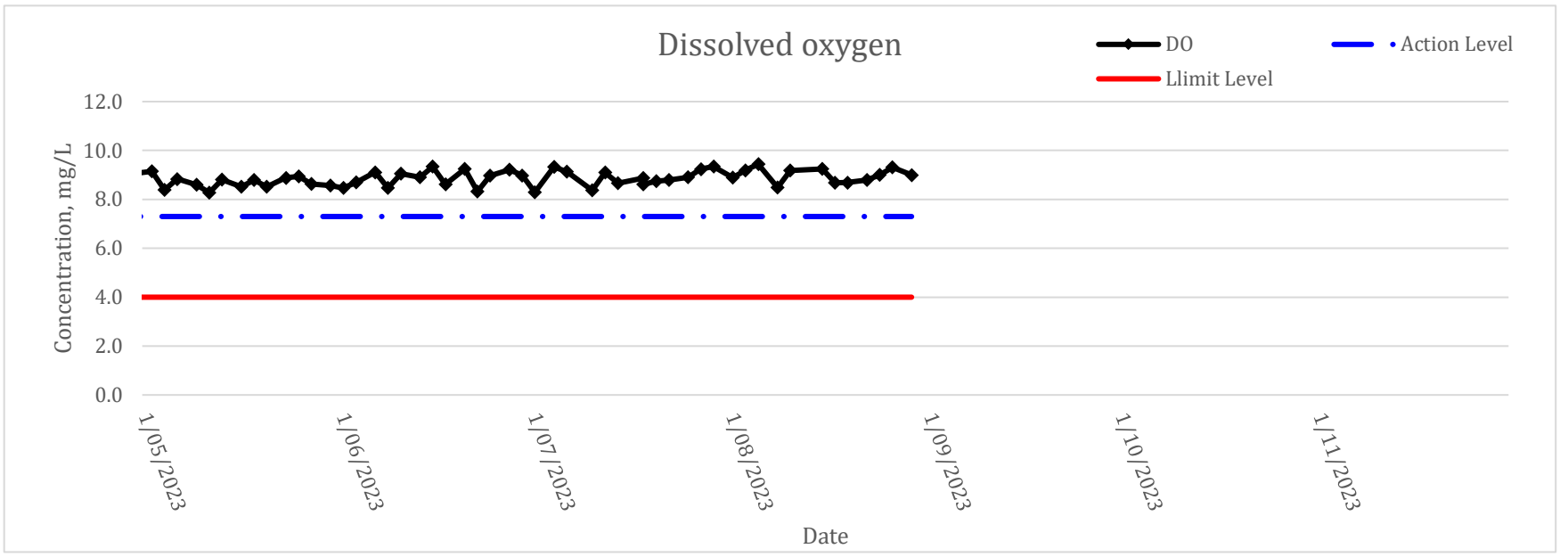
Water Quality Monitoring Graphical Presentation

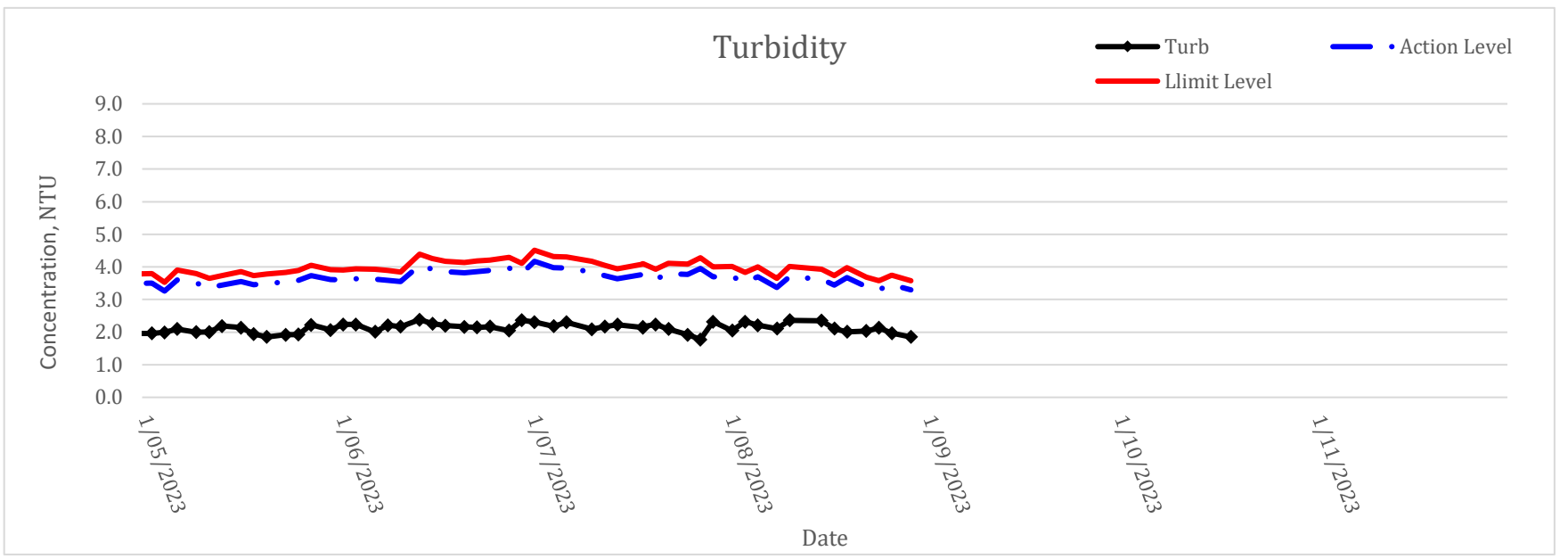
- Appendix D.1 Weather Condition
- Appendix D.2 Key Activities Carried Out During the Reporting Quarter
- Appendix D.3 Other Factor Might Affect the Monitoring Results

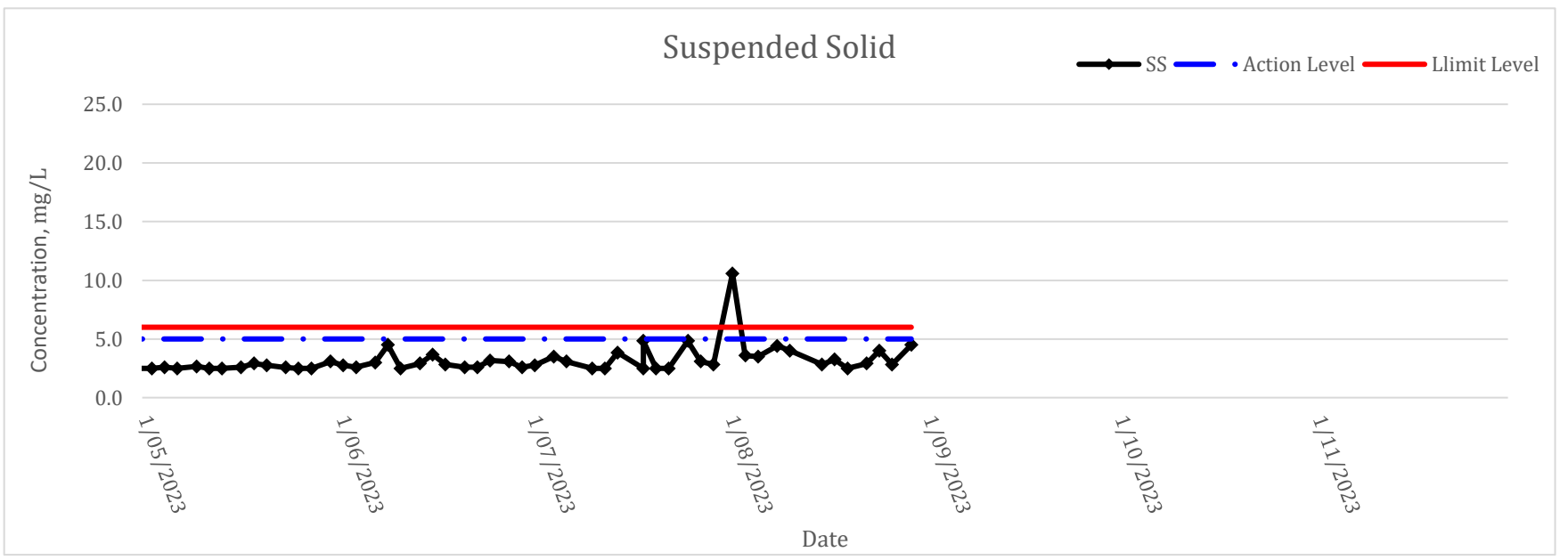
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Flood Tide

Monitoring Location : WSR 1



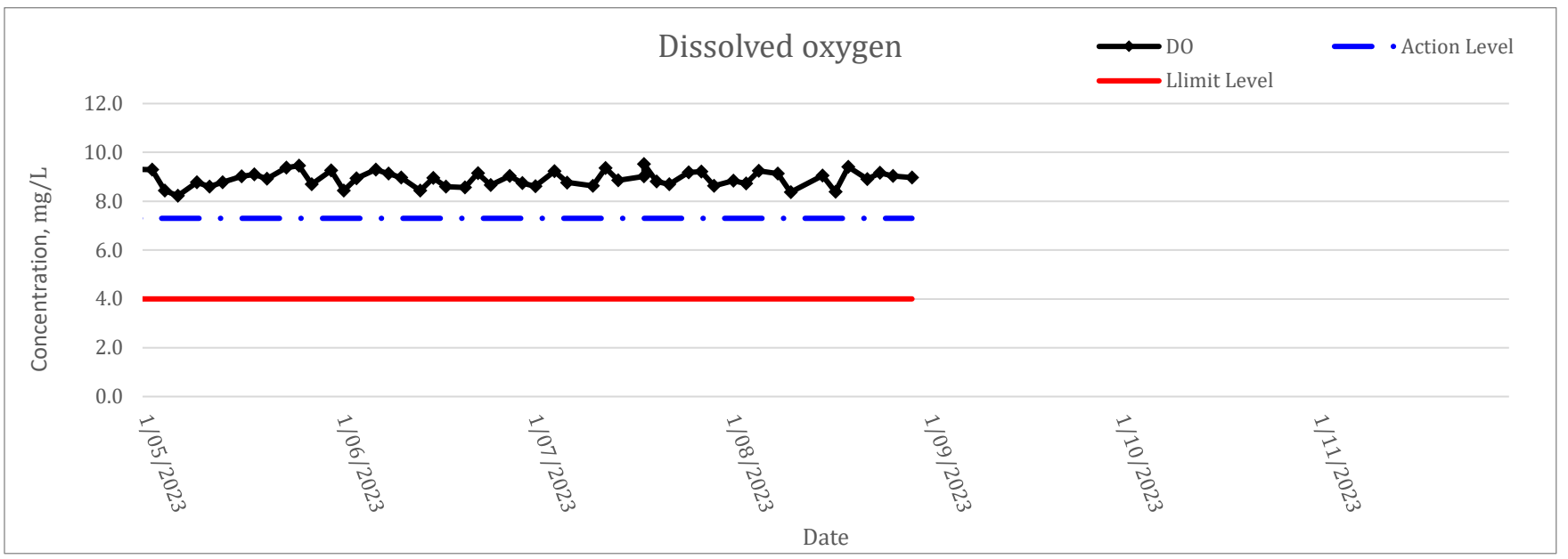


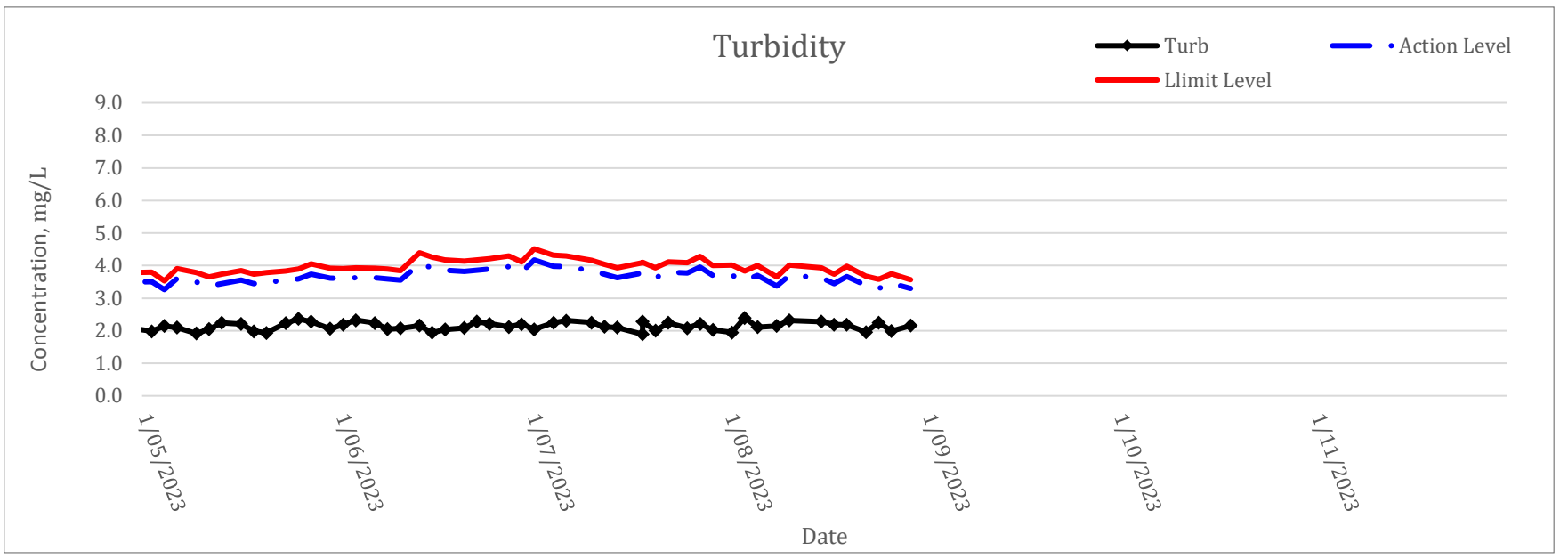


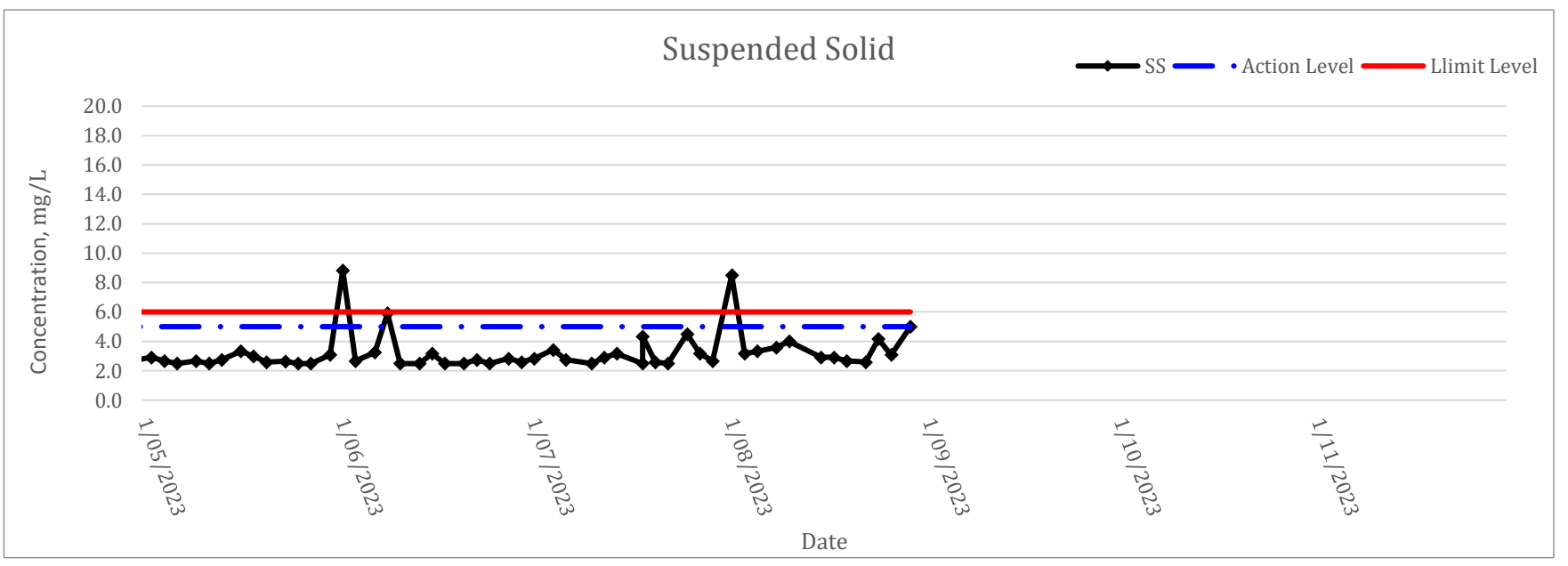
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Flood Tide

Monitoring Location : WSR 2



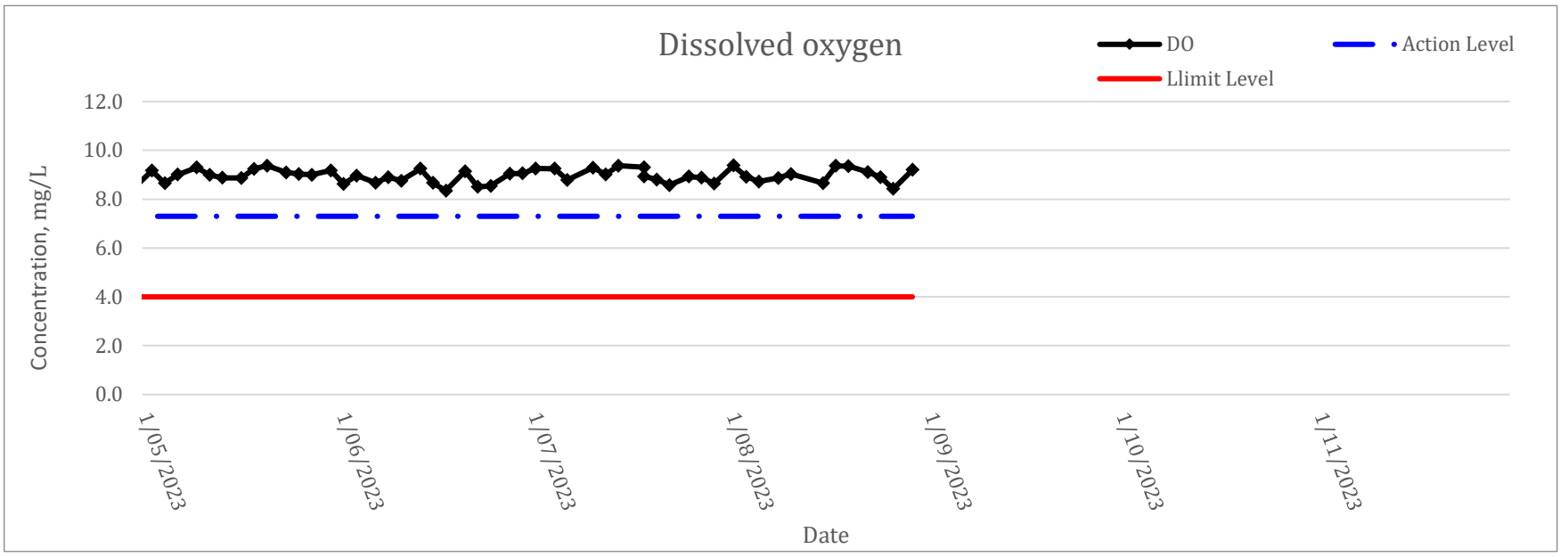


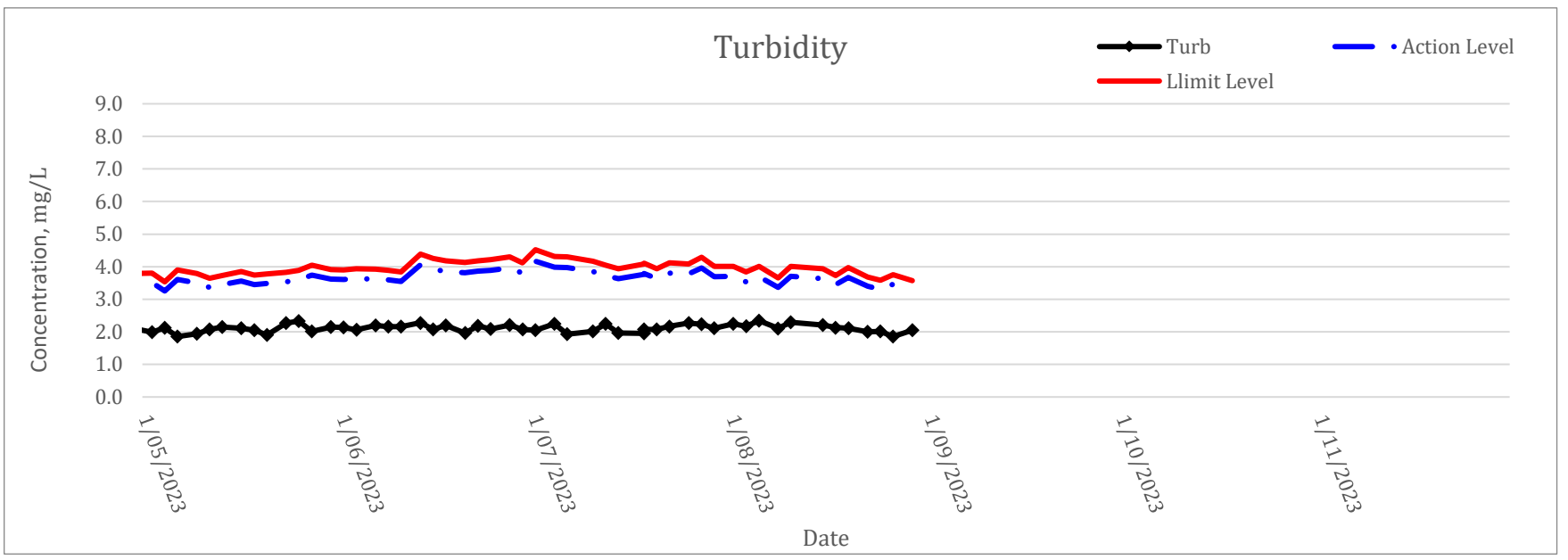


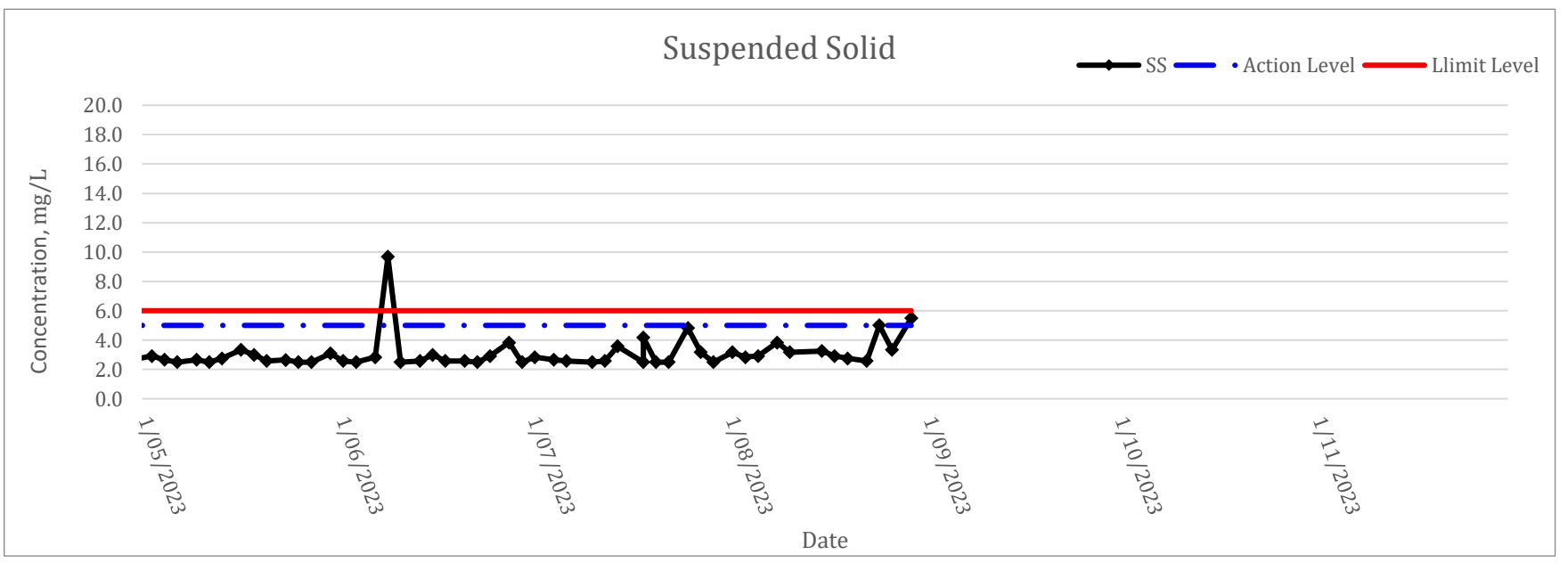
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Flood Tide

Monitoring Location : WSR 3



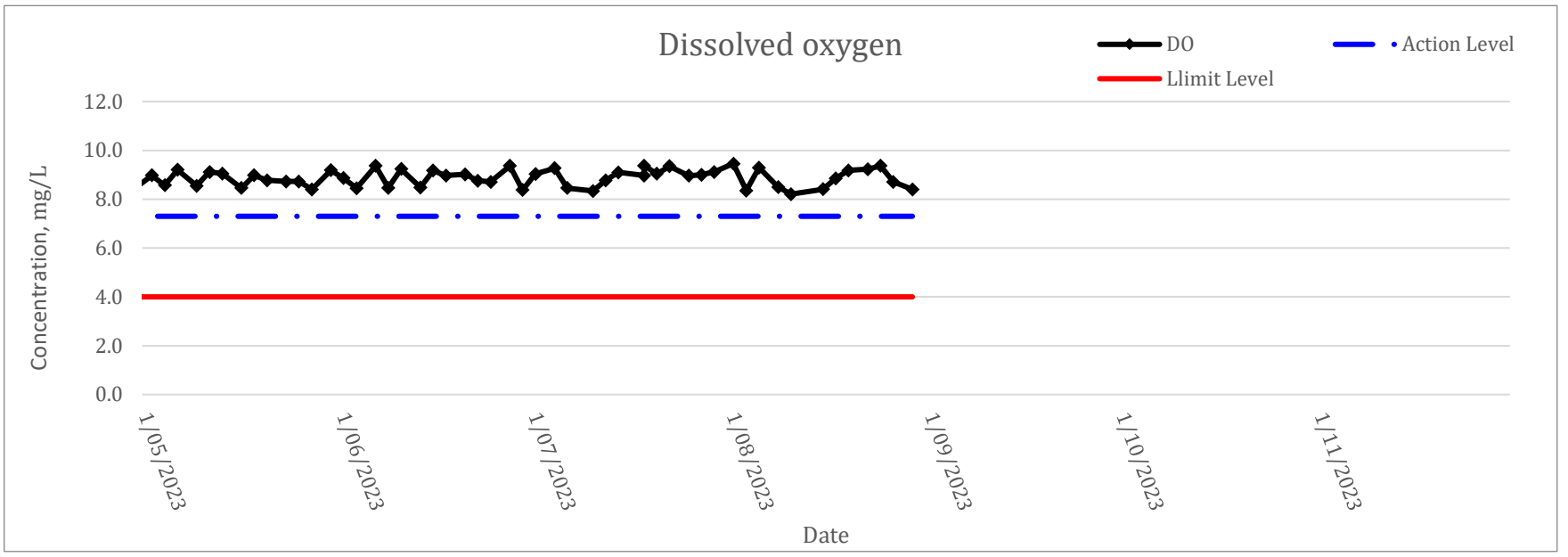


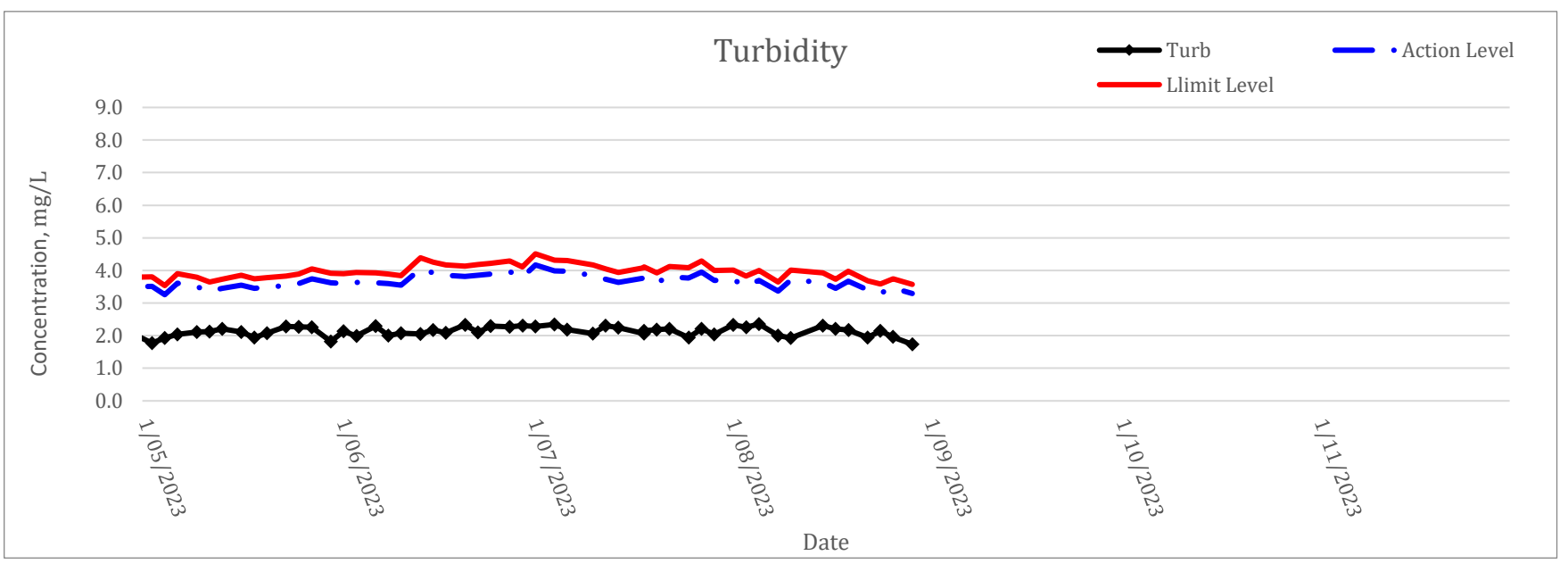


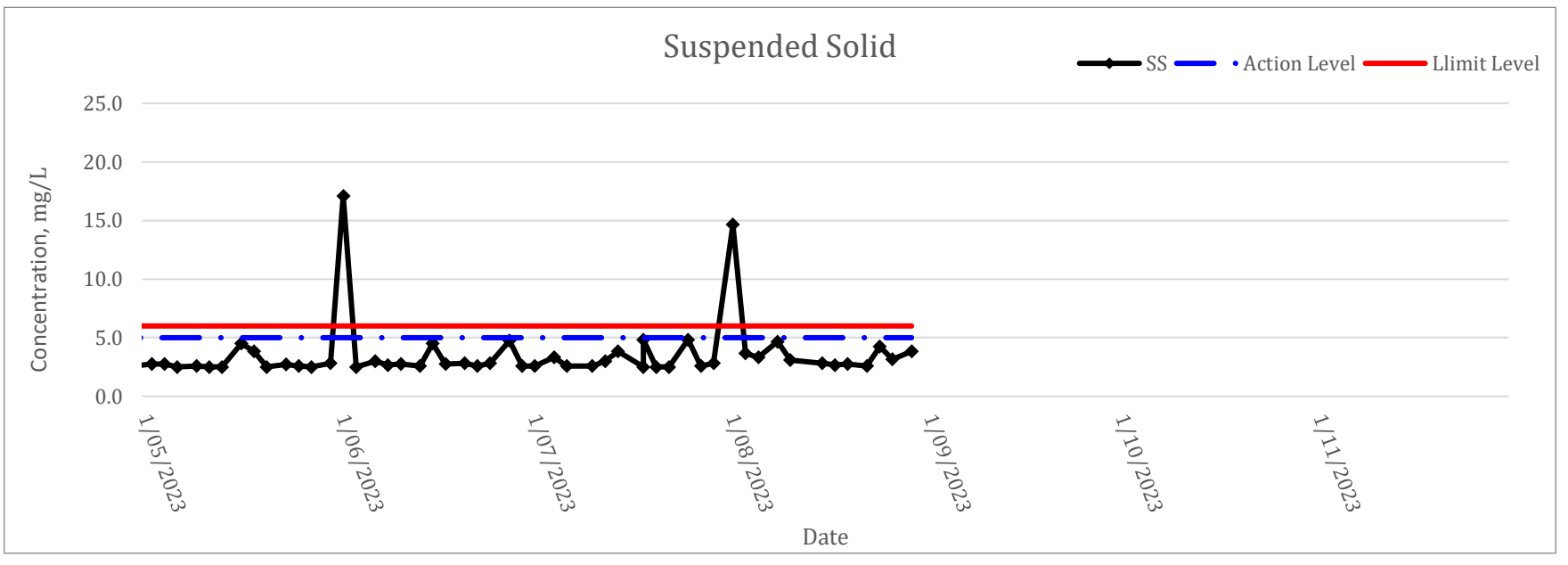
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Flood Tide

Monitoring Location : WSR 4



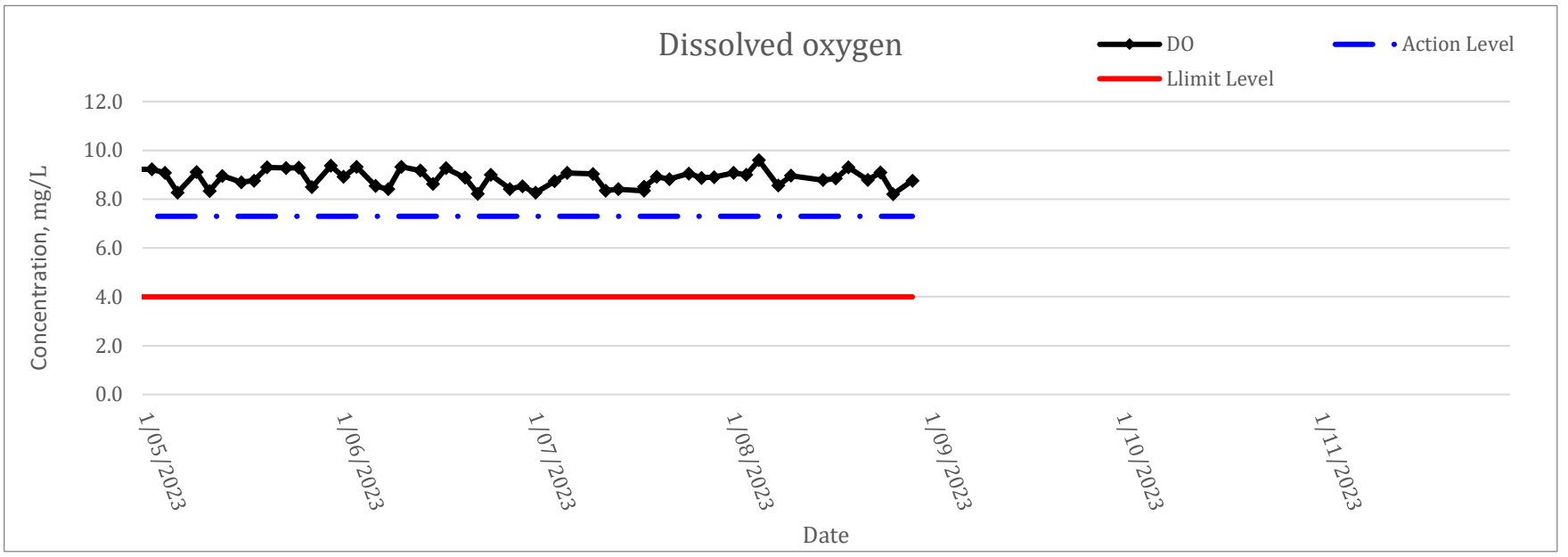


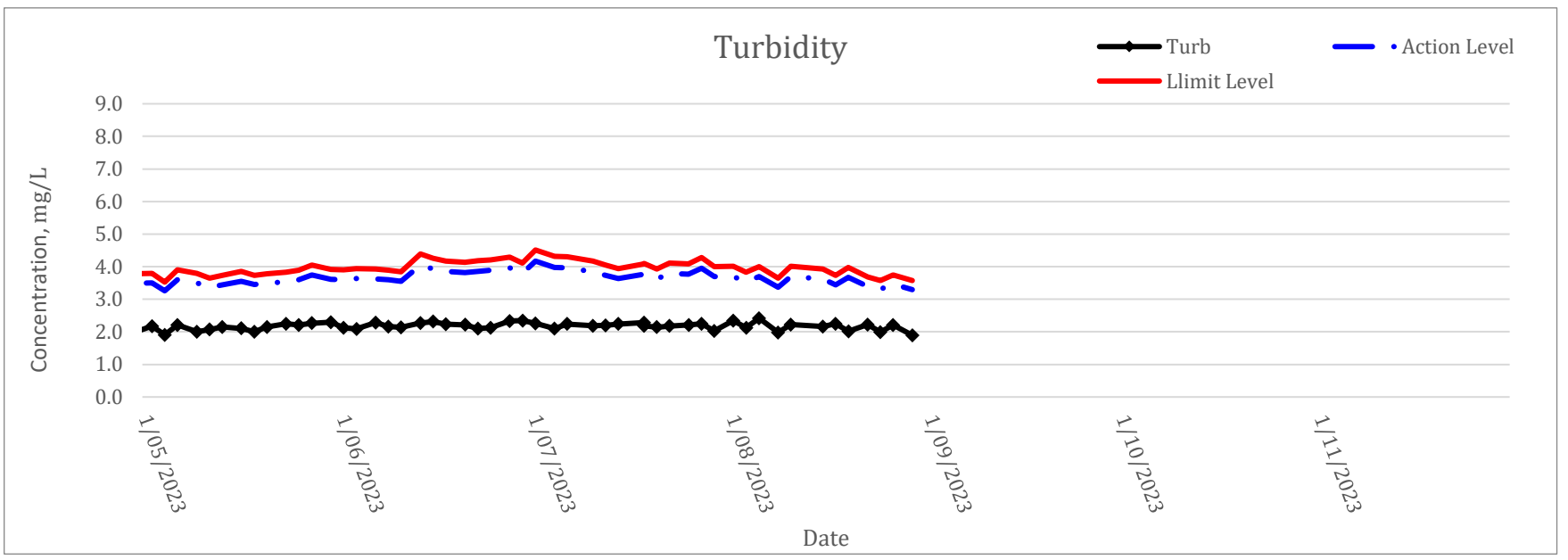


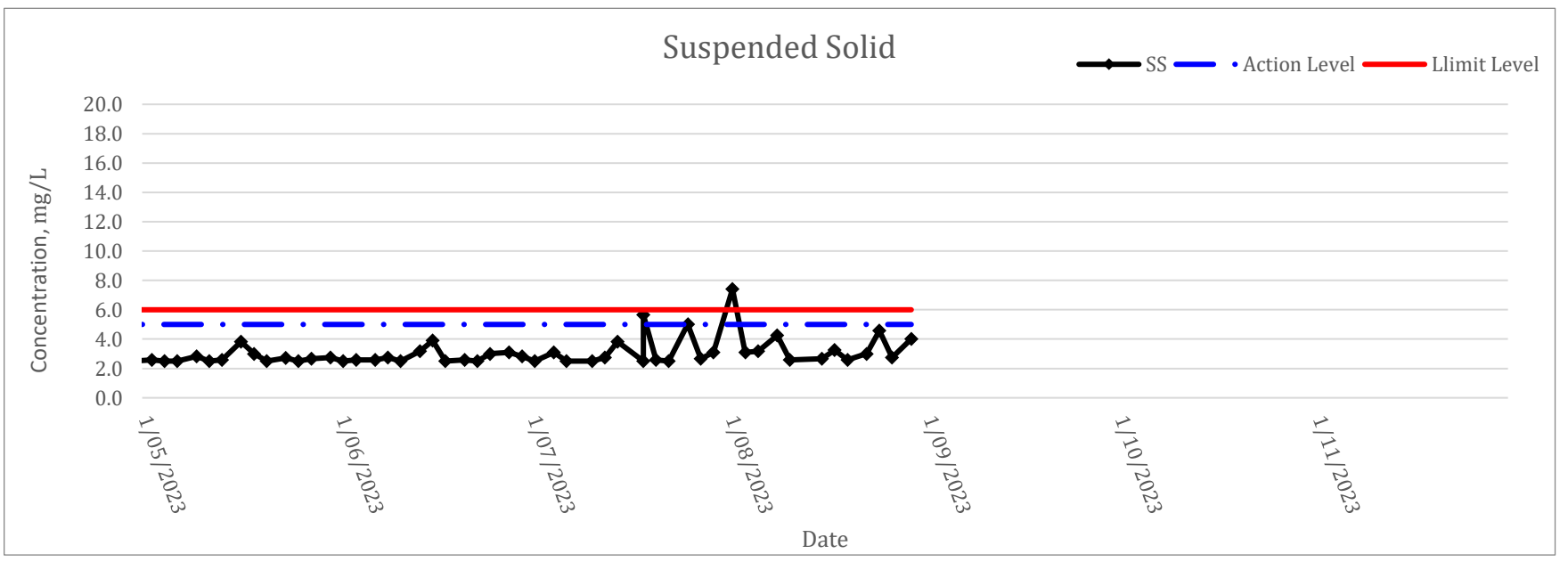
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Flood Tide

Monitoring Location : WSR 16



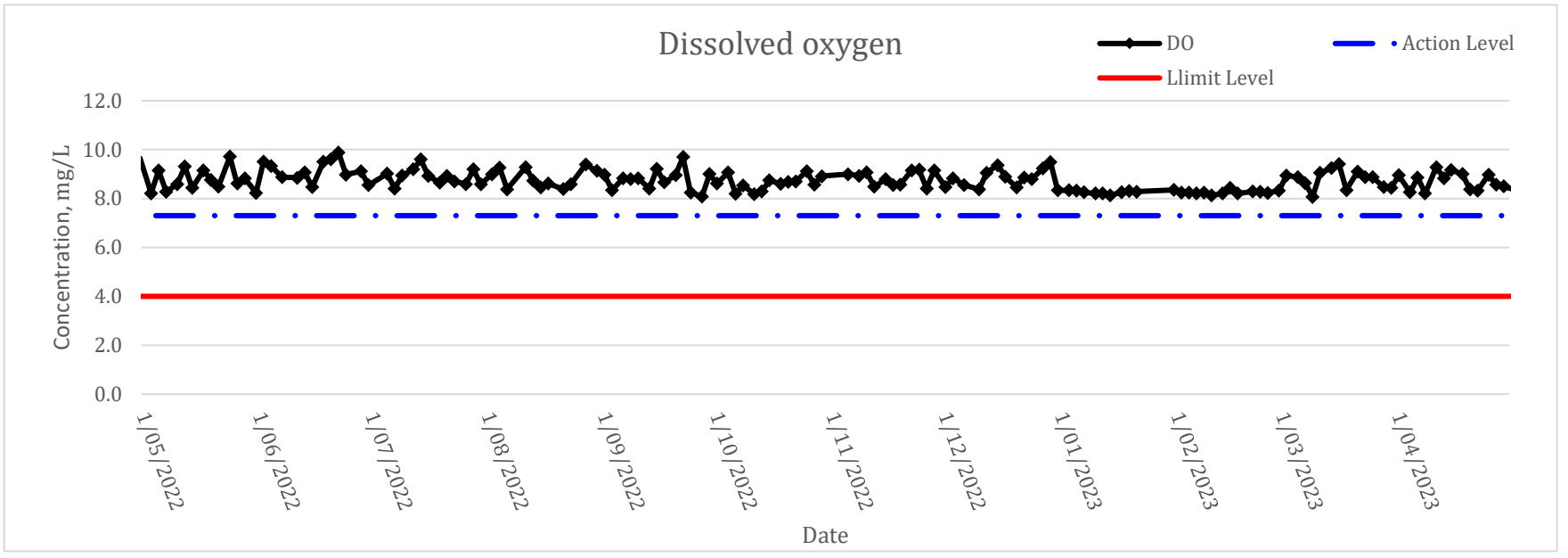


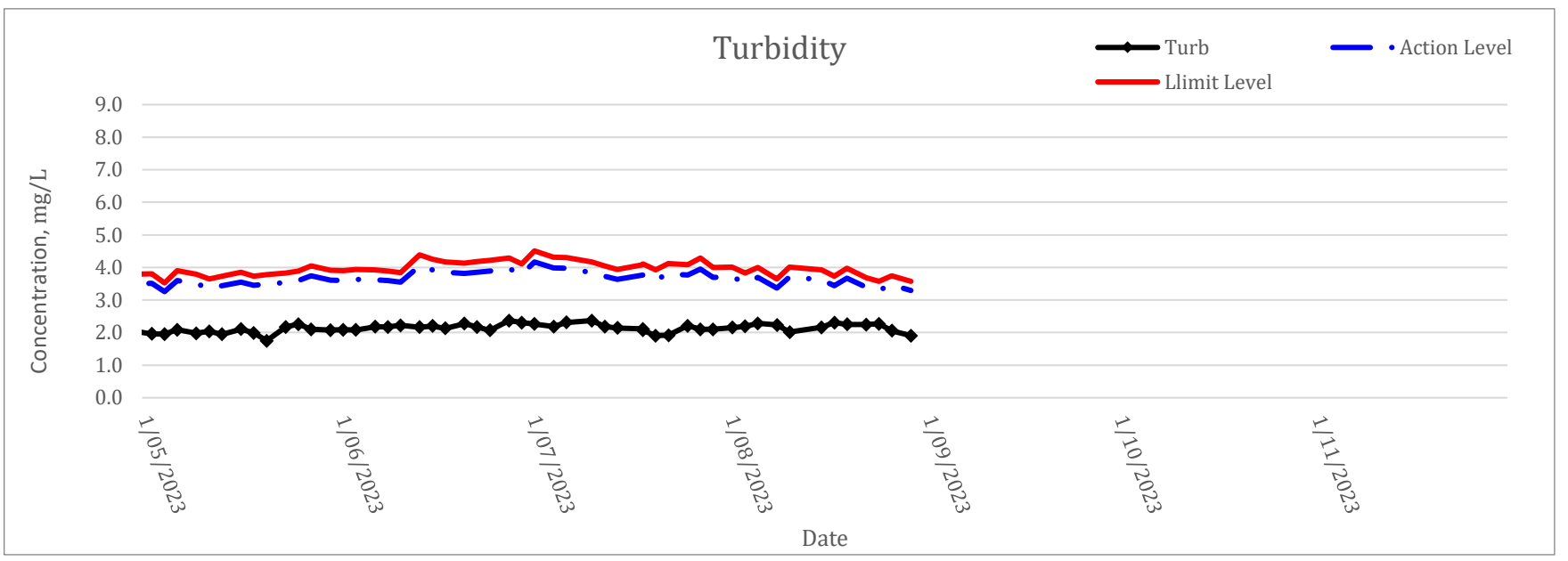


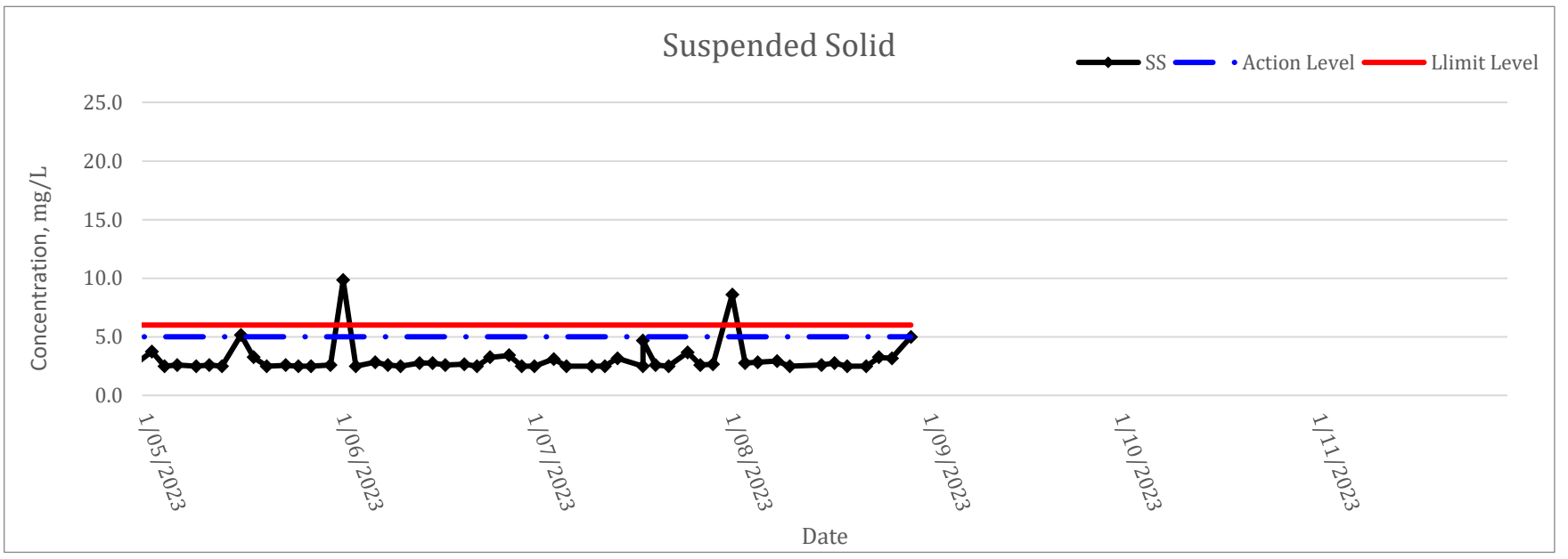
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Flood Tide

Monitoring Location : WSR 33



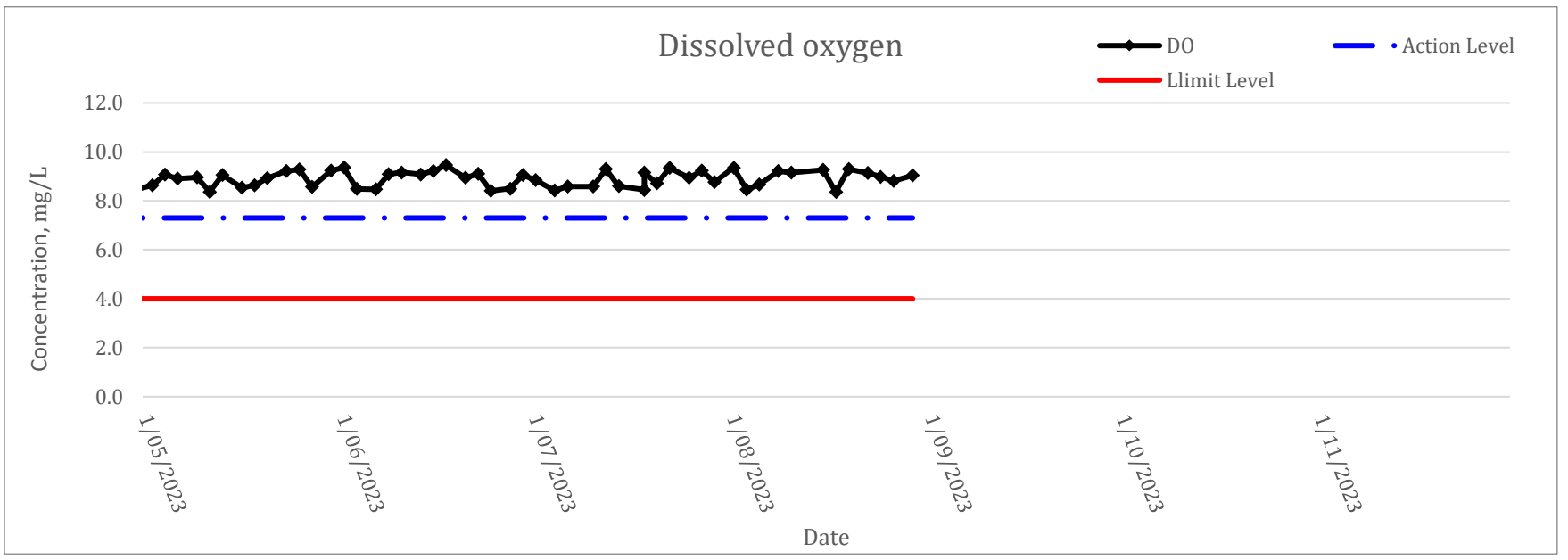


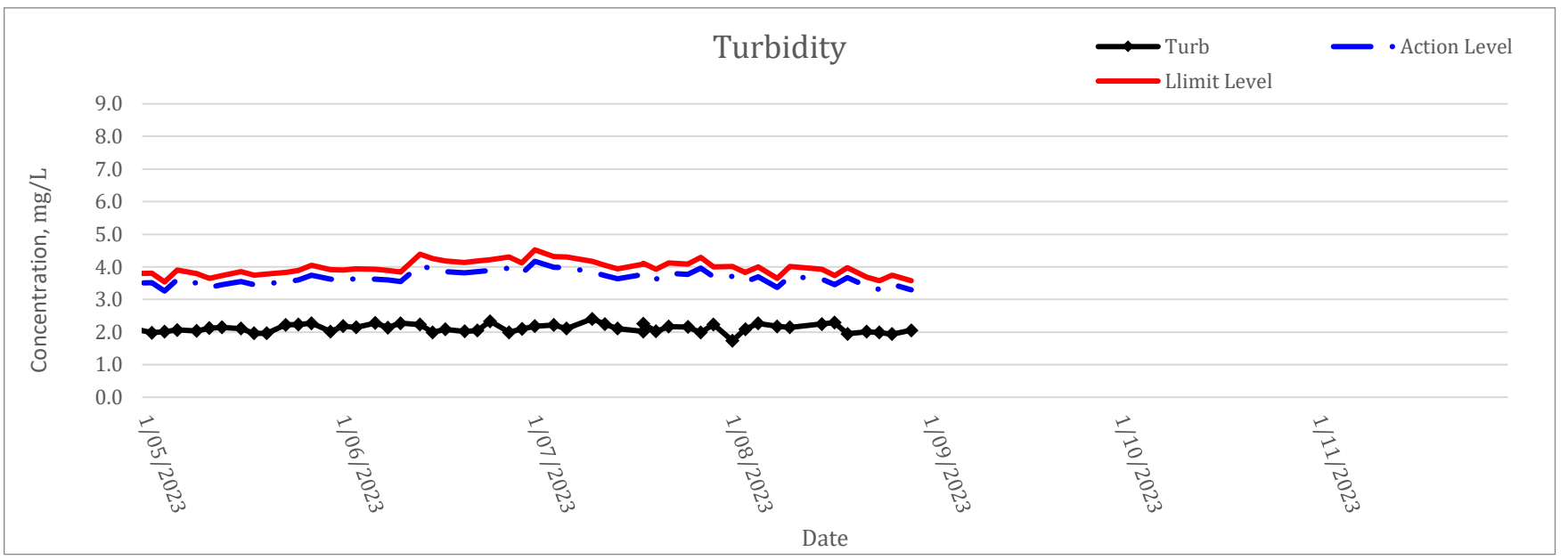


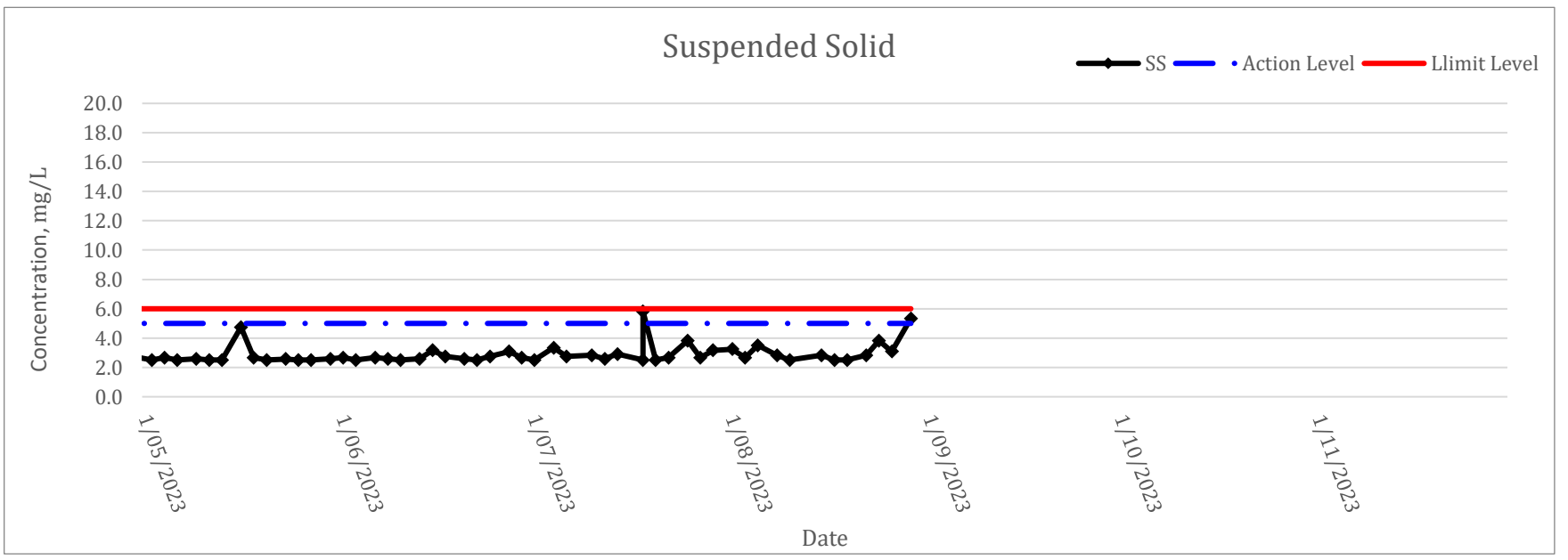
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Flood Tide

Monitoring Location : WSR 36



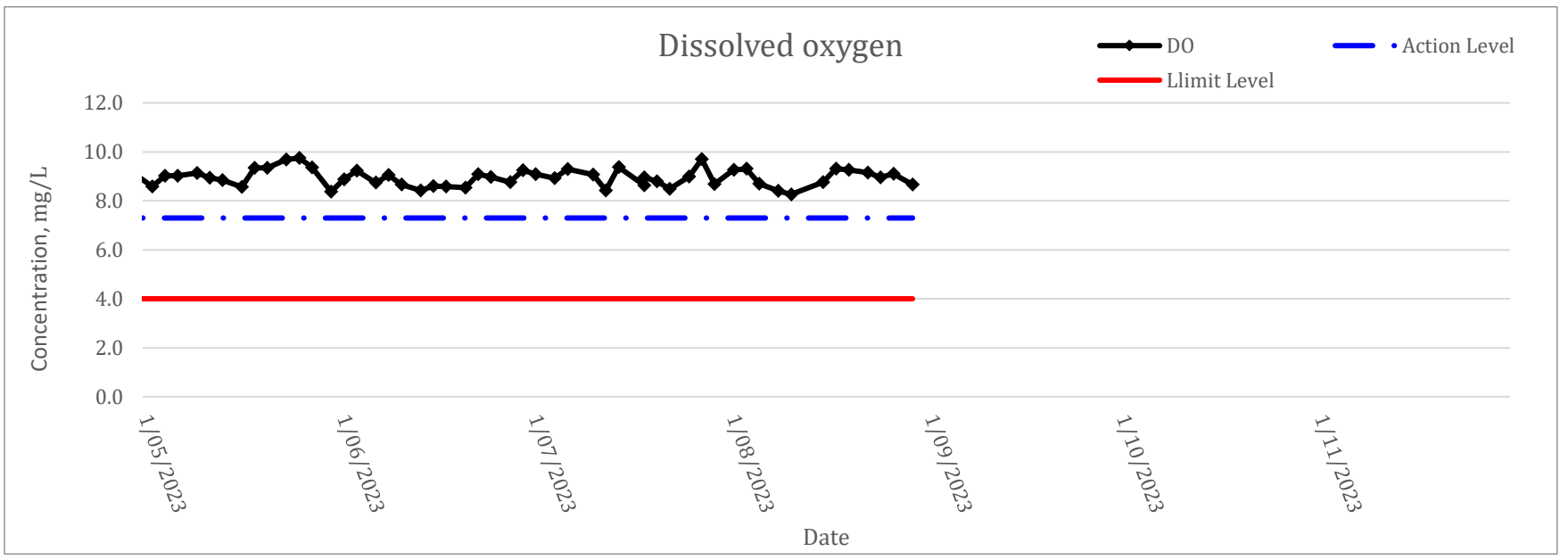


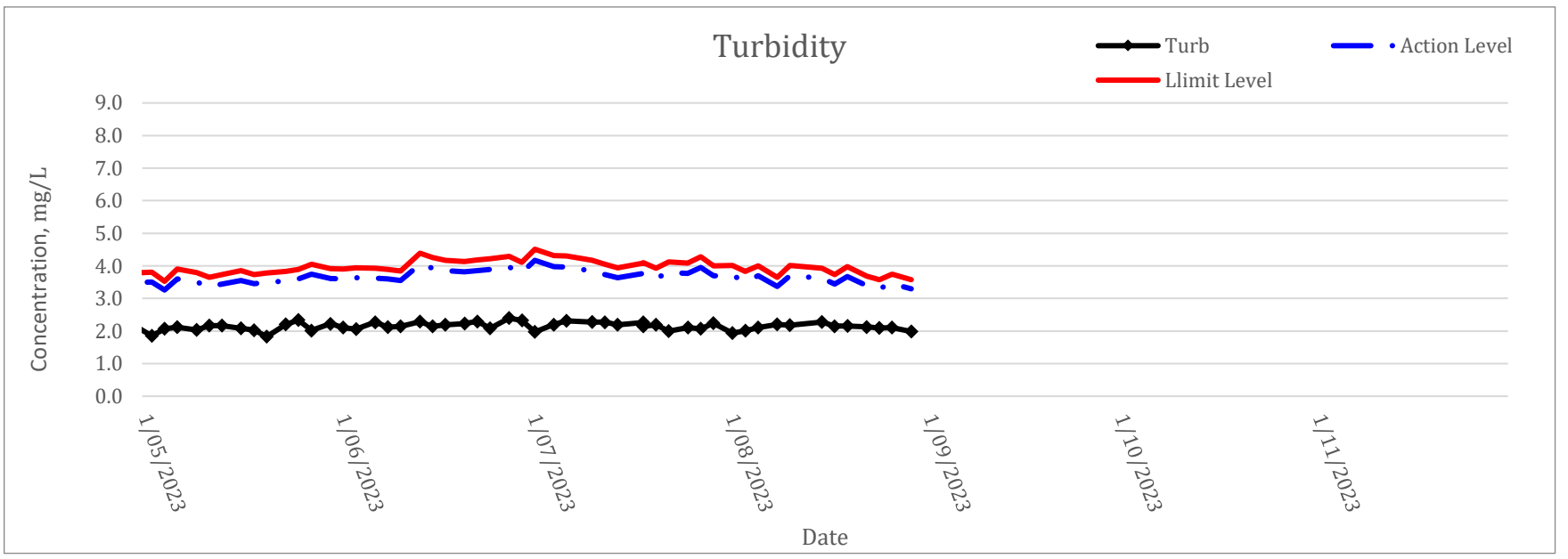


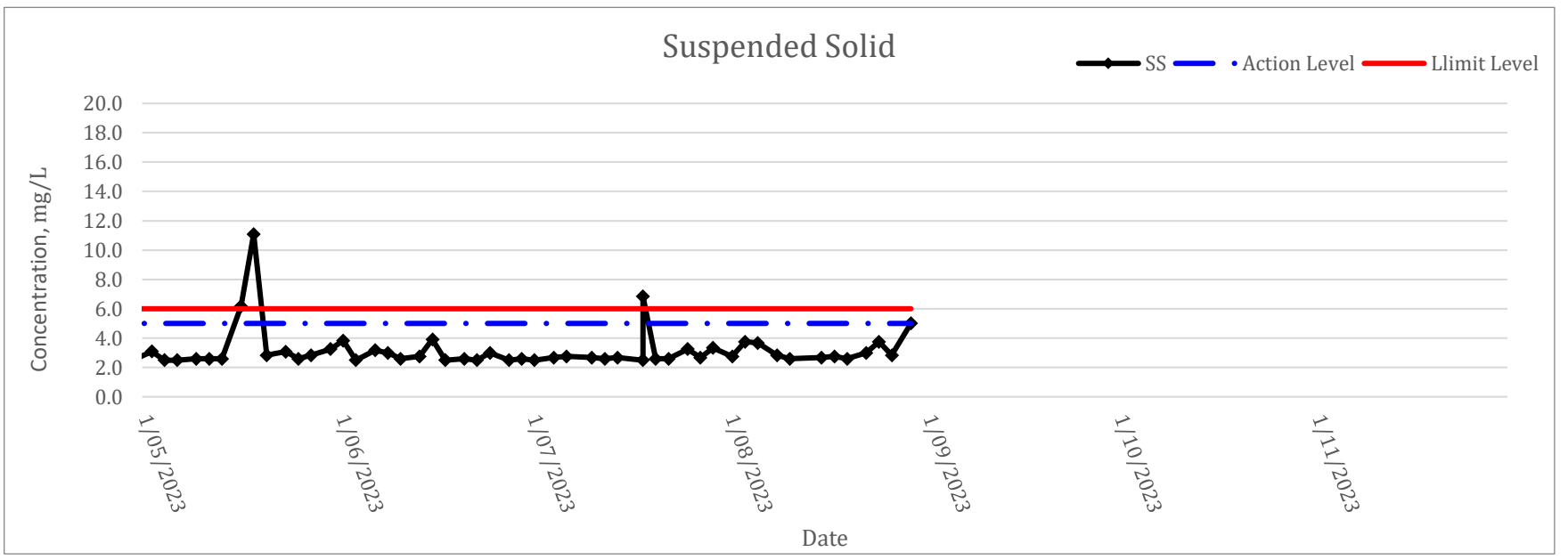
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Flood Tide

Monitoring Location : WSR 37



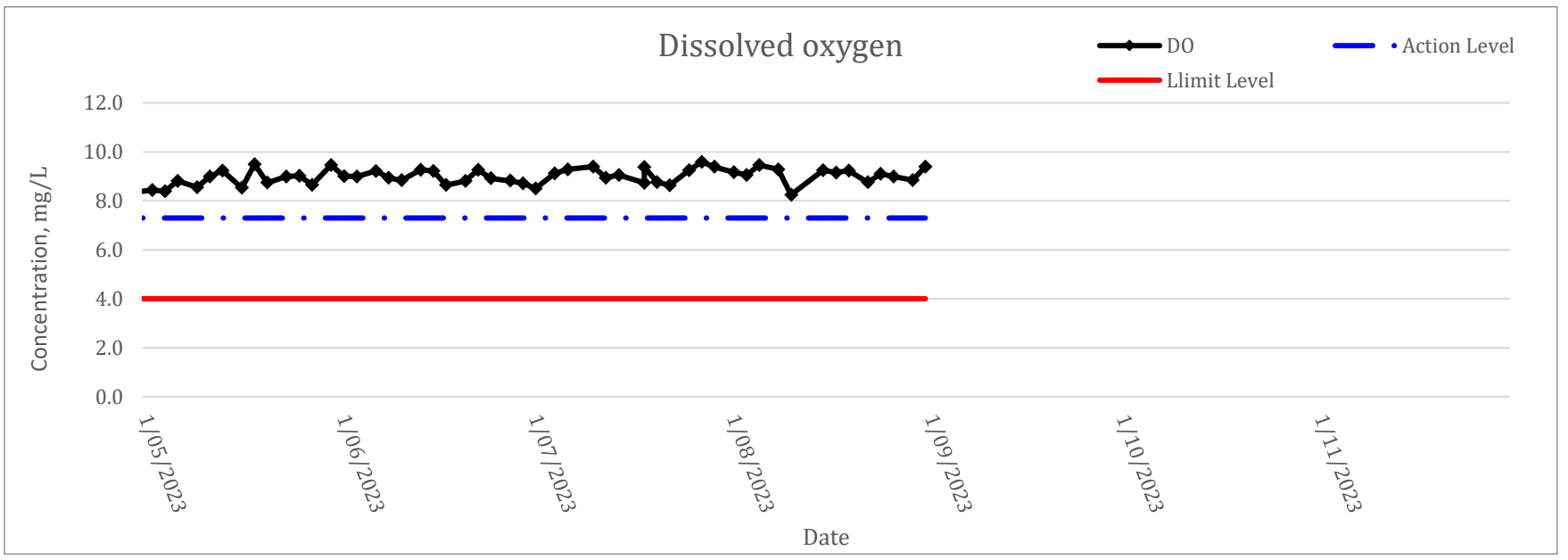


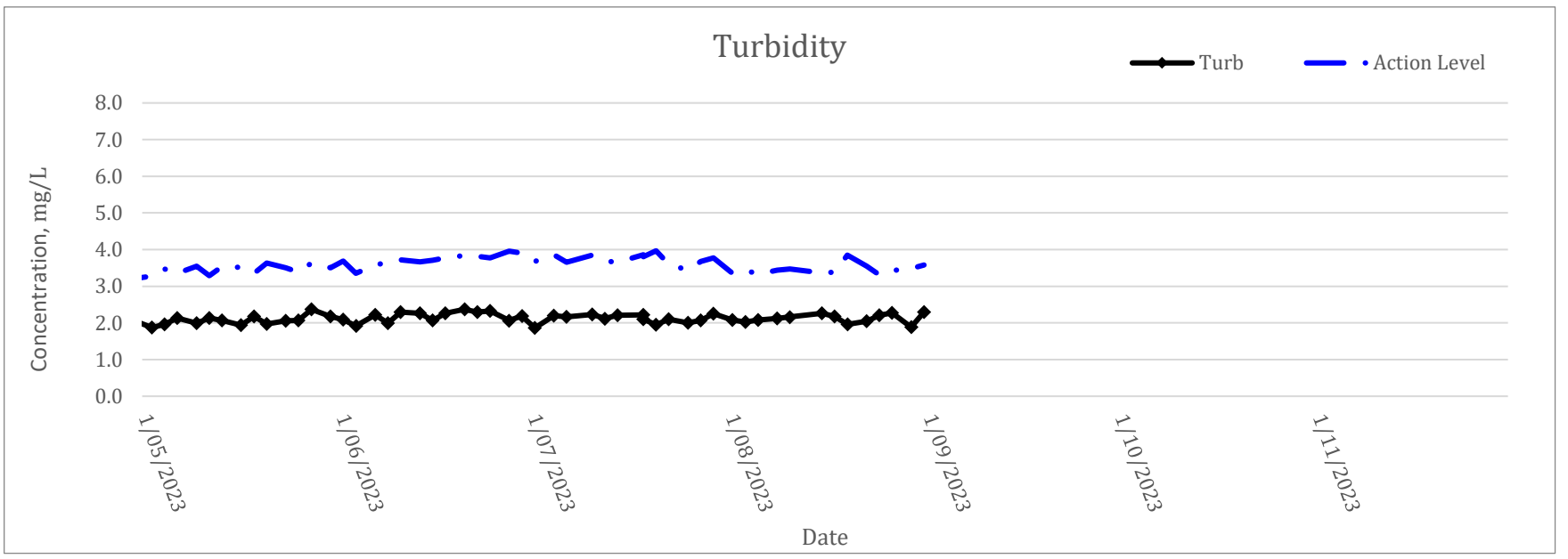


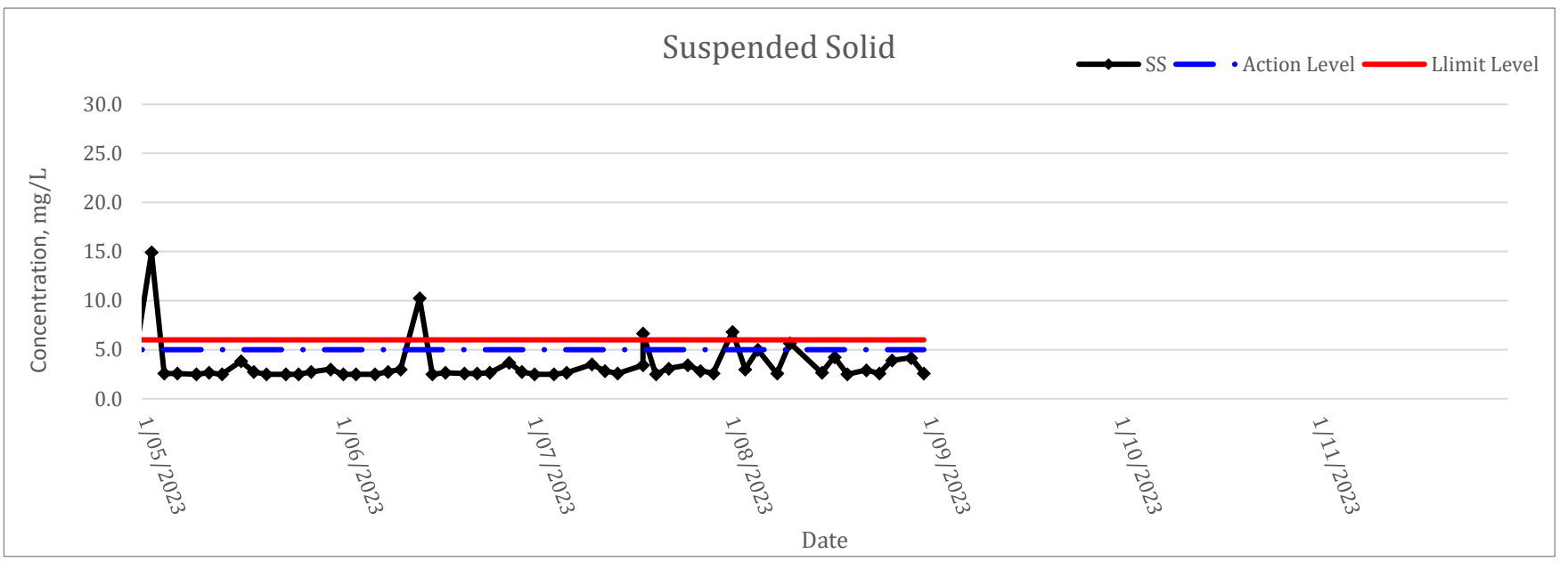
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Ebb Tide

Monitoring Location : WSR 1



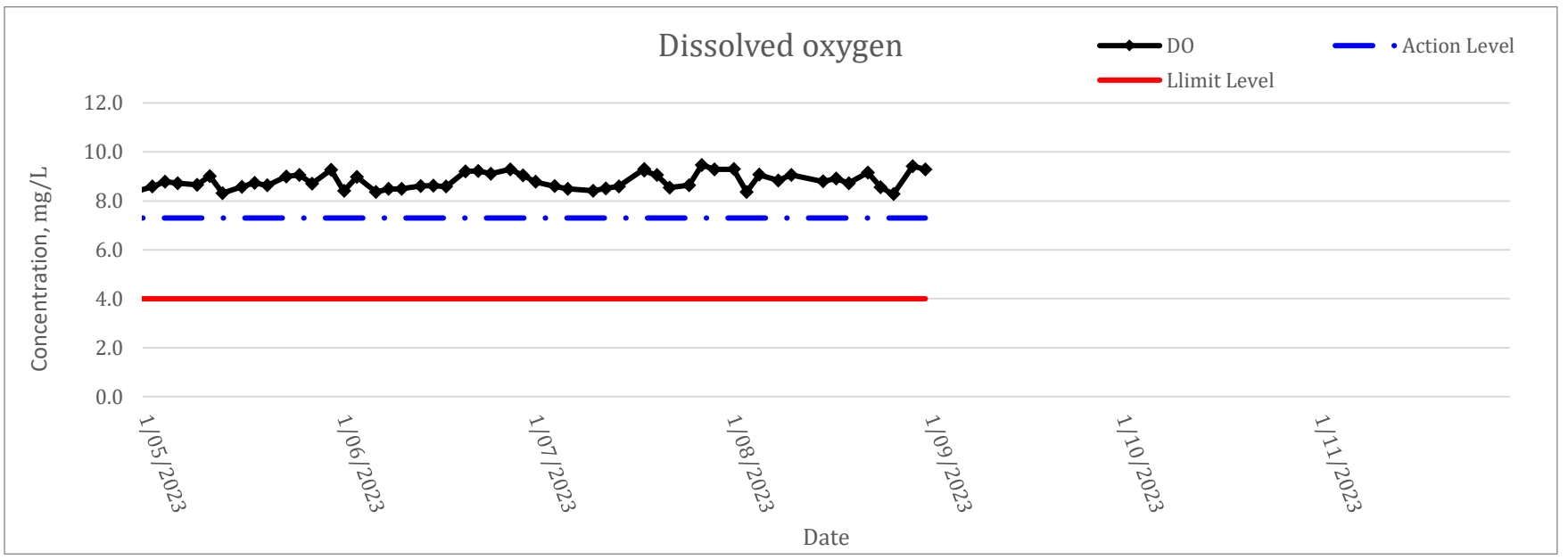


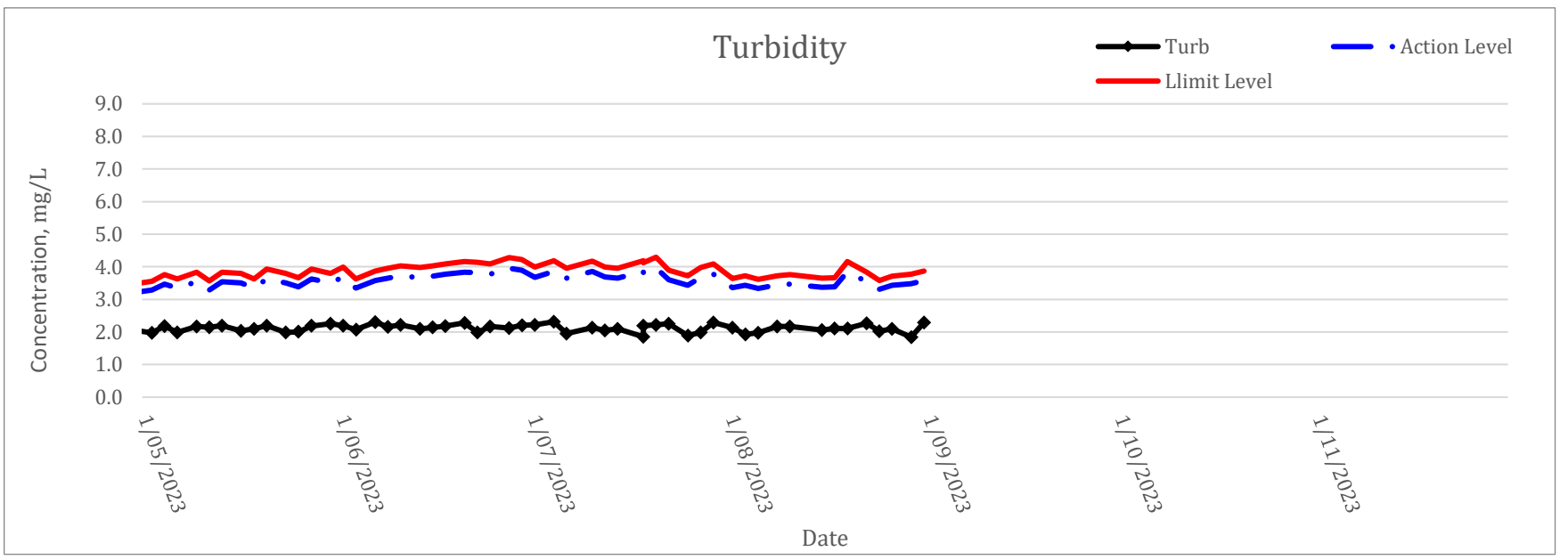


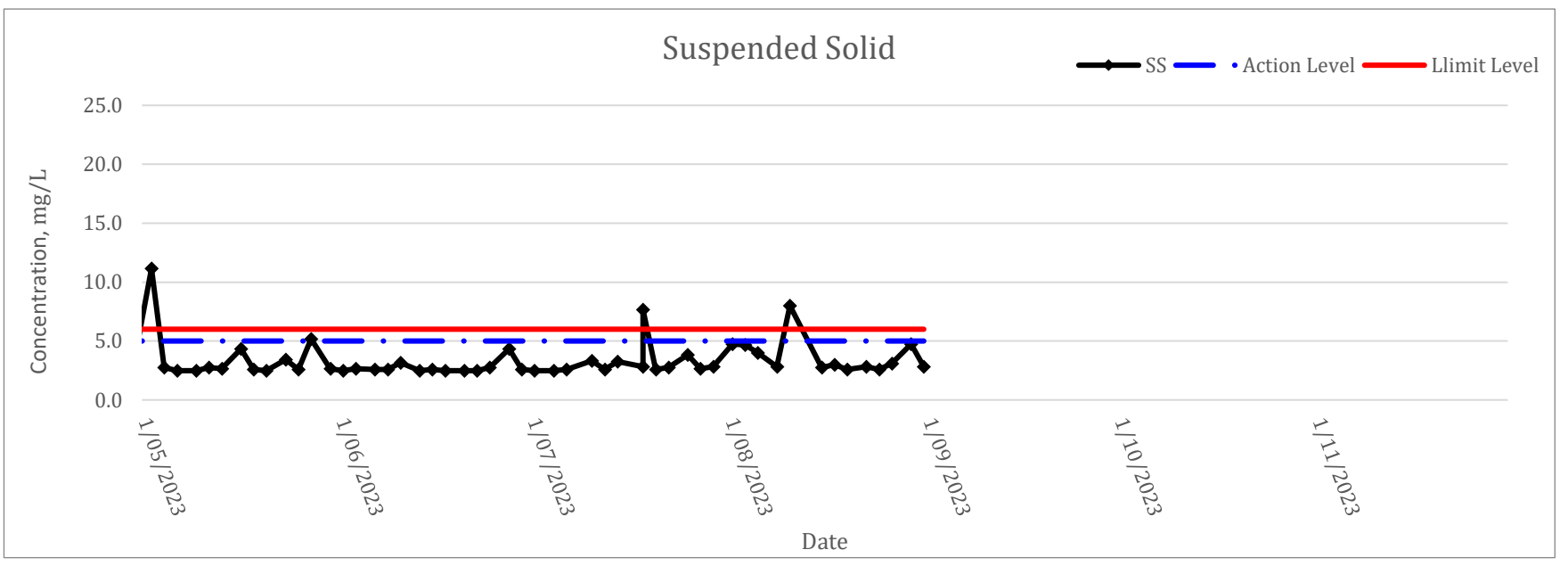
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Ebb Tide

Monitoring Location : WSR 2



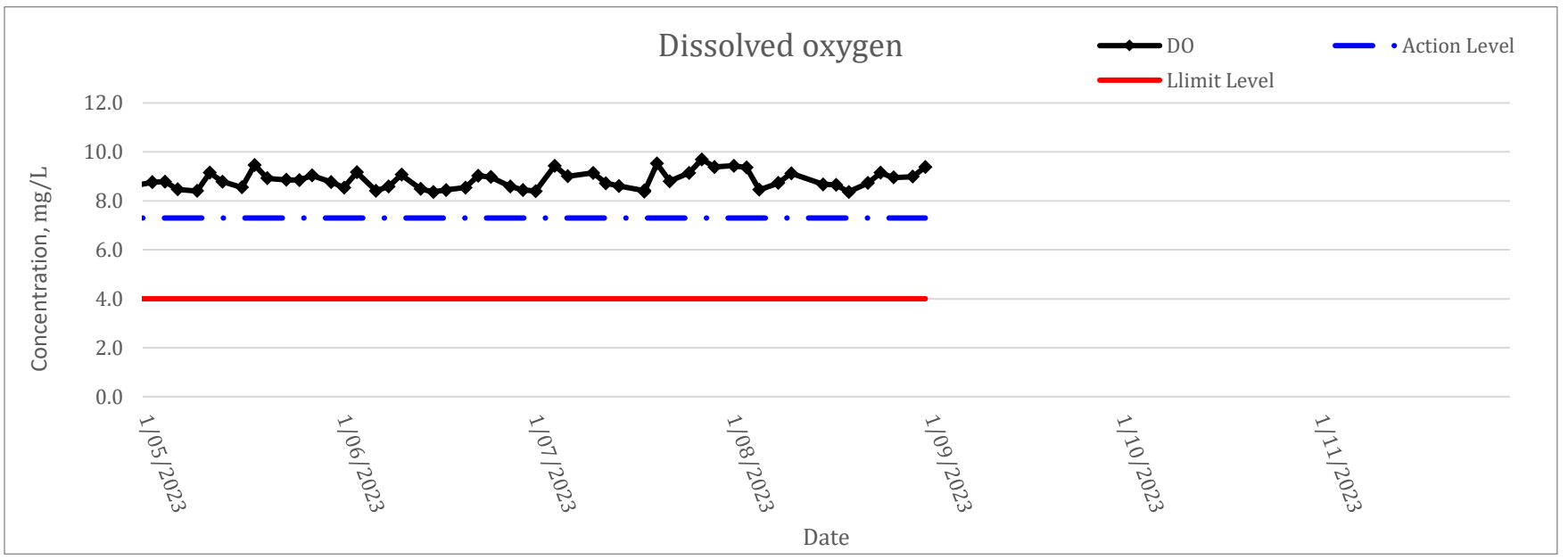


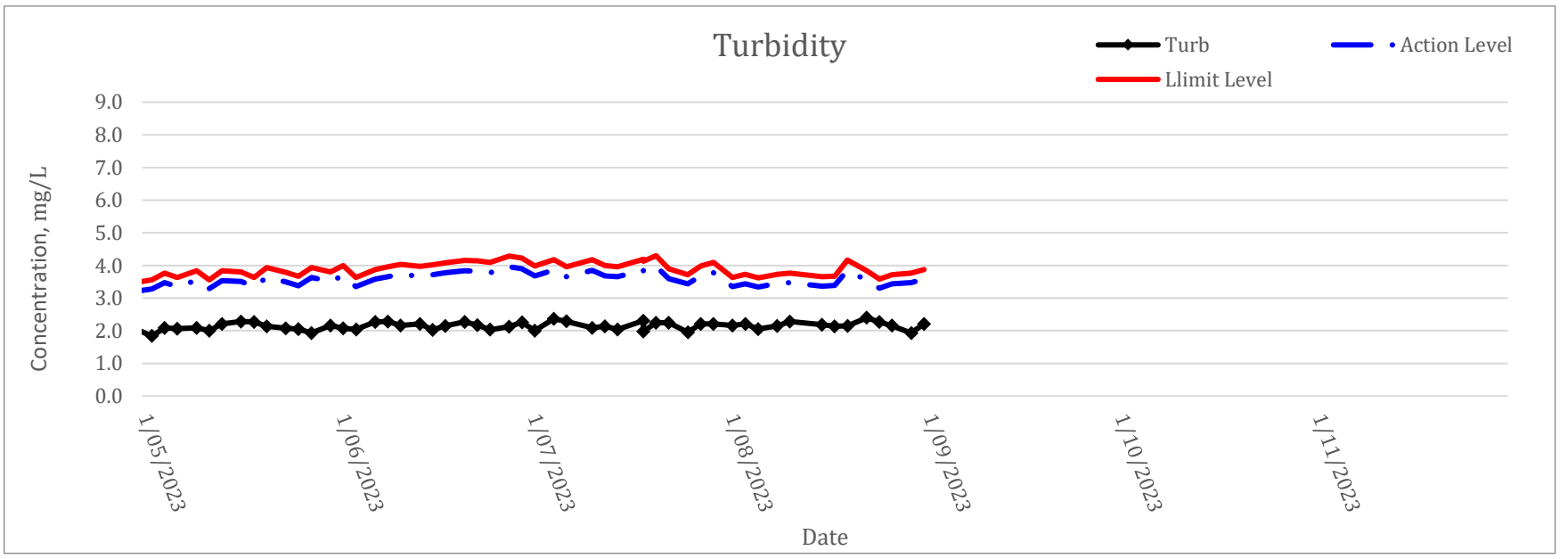


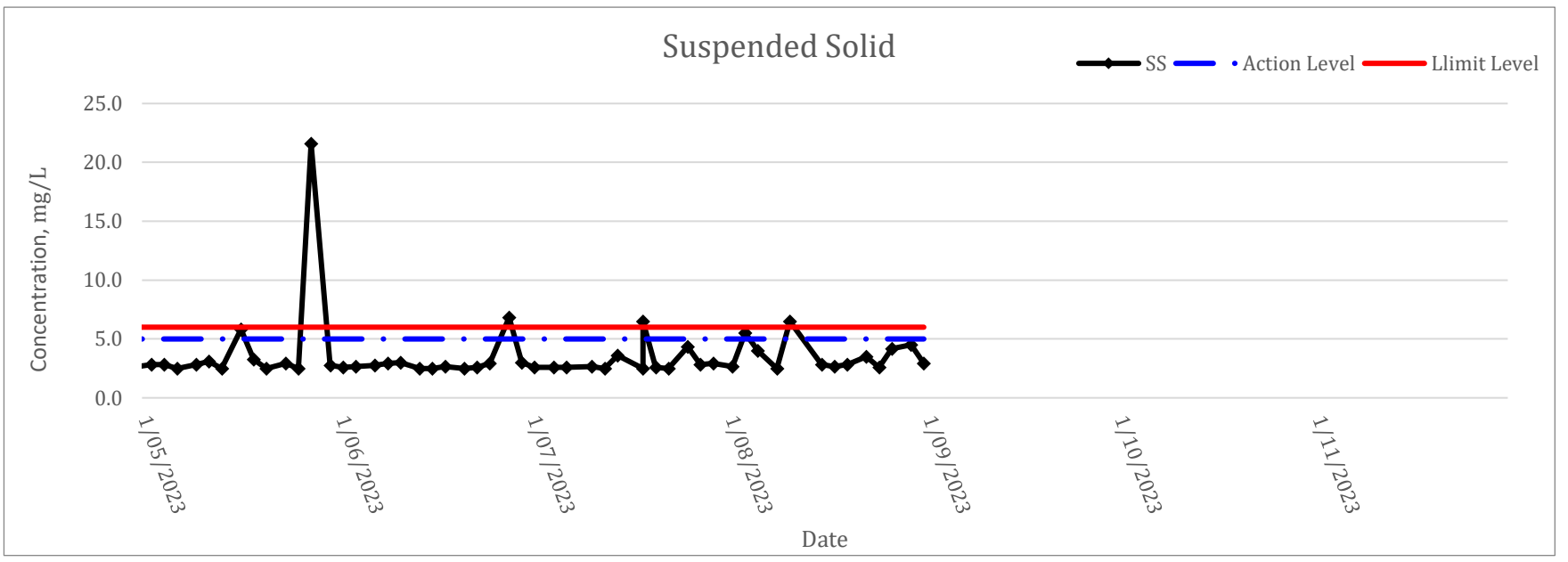
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Ebb Tide

Monitoring Location : WSR 3



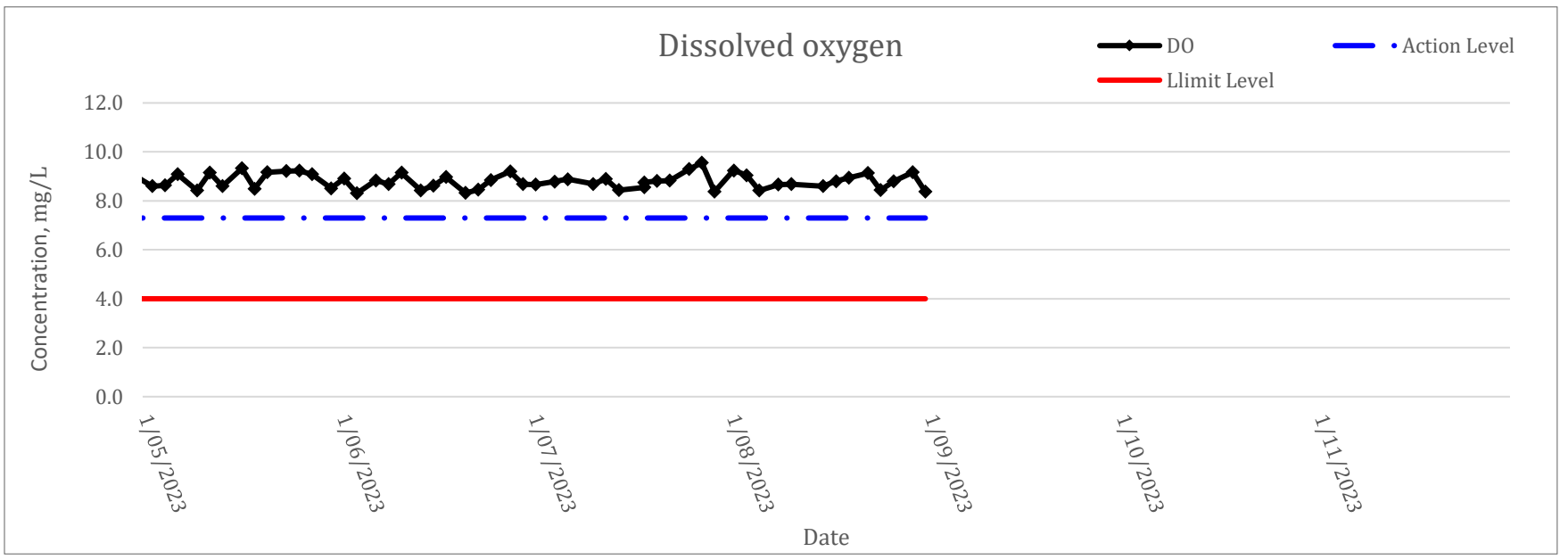


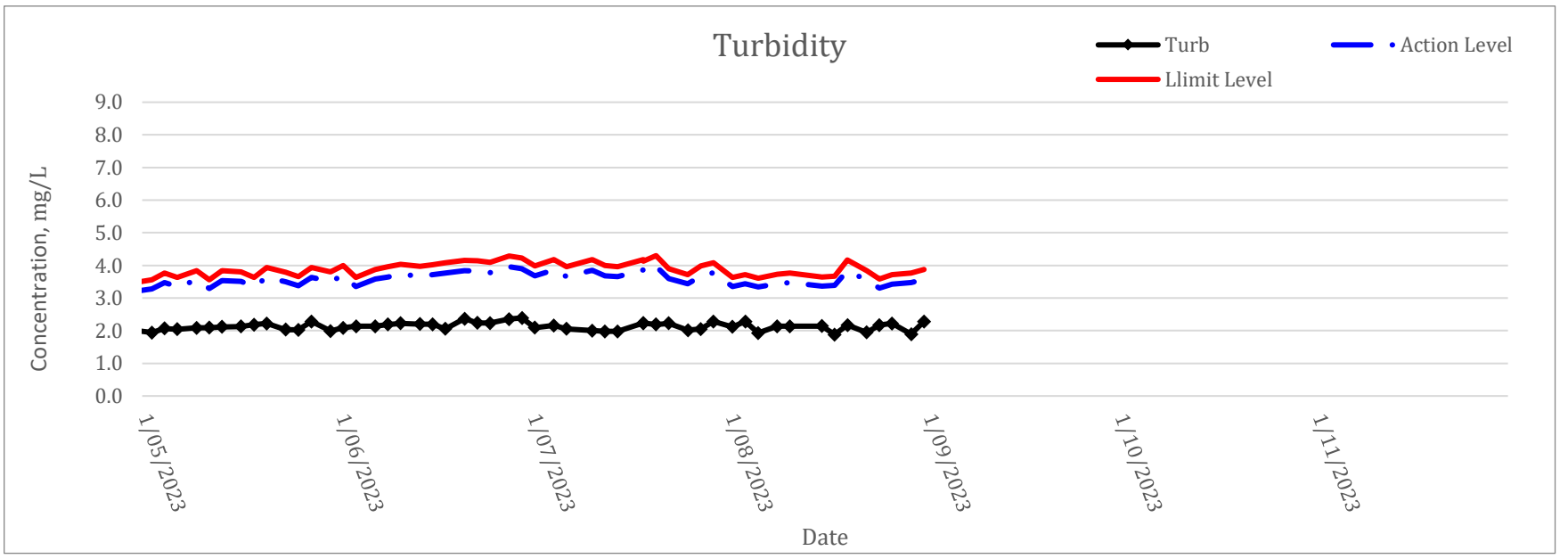


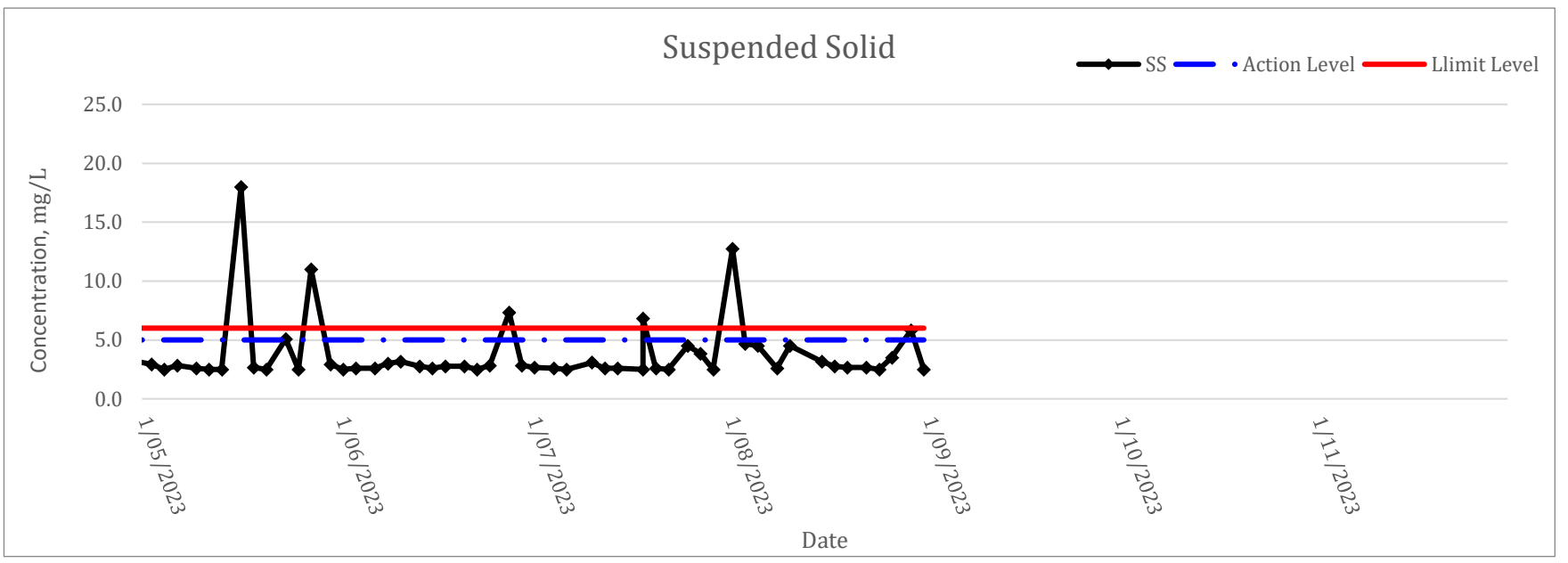
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Ebb Tide

Monitoring Location : WSR 4



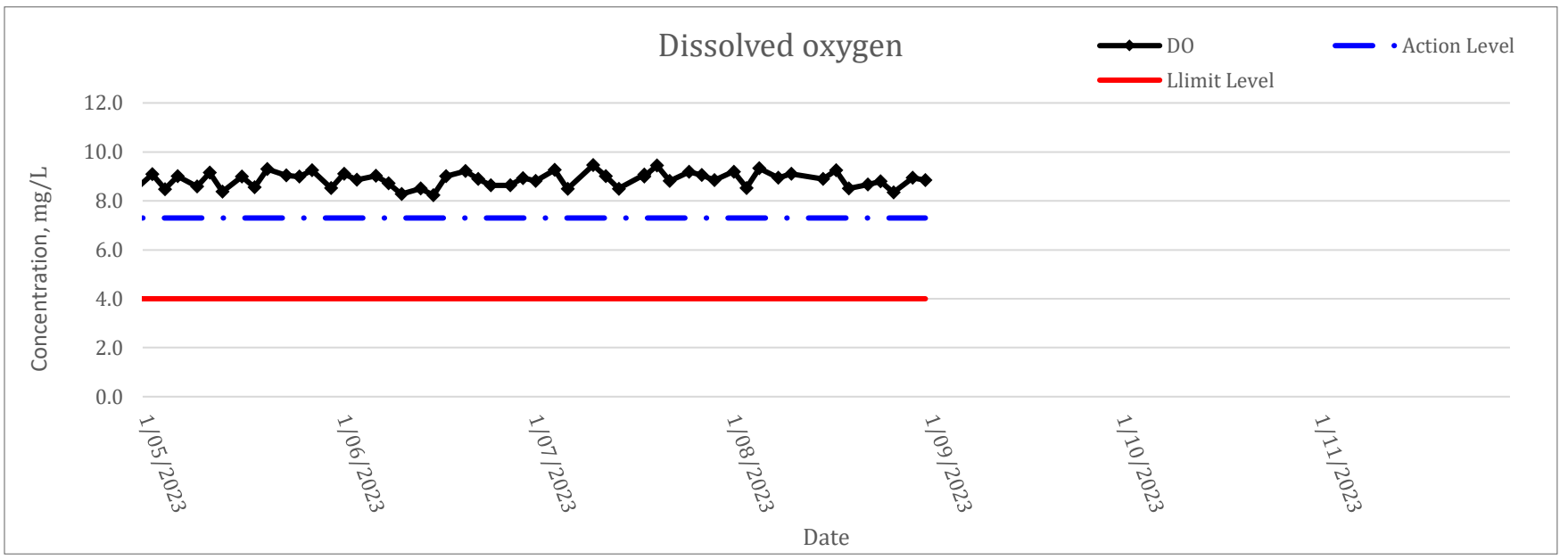


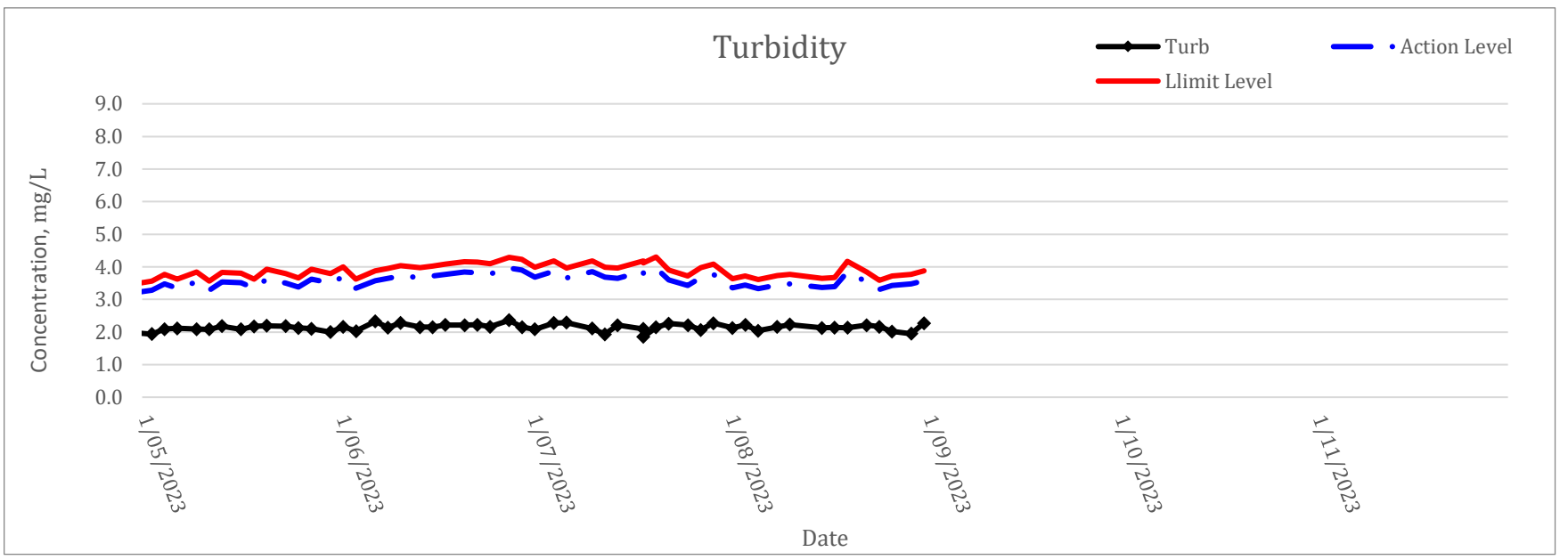


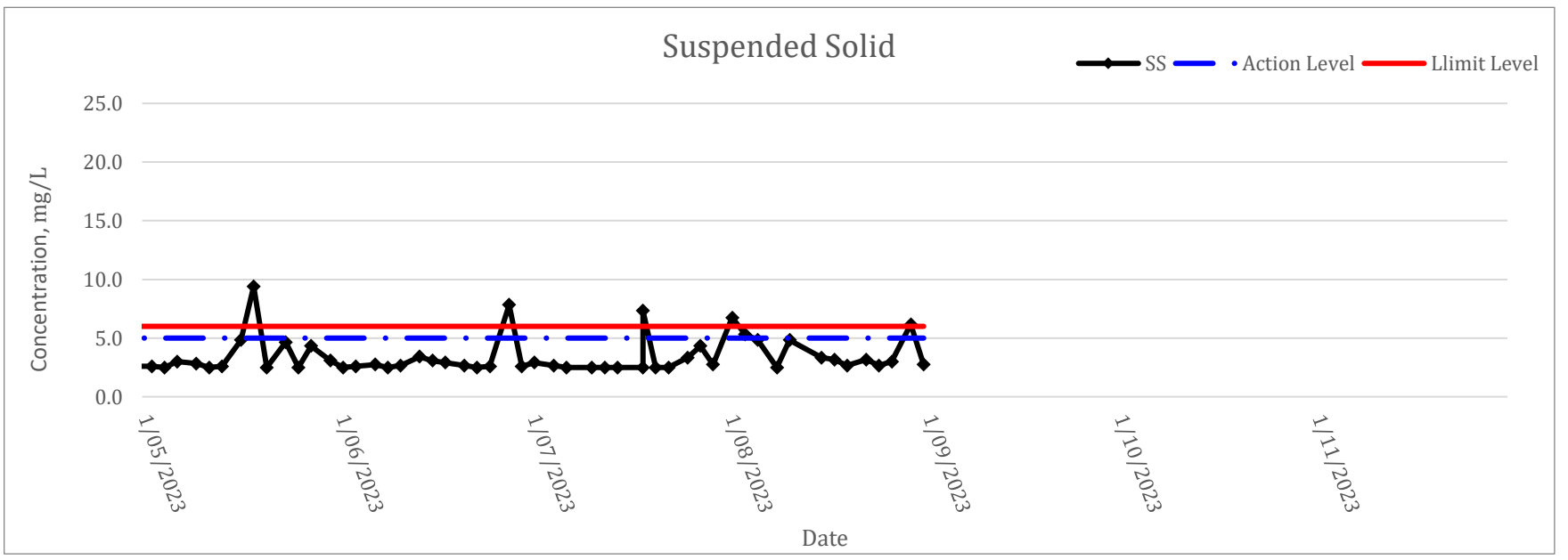
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Ebb Tide

Monitoring Location : WSR 16



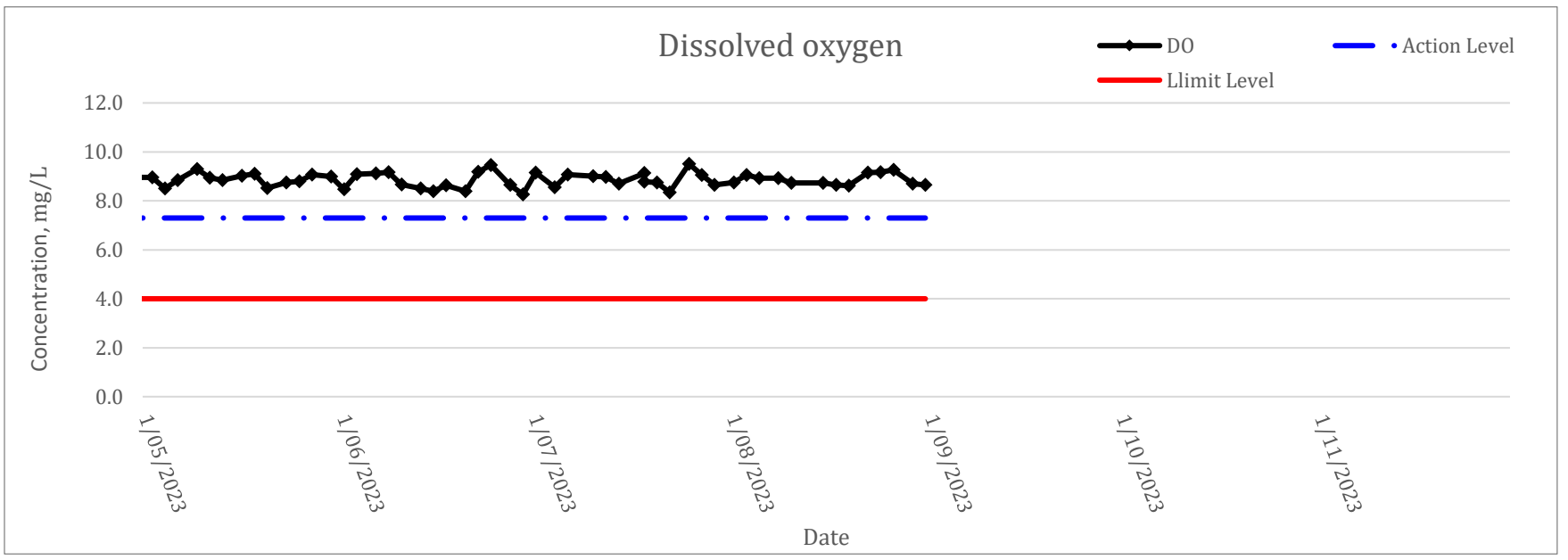


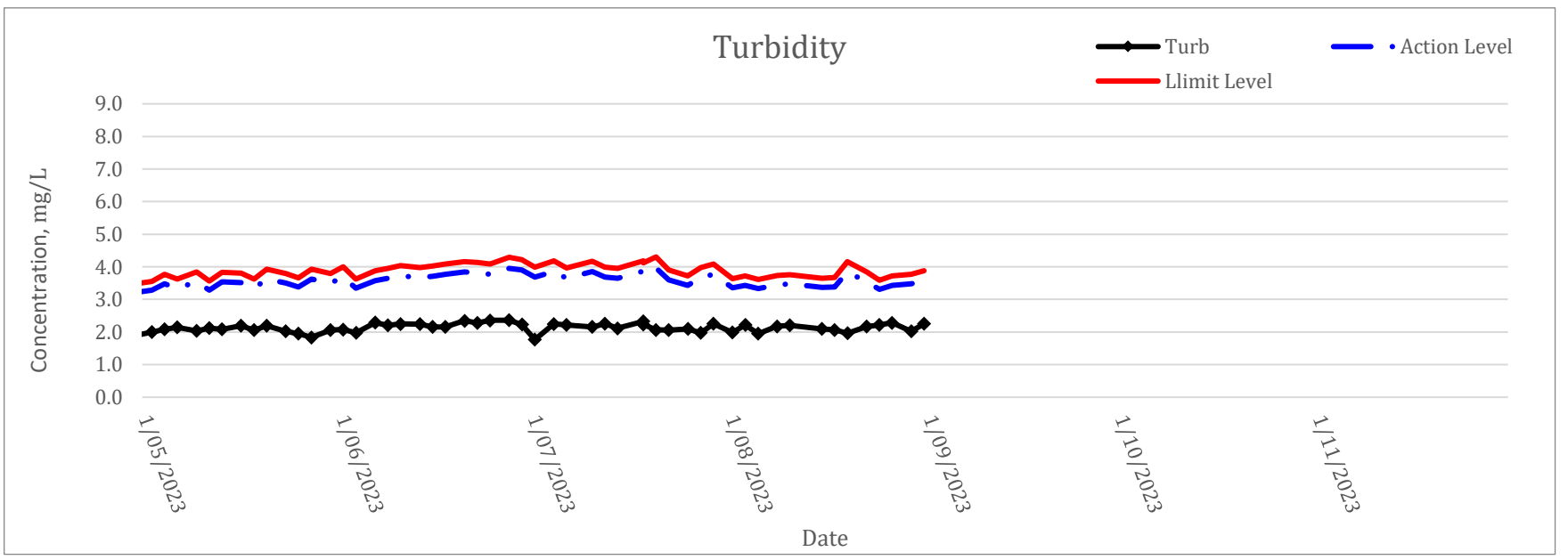


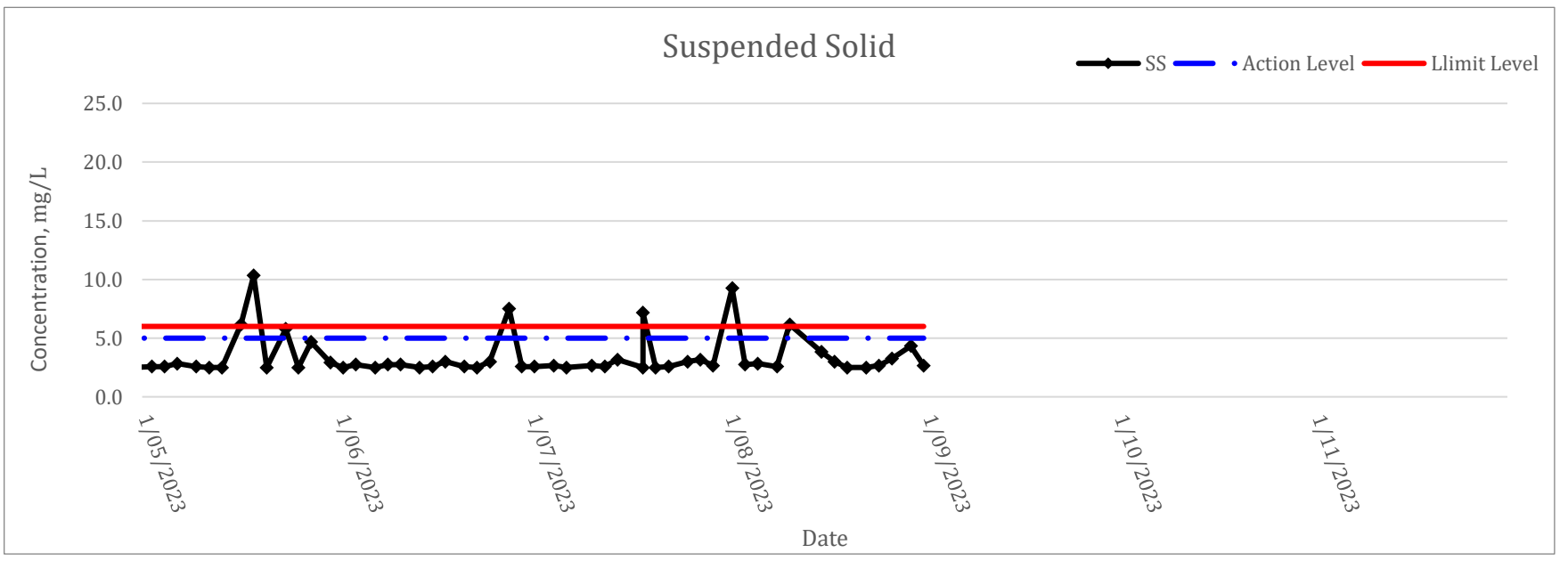
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Ebb Tide

Monitoring Location : WSR 33



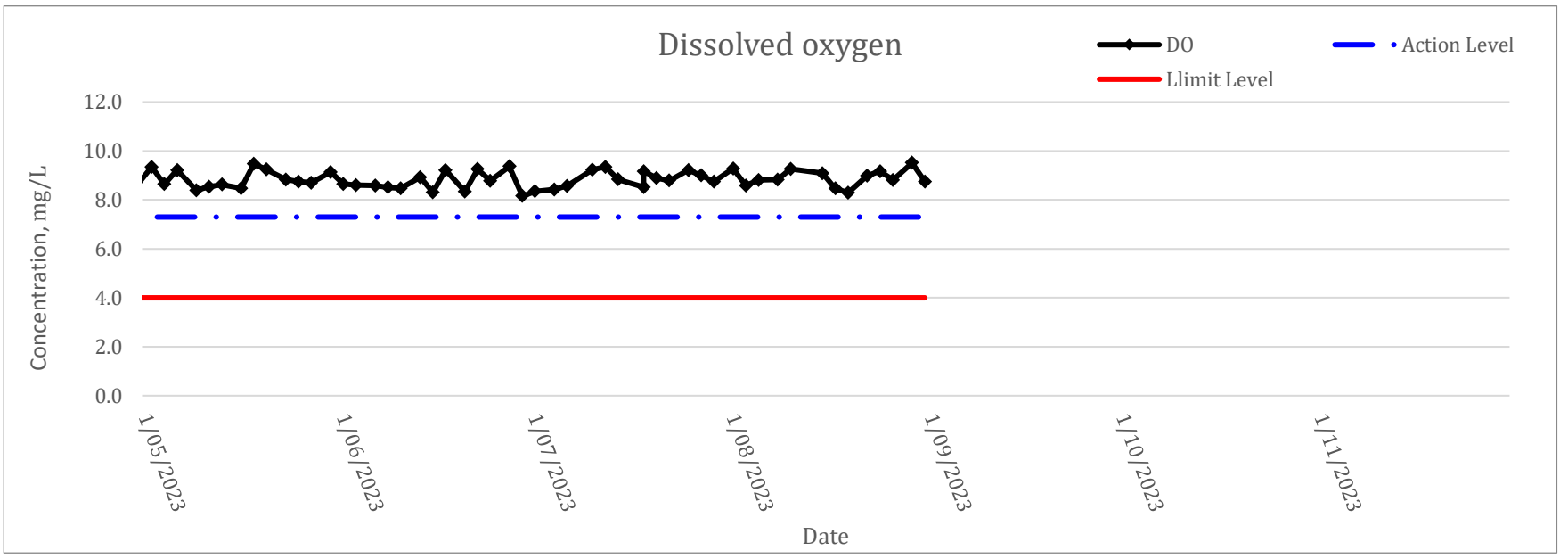


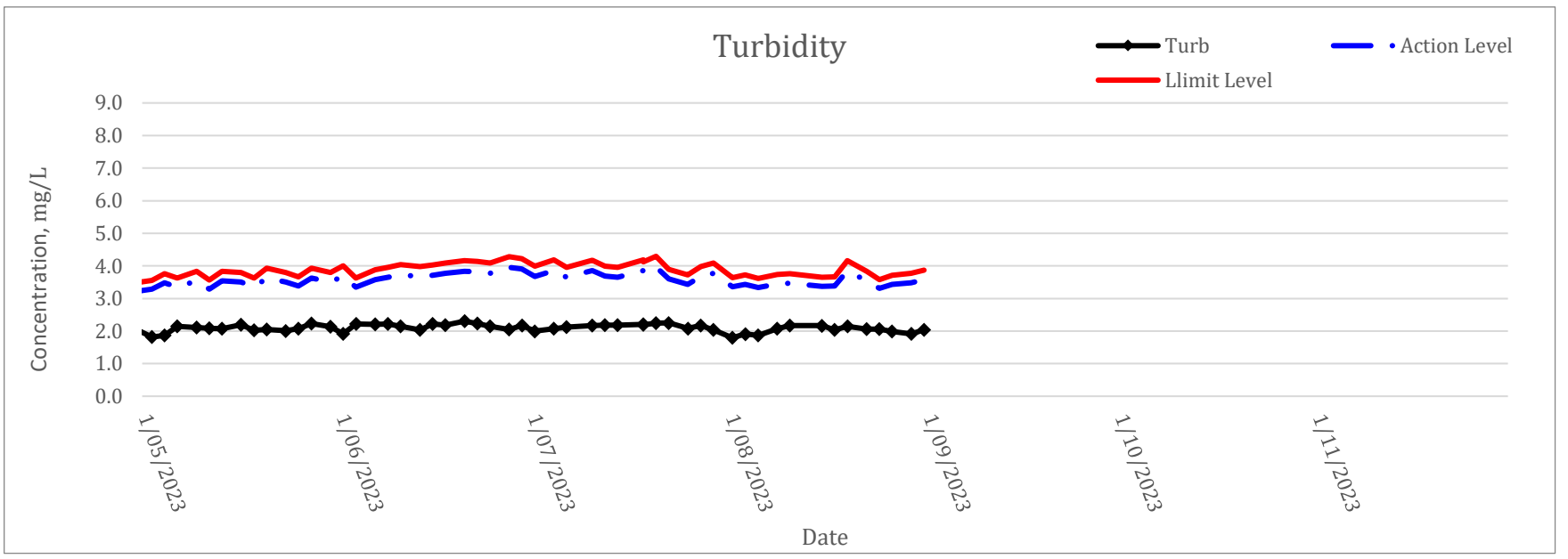


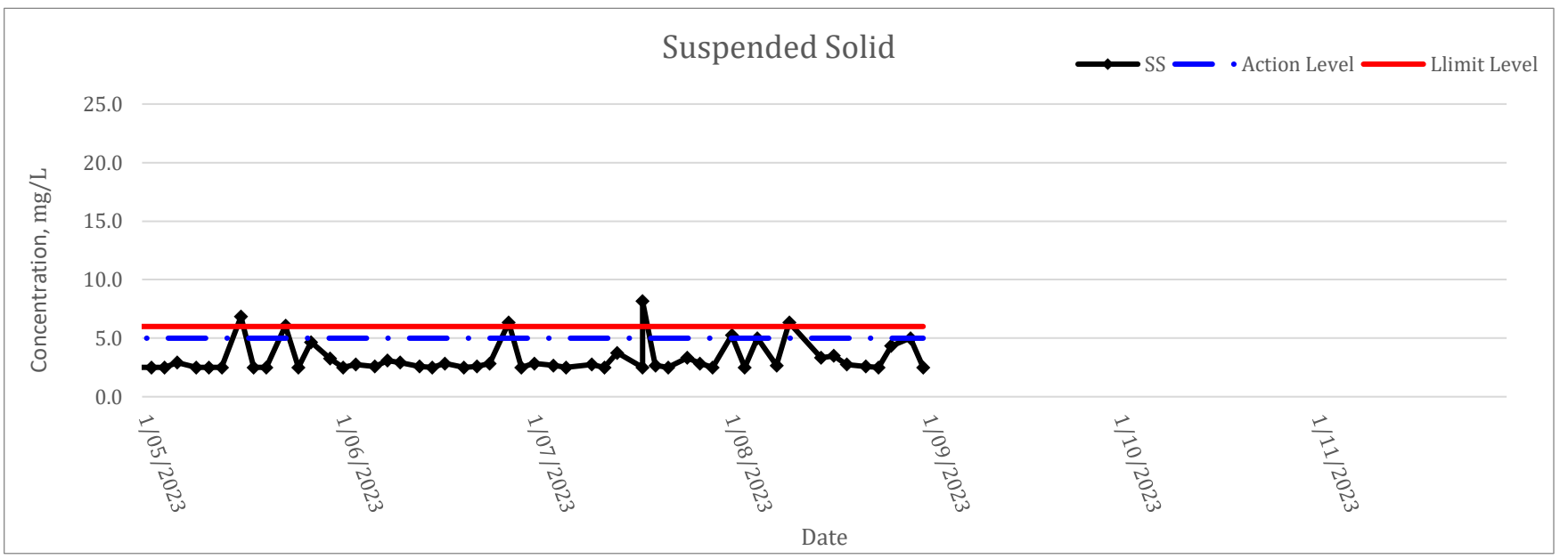
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Ebb Tide

Monitoring Location : WSR 36



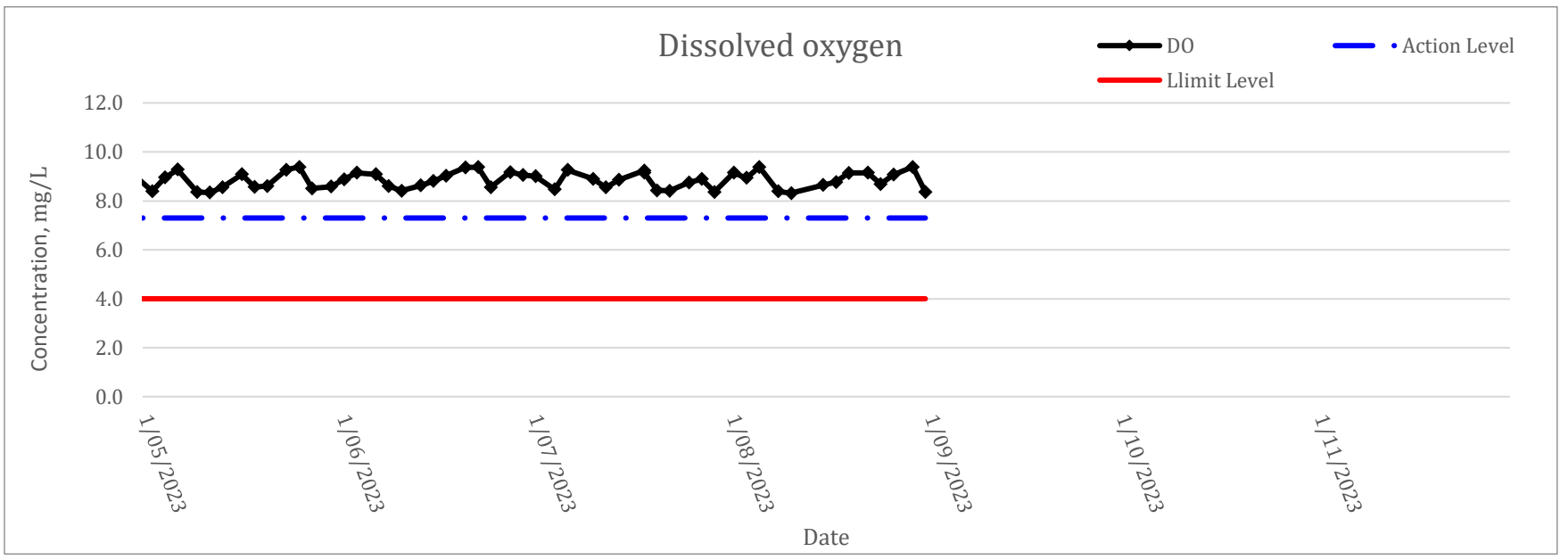


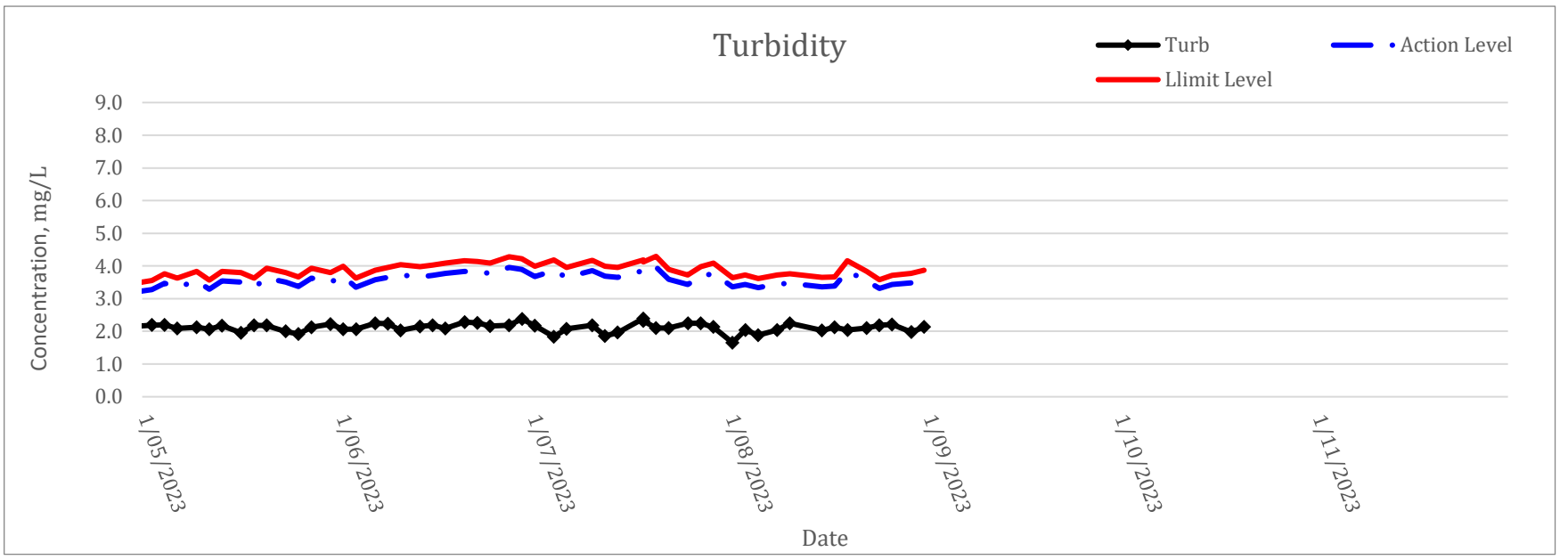


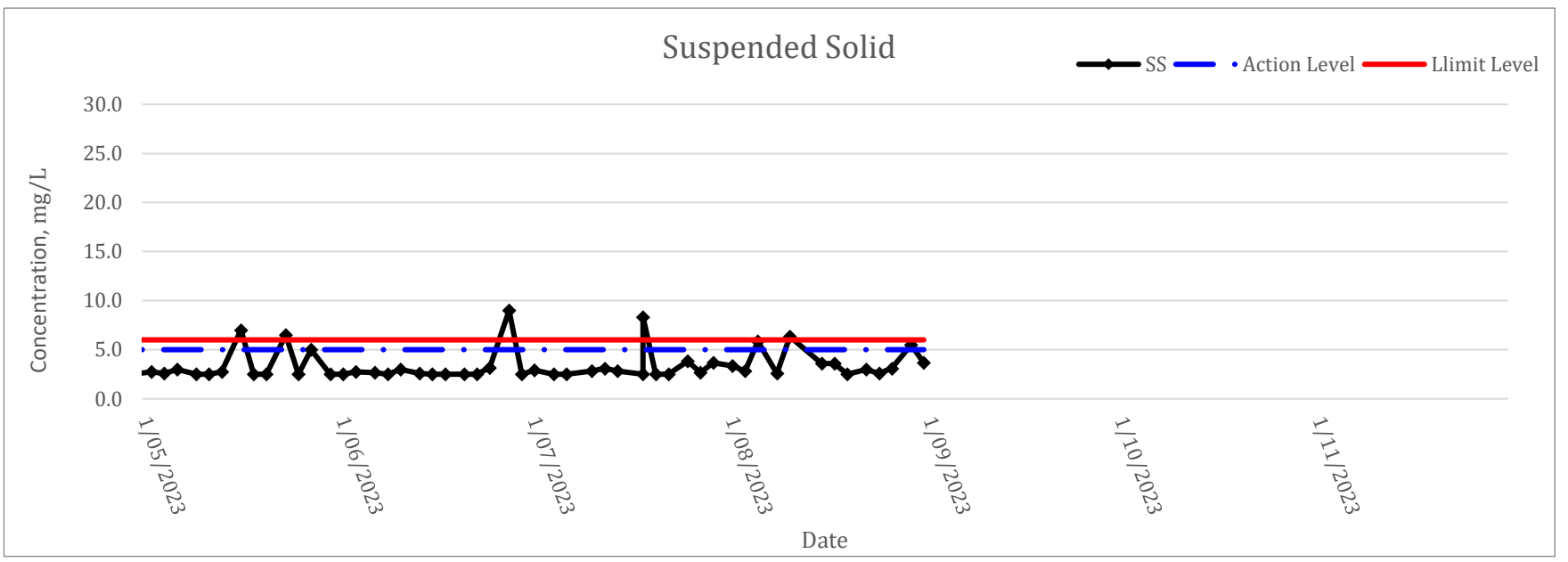
Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Middle-Ebb Tide

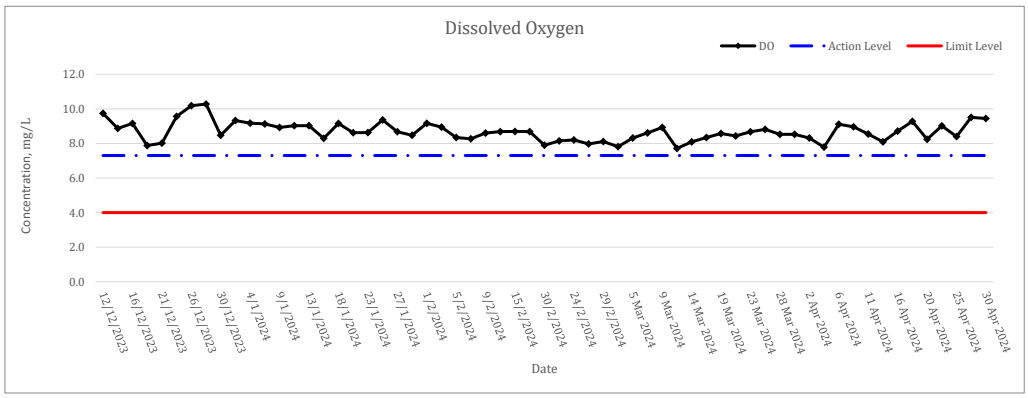
Monitoring Location : WSR 37

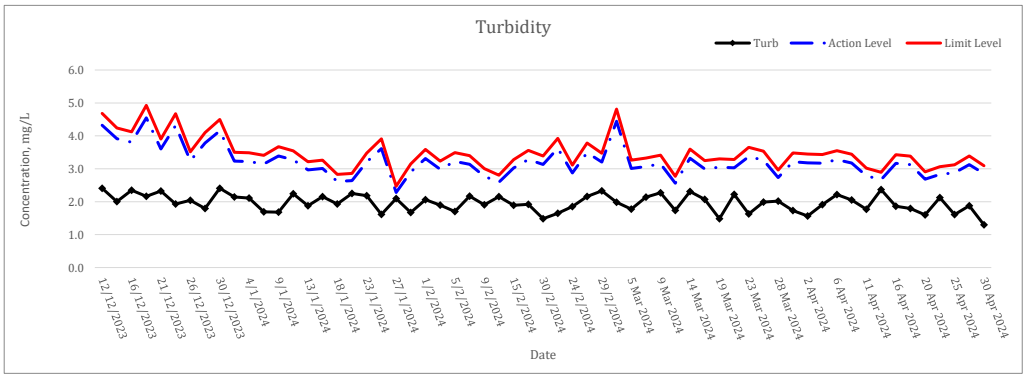


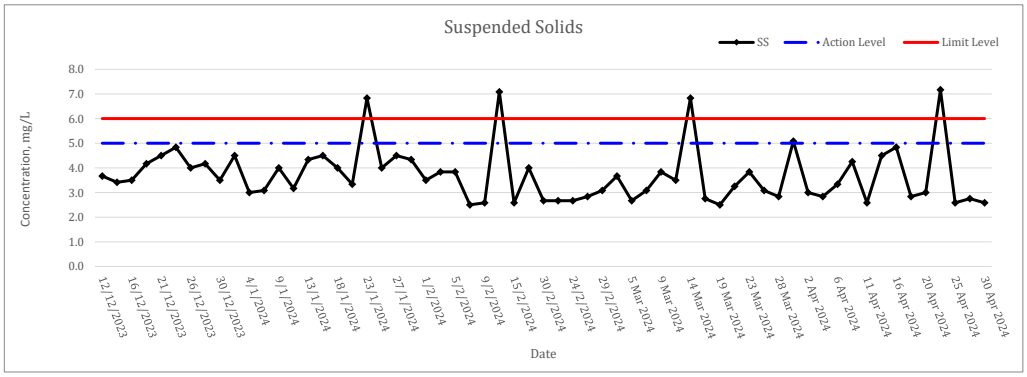


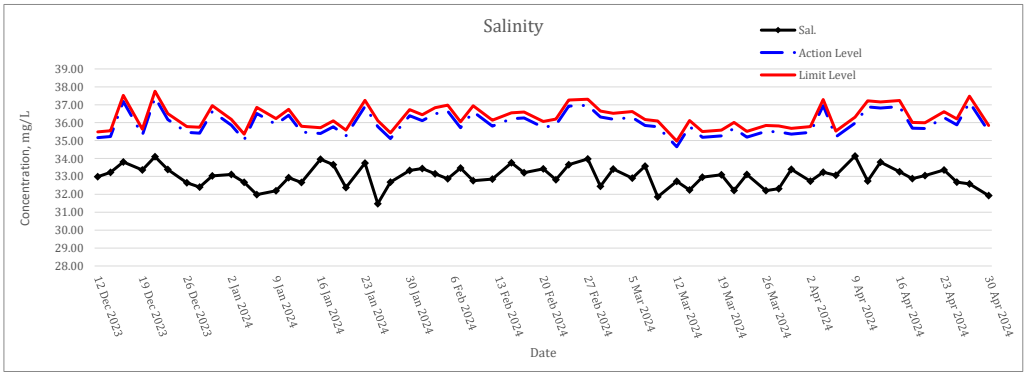


Monitoring Location: WSR1

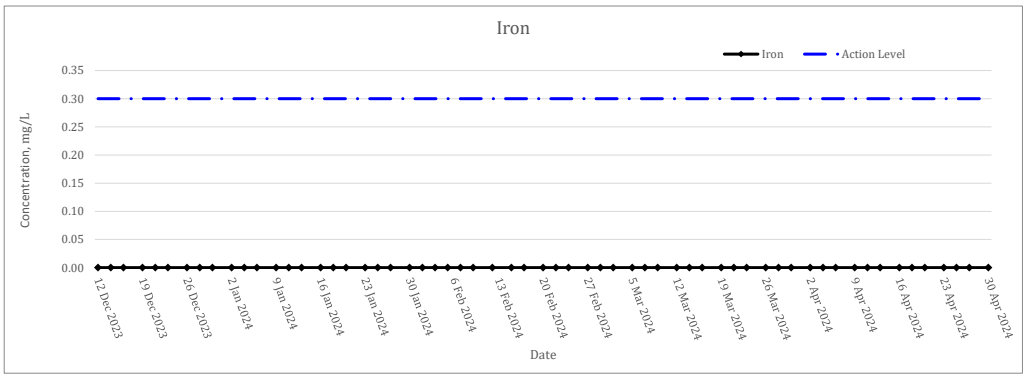




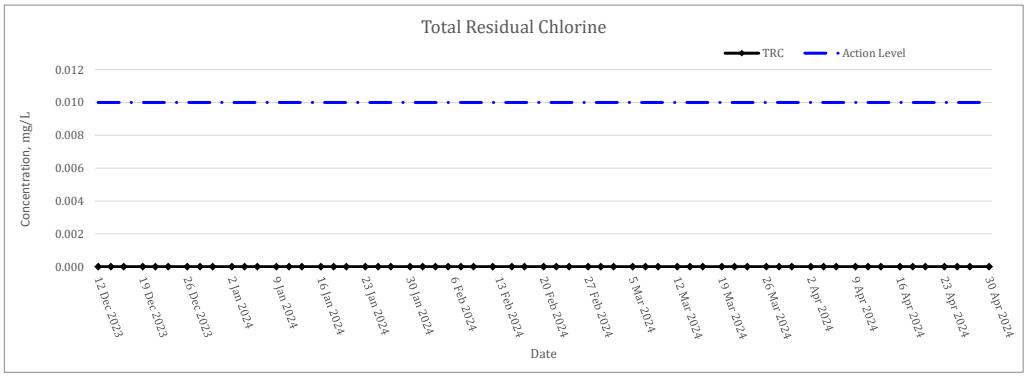




Monitoring Location: WSR1

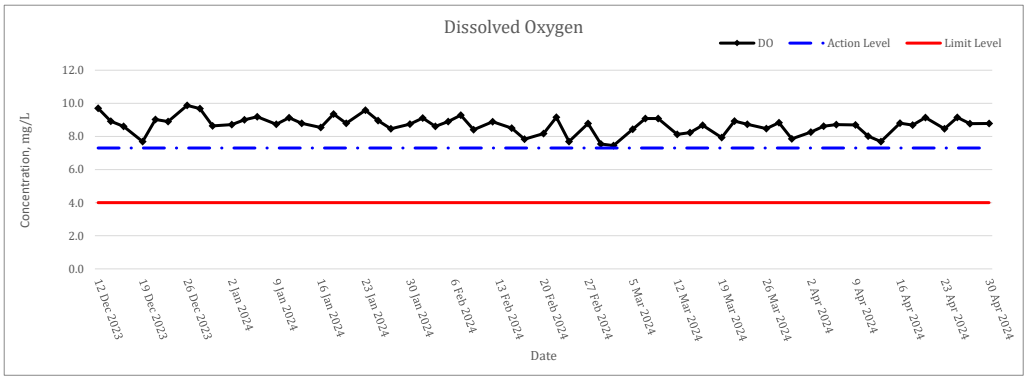


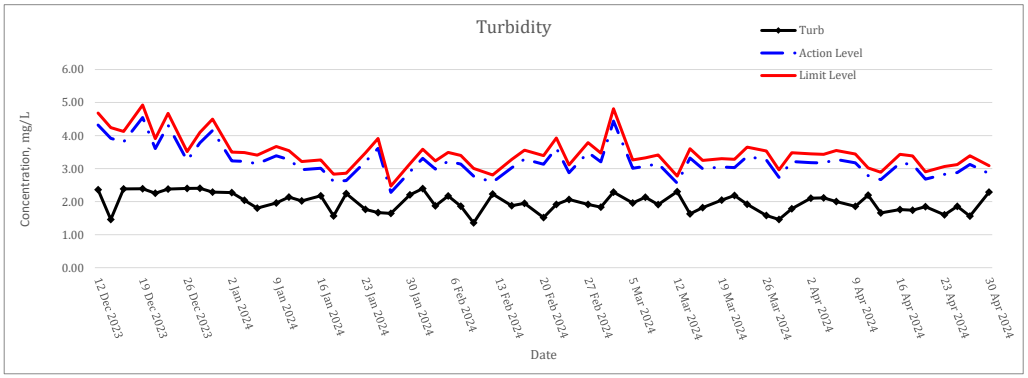
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

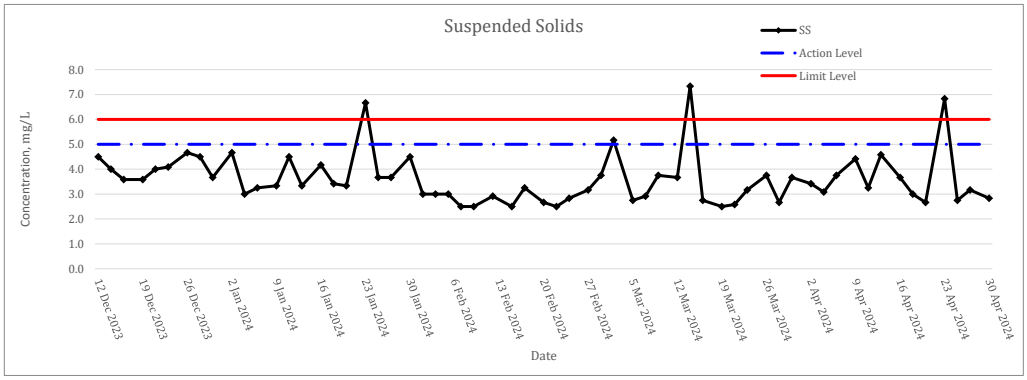


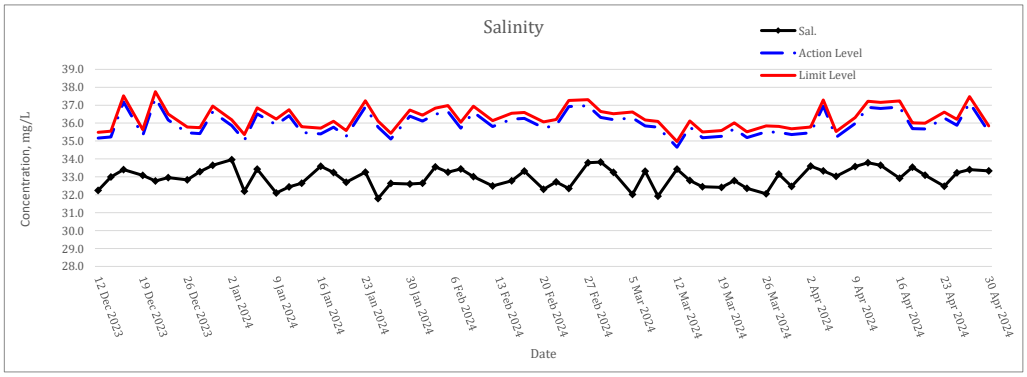
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: WSR2

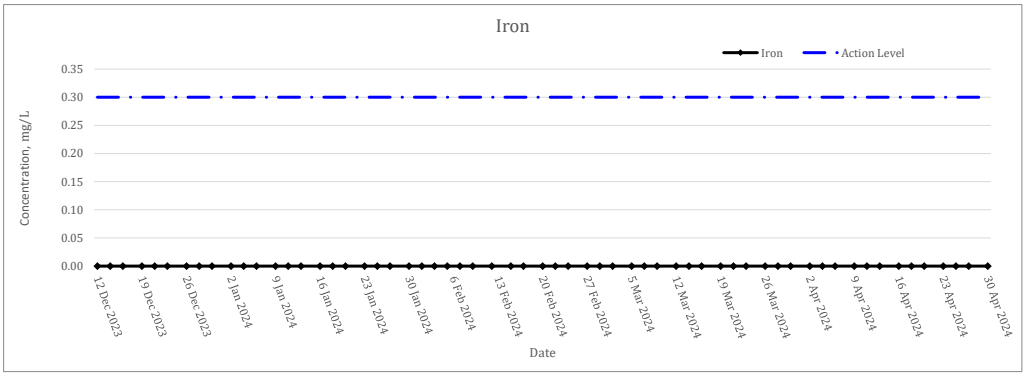




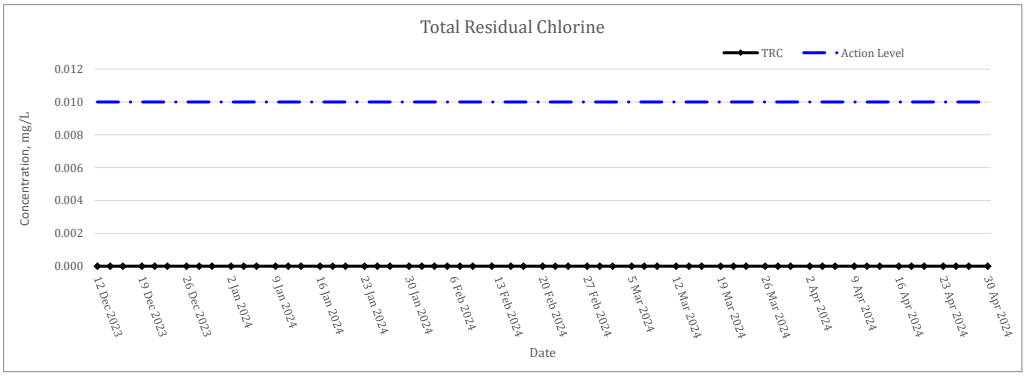




Monitoring Location: WSR2

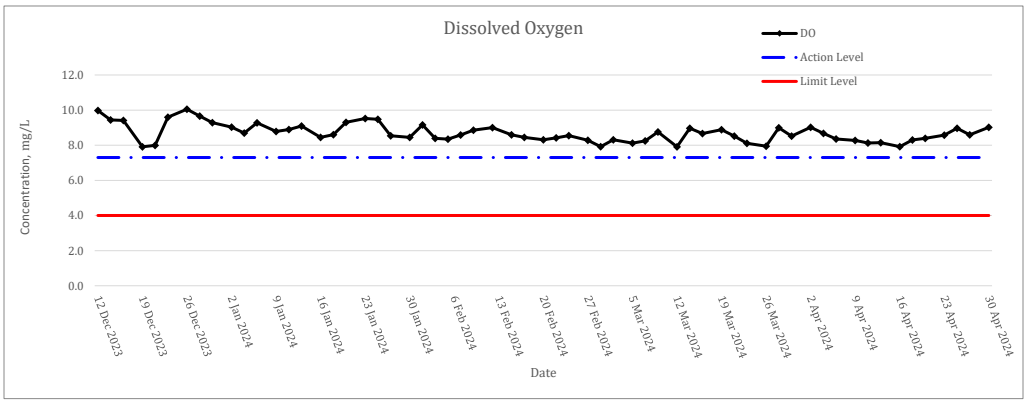


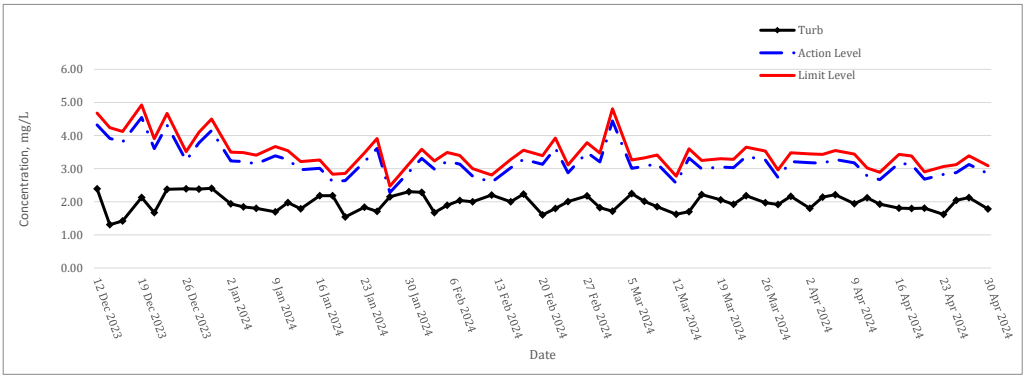
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

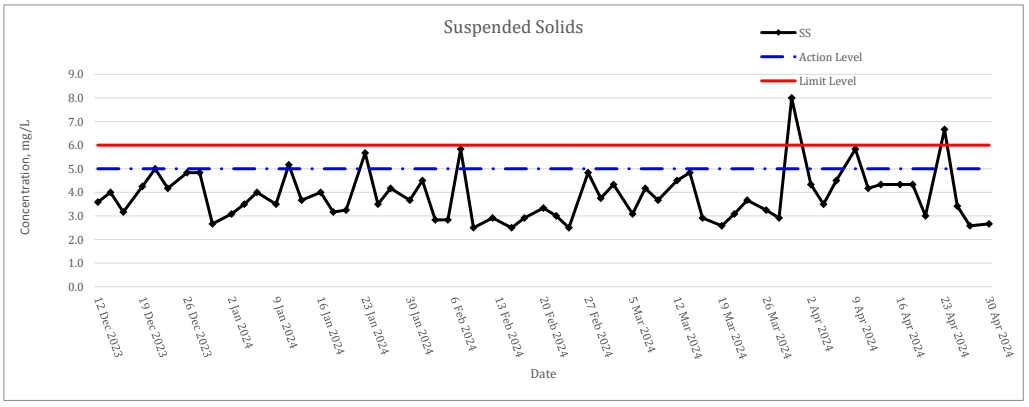


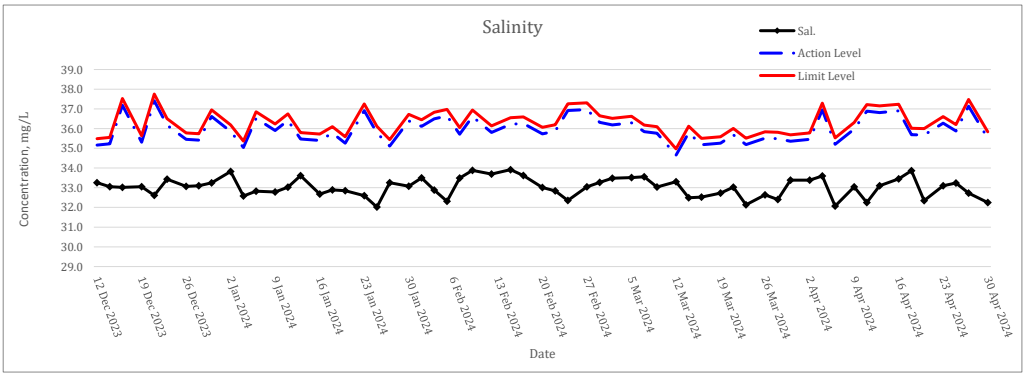
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: WSR3

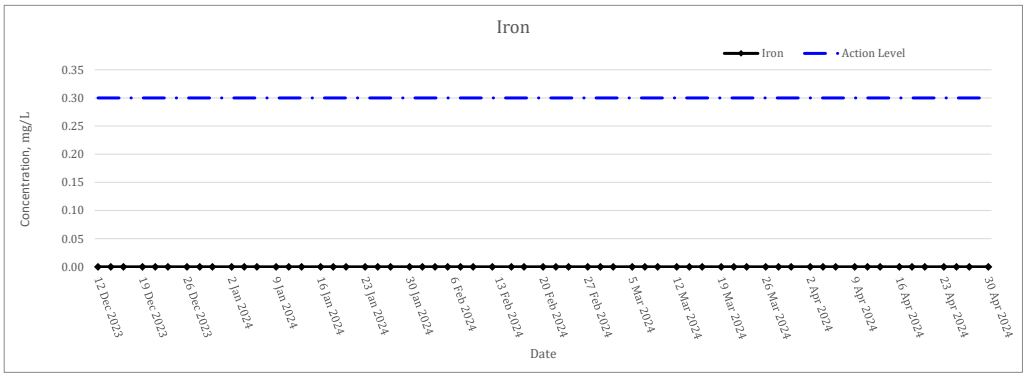




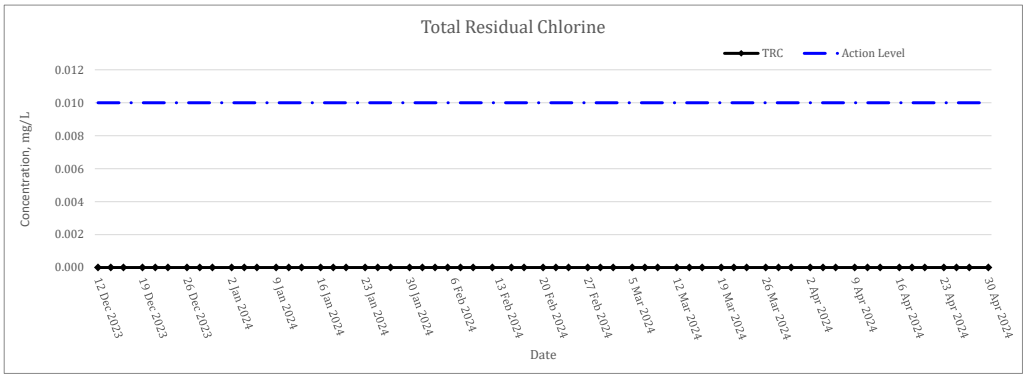




Monitoring Location: WSR3

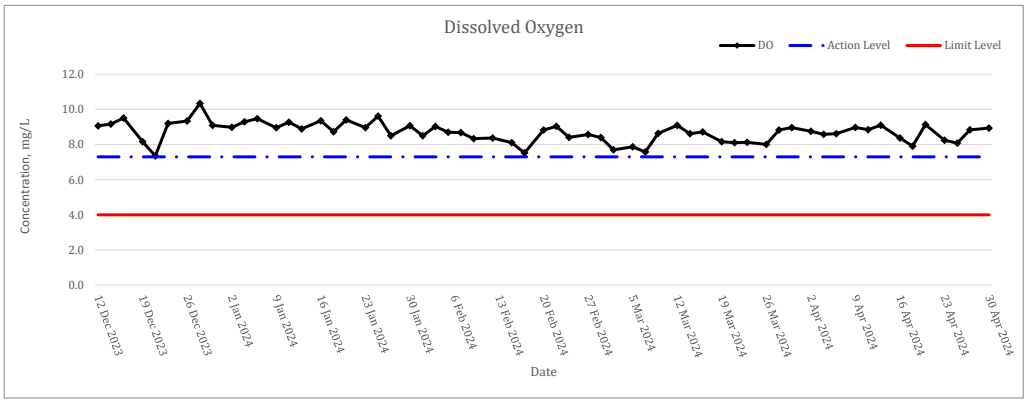


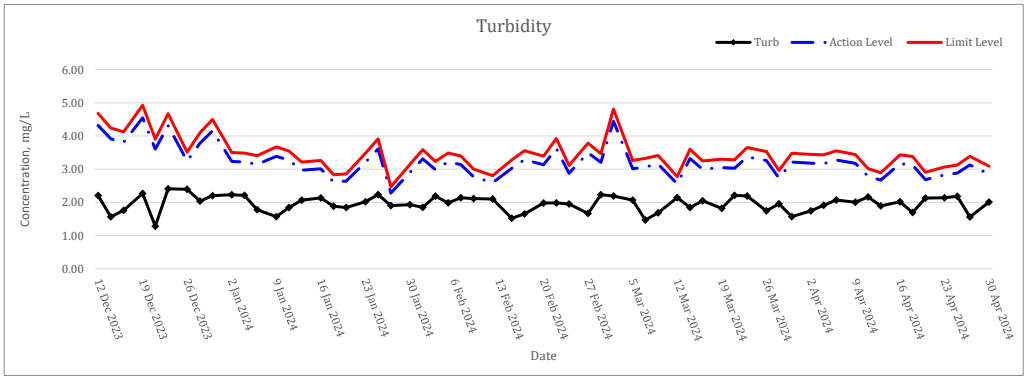
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

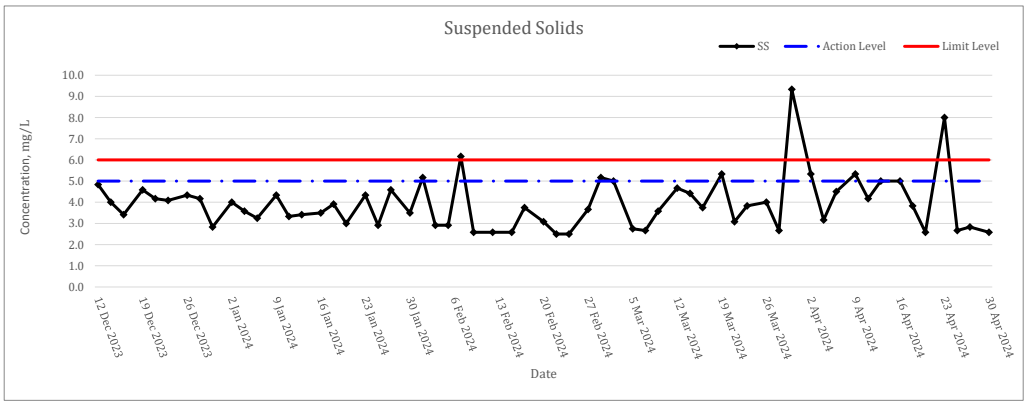


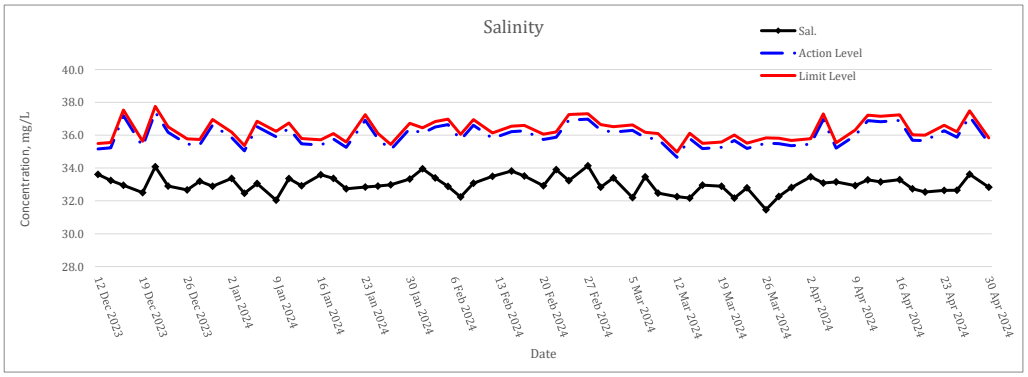
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: WSR4

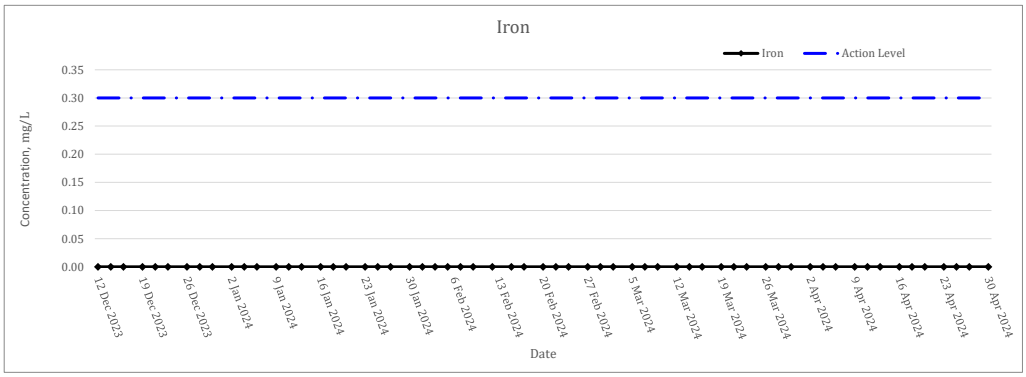




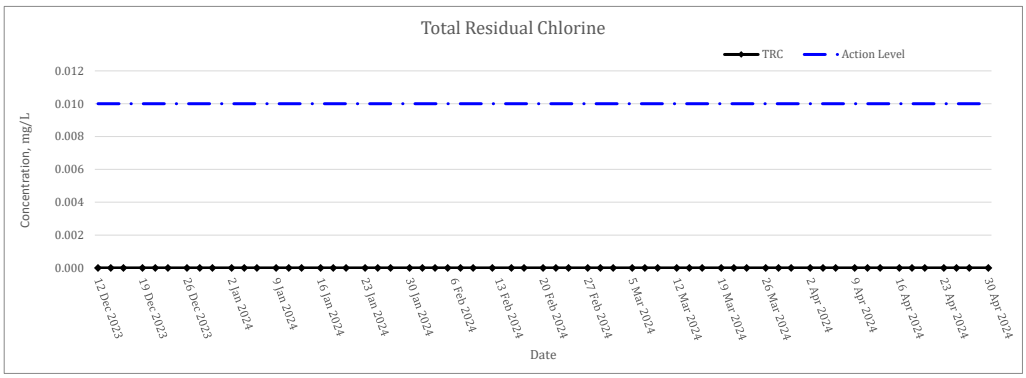




Monitoring Location: WSR4

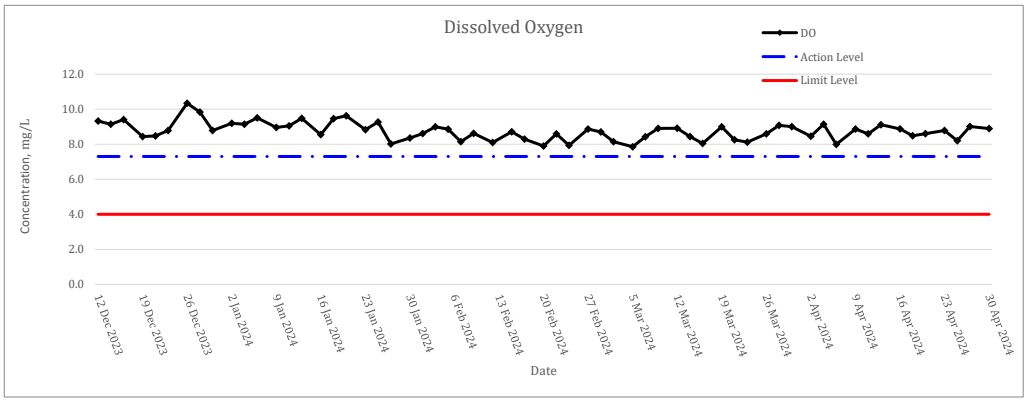


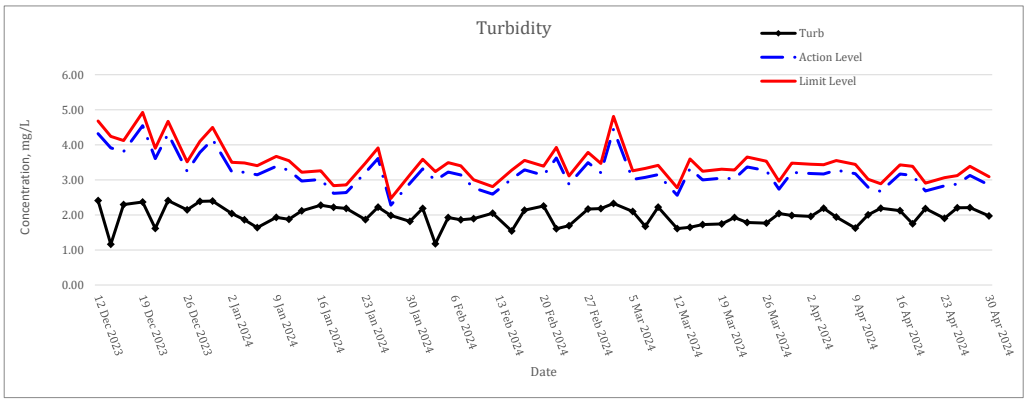
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

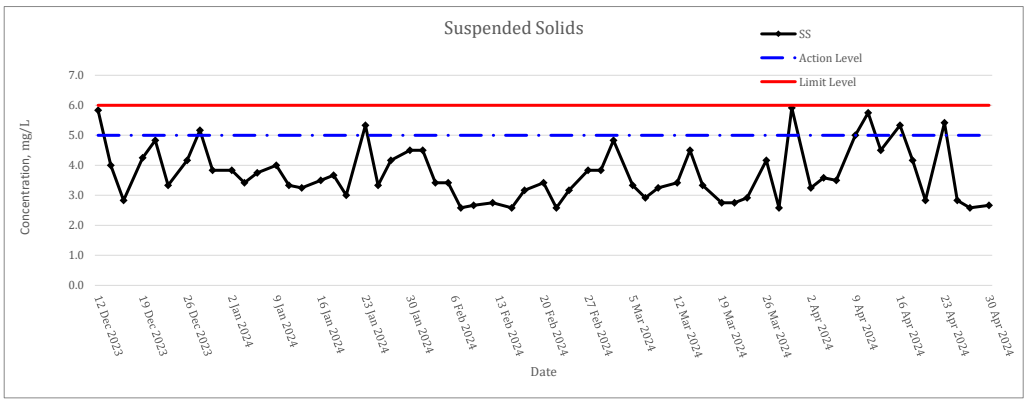


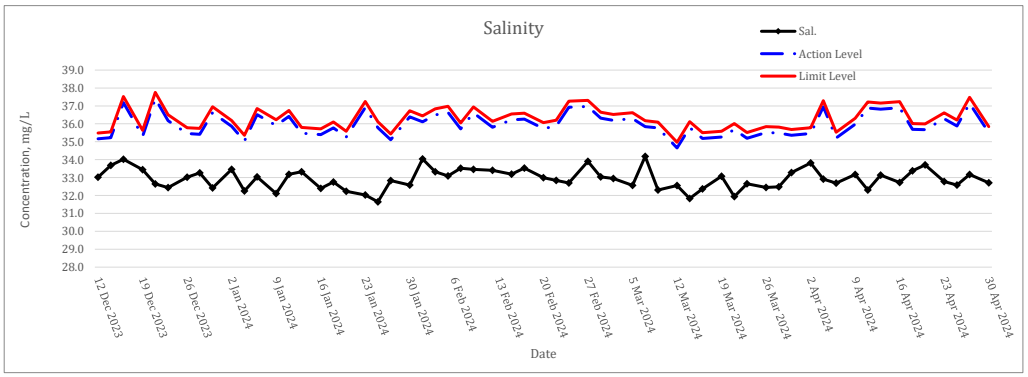
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: WSR16



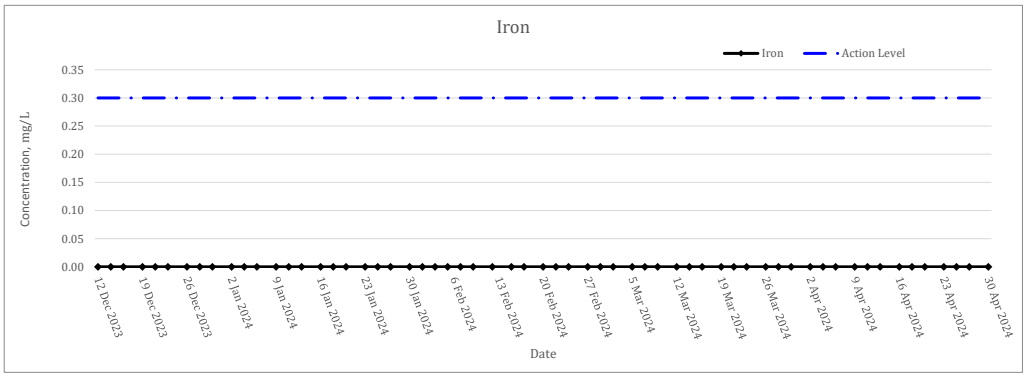




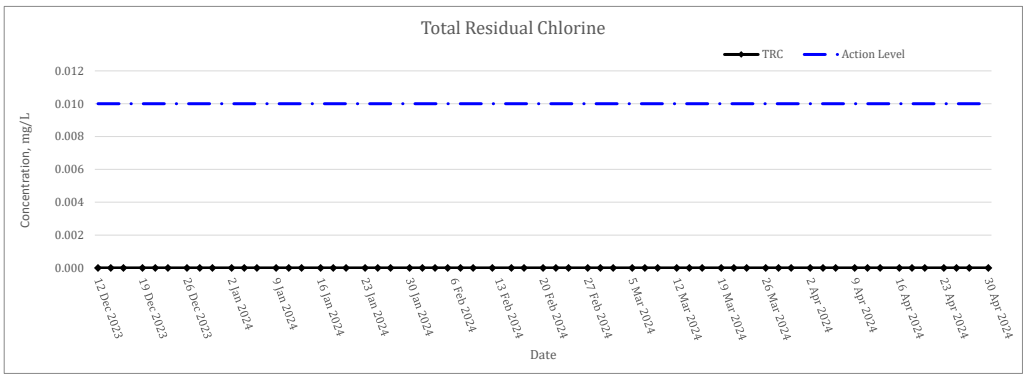


Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Monitoring Location: WSR16

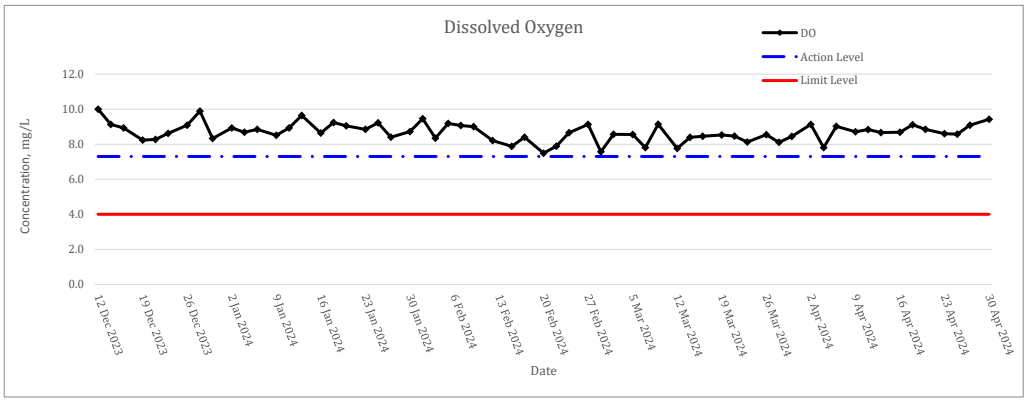


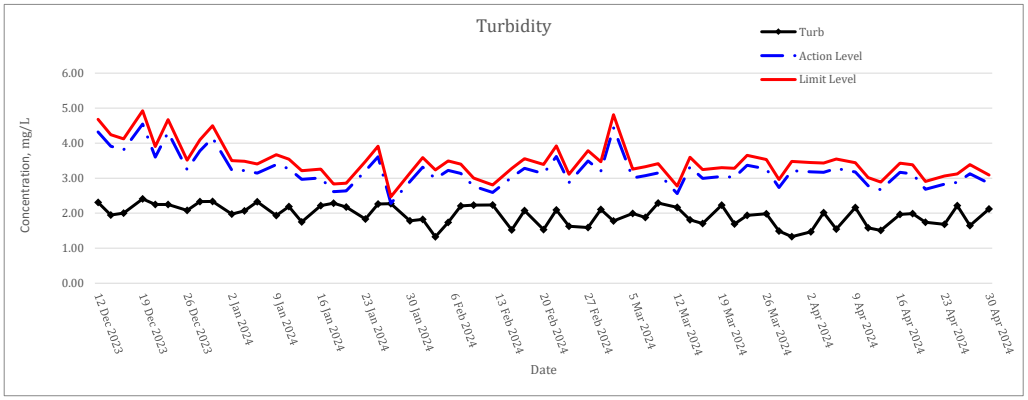
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

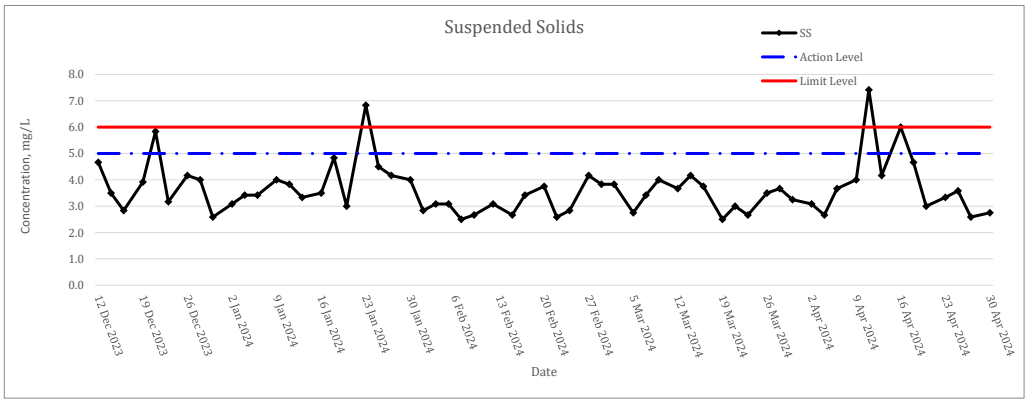


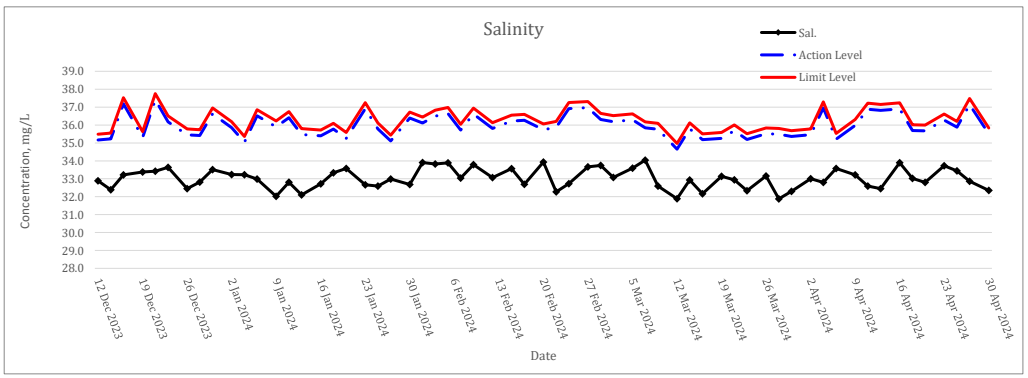
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: WSR33

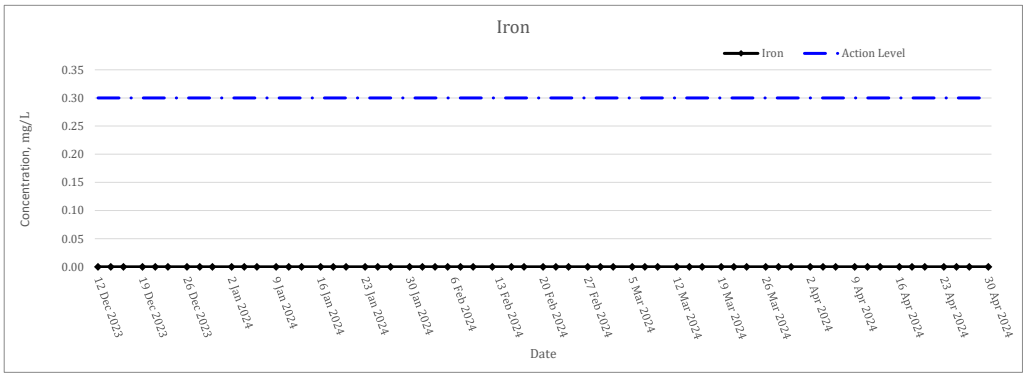




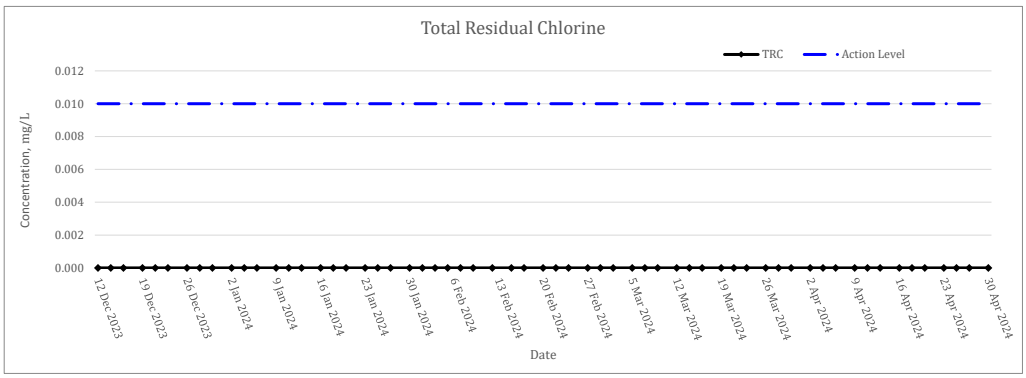




Monitoring Location: WSR33

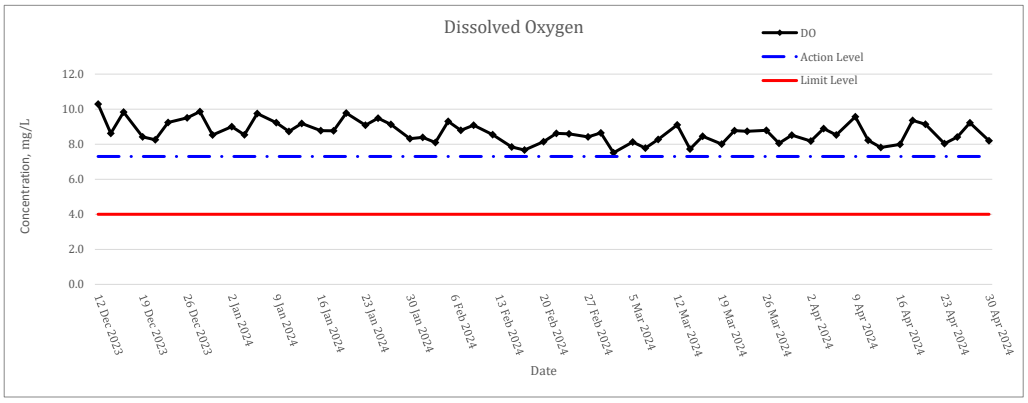


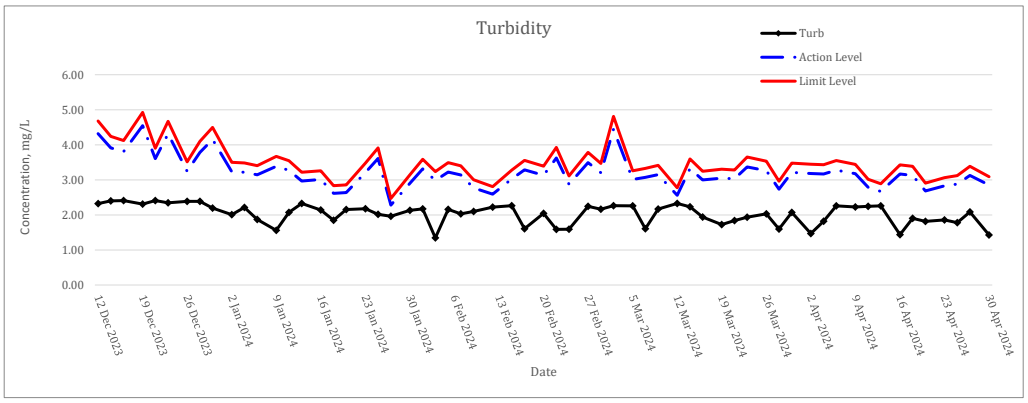
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

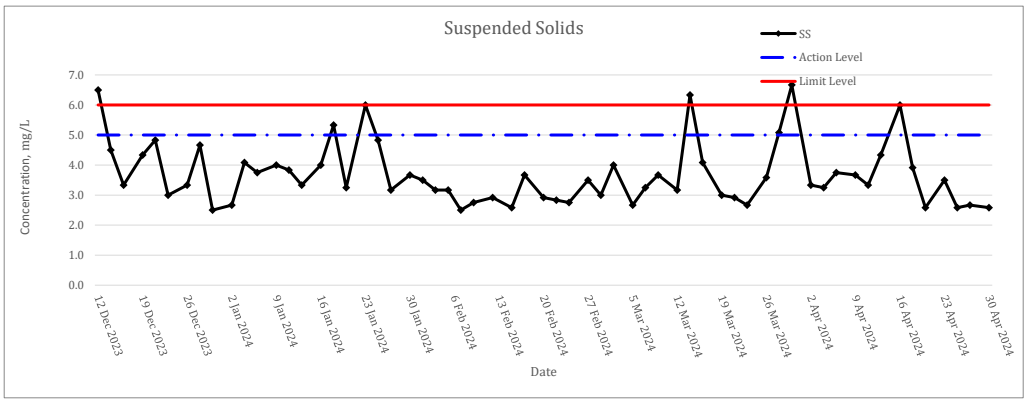


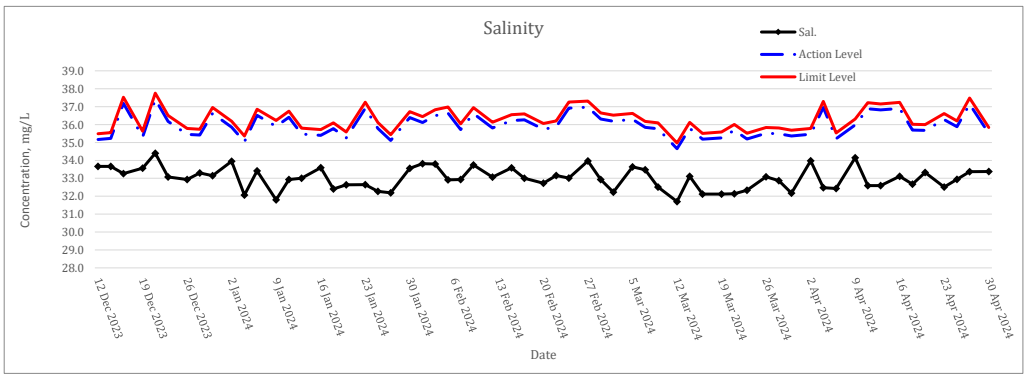
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: WSR36

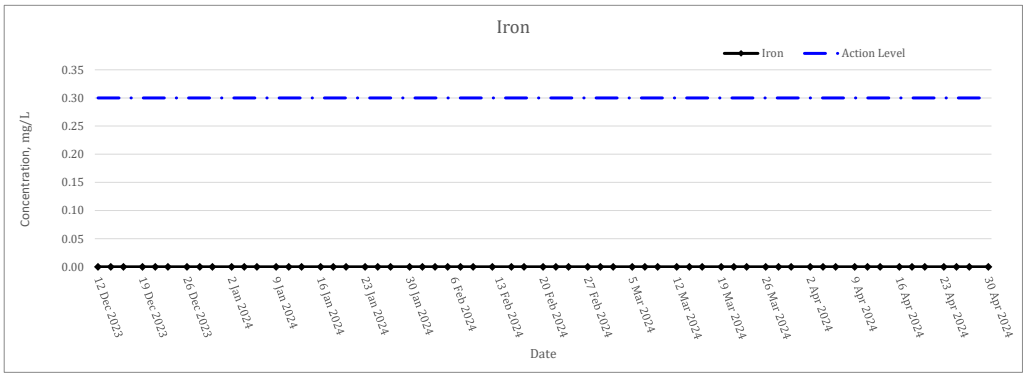




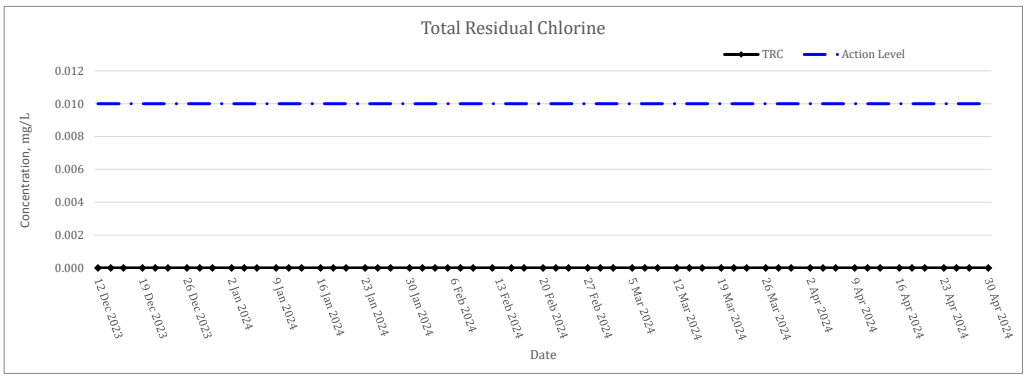




Monitoring Location: WSR36

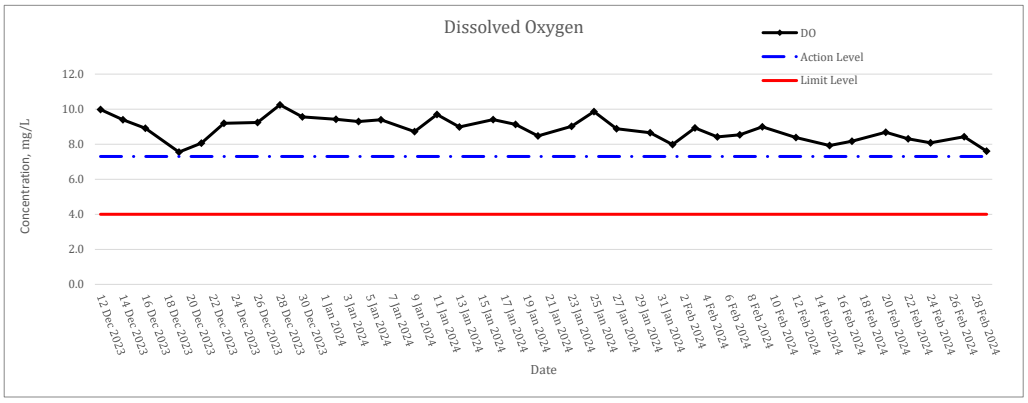


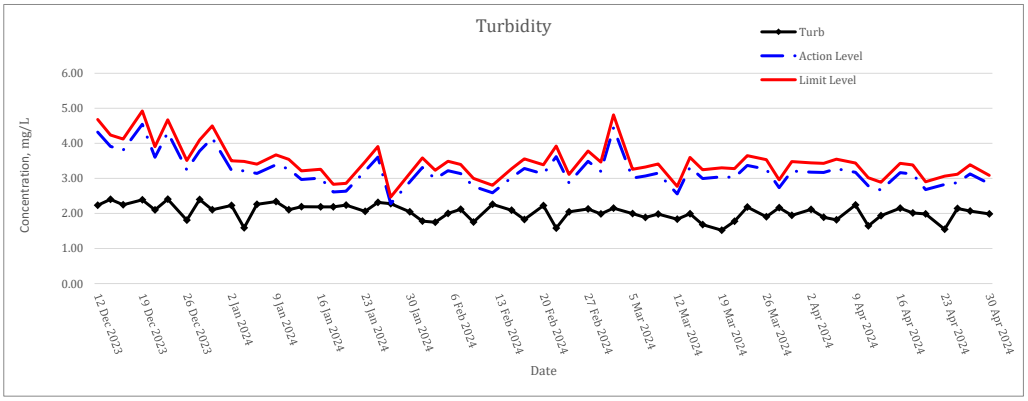
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

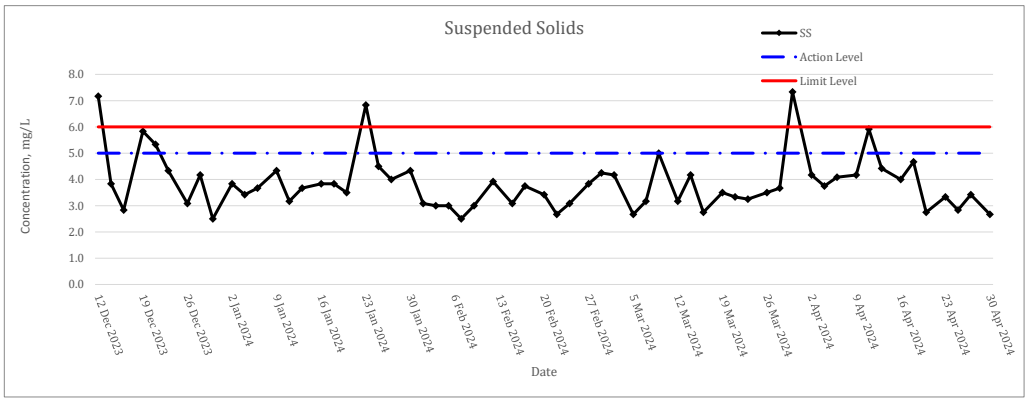


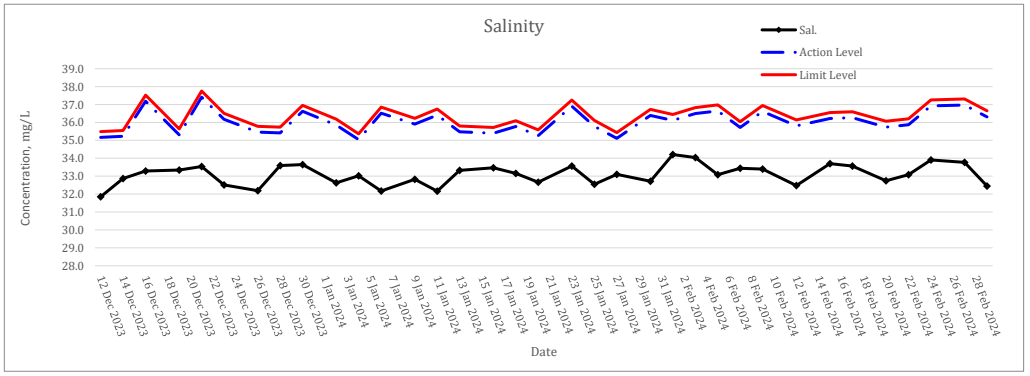
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: WSR37



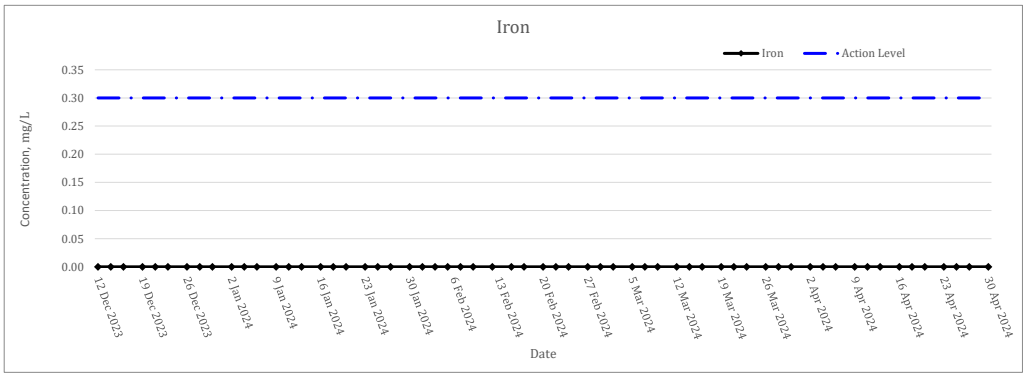




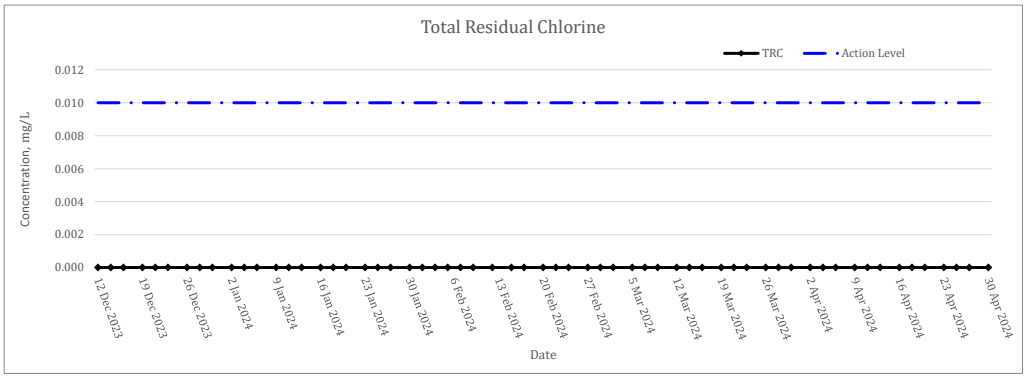


Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Monitoring Location: WSR37

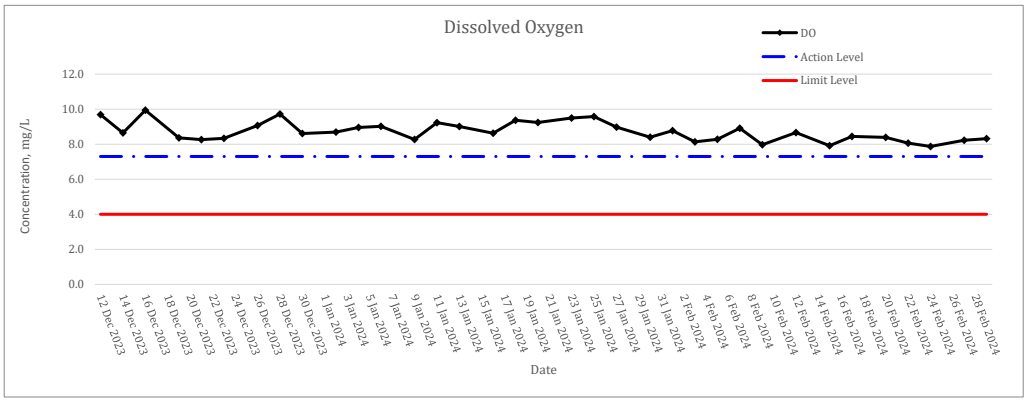


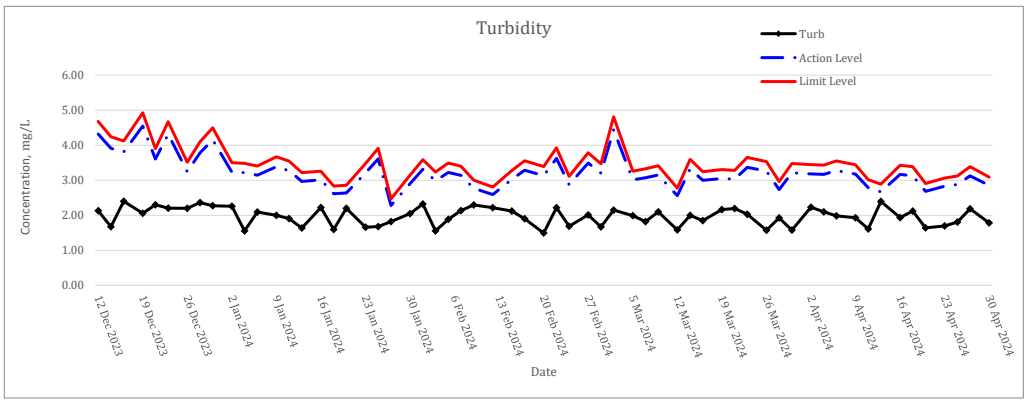
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

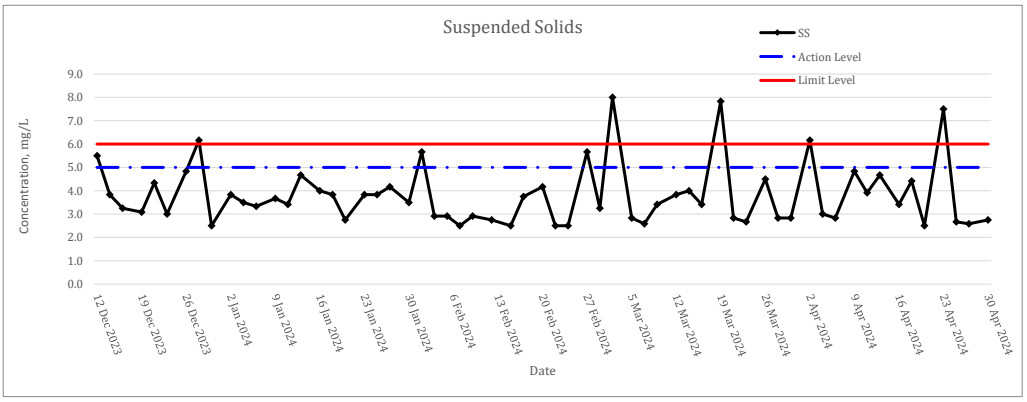


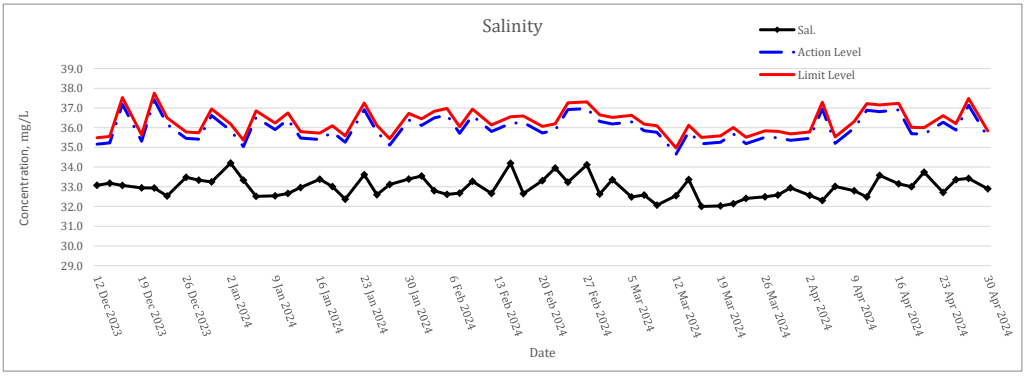
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: NF1

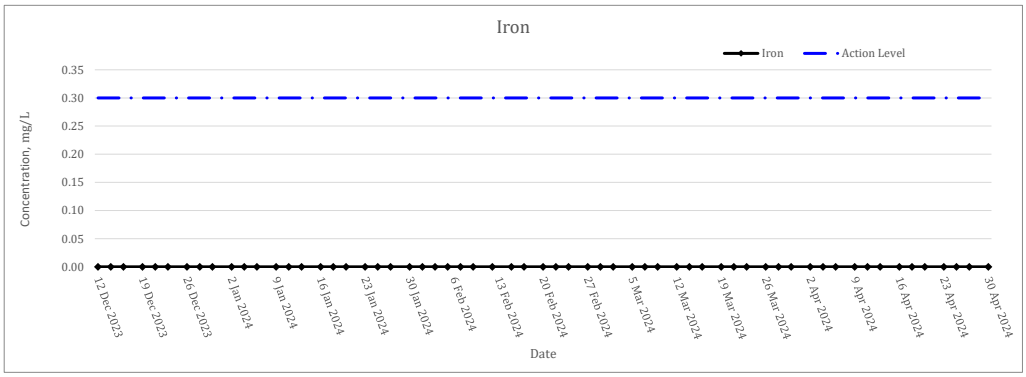




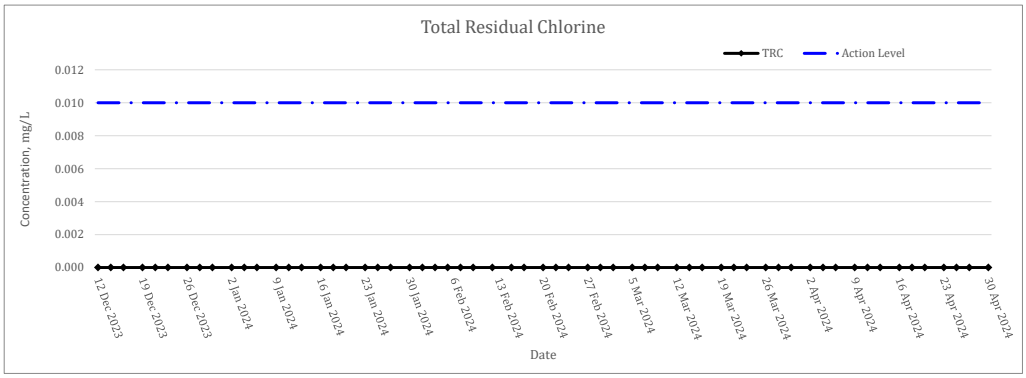




Monitoring Location: NF1

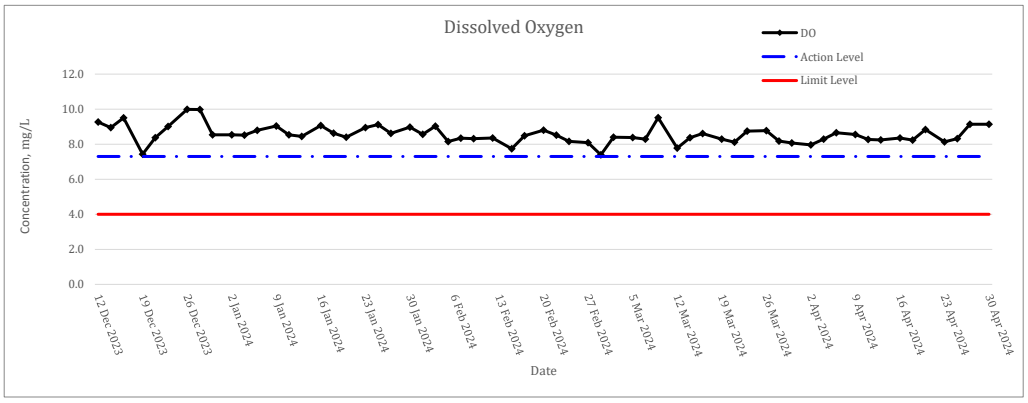


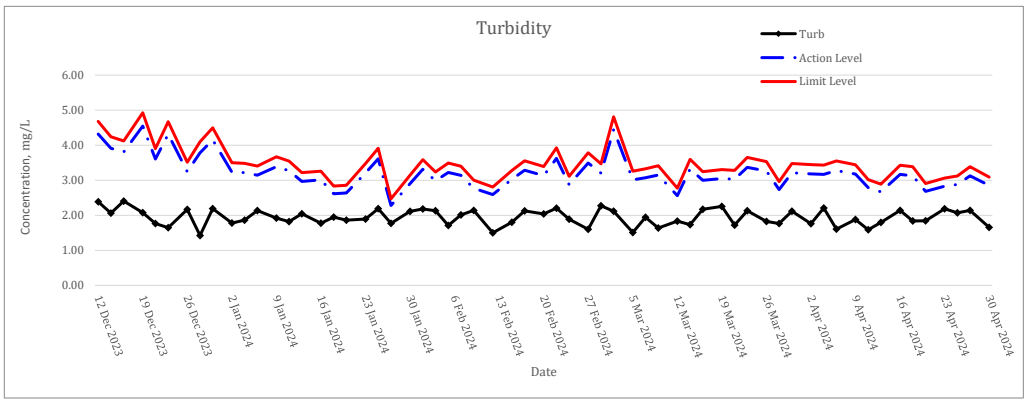
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

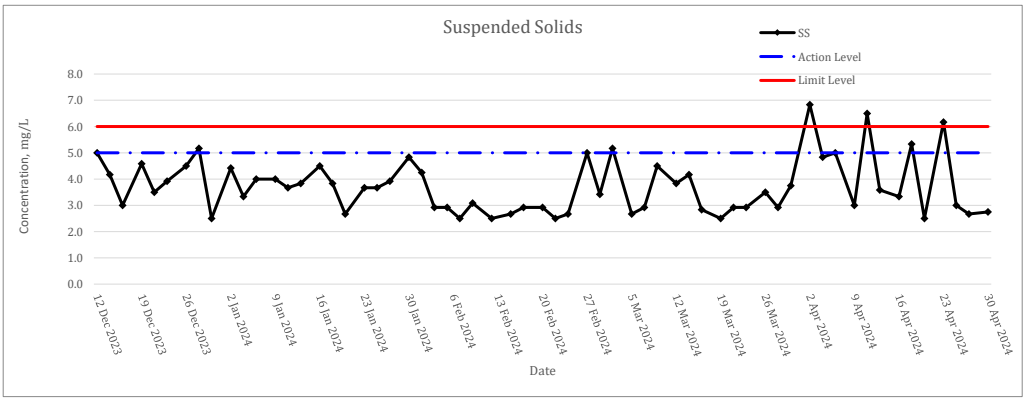


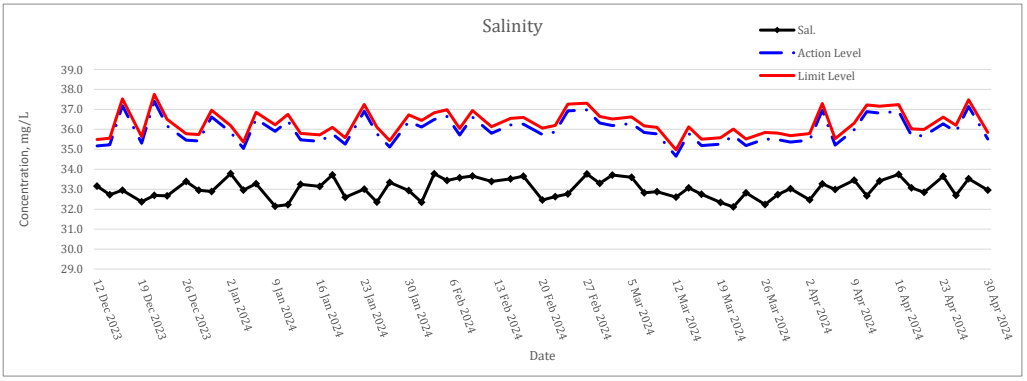
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: NF2

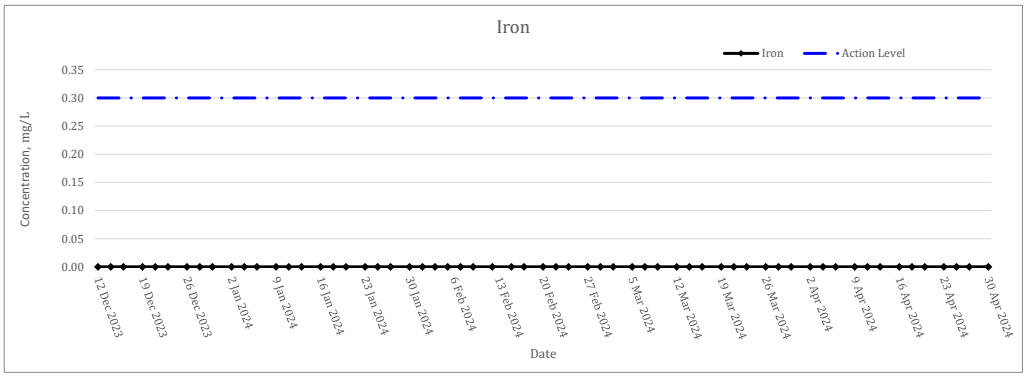




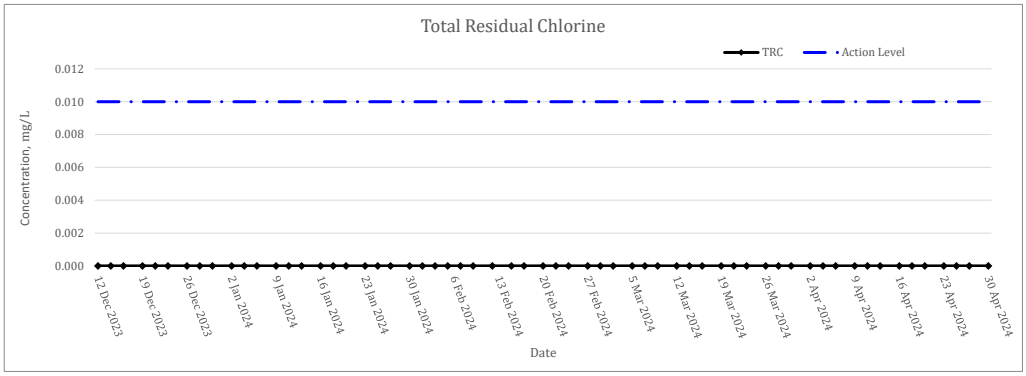




Monitoring Location: NF2

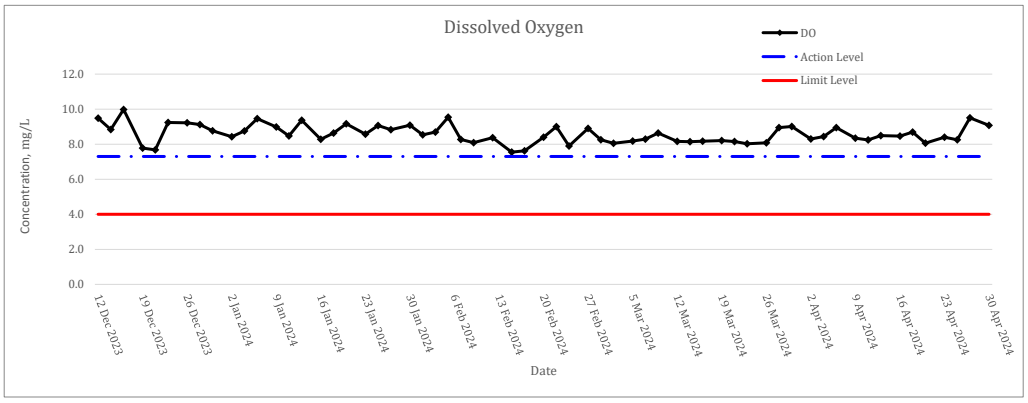


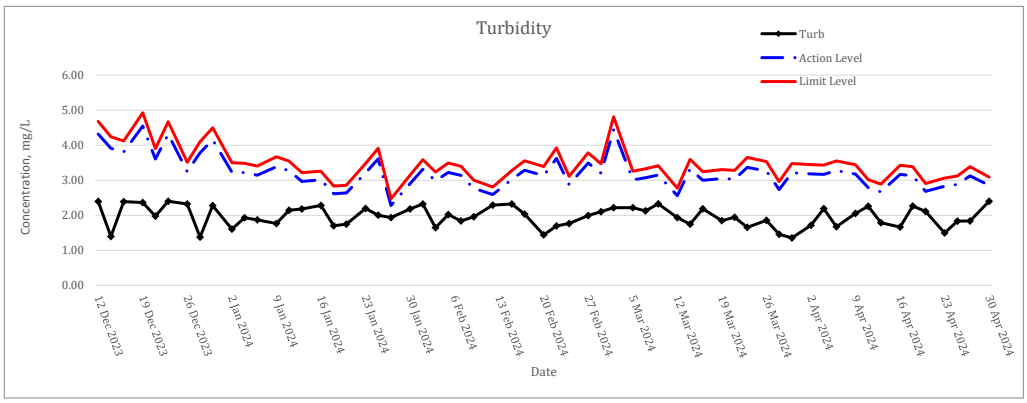
Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.

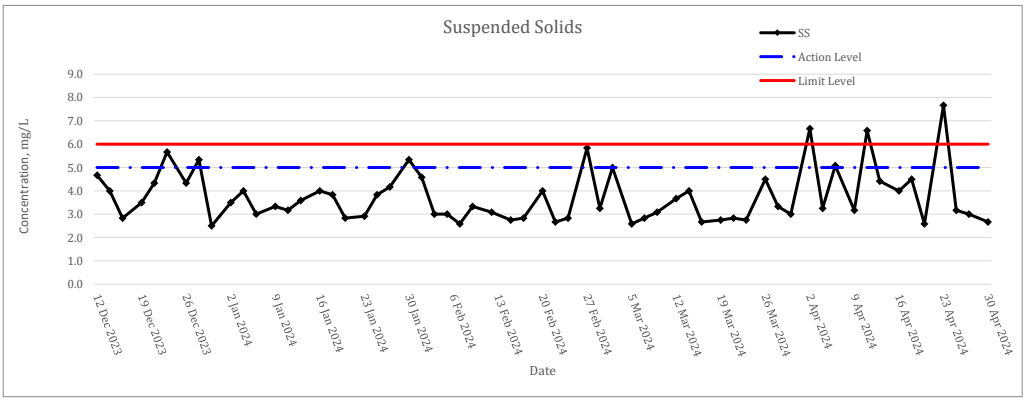


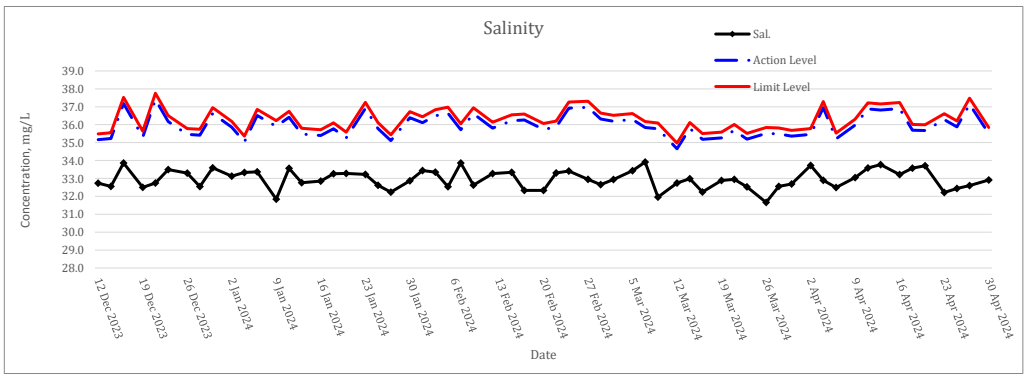
Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Monitoring Location: NF3



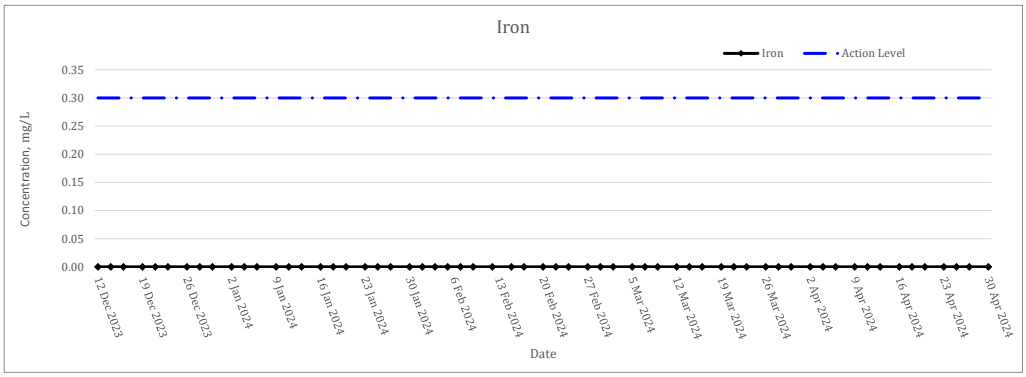




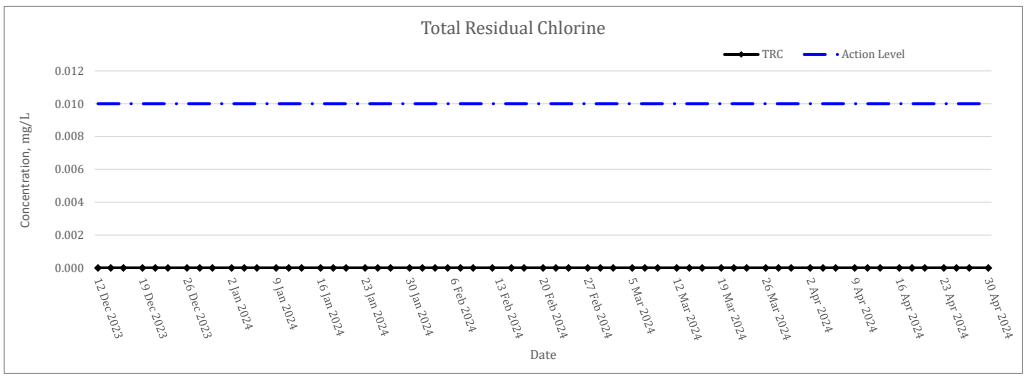


Contract No. 13/WSD/17
Design, Build and Operate First Stage of
Tseung Kwan O Desalination Plant

Monitoring Location: NF3



Remark: The lowest detection limit of the Iron is 0.1mg/L. All result of iron monitoring are lower than the detection limit.



Remark: The lowest detection limit of the Total Residual Chlorine is 0.01mg/L. All result of Total Residual Chlorine monitoring are lower than the detection limit.

Appendix D.1

Weather Condition

Daily Extract of Meteorological Observations , May 2023

Back Year 2023 Month 5 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1014.2	26.1	24.1	23.0	19.9	78	87	0.3	1.4	090	31.8
02	1015.2	26.9	24.1	22.7	19.1	74	81	0.0	3.0	070	28.9
03	1013.4	29.1	25.4	23.6	22.5	84	79	0.1	4.1	070	16.3
04	1008.8	31.0	27.0	25.4	23.9	84	74	0.0	5.3	110	14.8
05	1005.8	30.2	27.5	25.5	23.7	80	66	0.0	5.7	140	11.5
06	1004.4	29.7	28.2	26.9	24.8	82	85	0.0	1.2	170	16.8
07	1006.0	30.3	26.6	23.4	24.0	86	88	35.5	1.2	170	11.5
08	1011.0	24.8	23.2	21.9	21.1	88	88	39.2	0.3	010	27.4
09	1013.2	26.5	23.8	22.3	19.7	78	82	0.1	4.6	080	41.2
10	1013.7	25.3	23.9	23.0	18.1	70	88	0.0	2.1	080	36.1
11	1014.7	25.8	23.9	22.2	19.2	76	88	0.5	1.4	070	28.6
12	1014.8	25.7	24.4	23.8	20.0	77	88	Trace	0.0	050	20.3
13	1013.8	25.3	23.5	22.3	20.8	85	89	9.5	0.0	020	9.0
14	1011.6	23.1	21.3	20.2	20.2	93	94	39.9	0.0	020	18.6
15	1010.4	27.1	24.3	21.9	21.4	84	83	0.1	4.3	070	11.6
16	1009.6	27.3	25.2	23.1	22.9	87	81	0.4	3.7	110	7.1
17	1007.9	28.9	26.9	23.7	24.9	89	88	32.7	0.9	200	17.5
18	1006.9	31.4	28.9	27.5	25.7	83	63	0.0	6.5	230	18.2
19	1007.7	31.3	29.1	27.4	25.6	82	67	0.0	6.5	140	6.7
20	1008.5	32.7	29.7	28.0	25.9	80	76	Trace	6.8	140	14.2
21	1009.0	32.2	29.7	28.0	25.6	79	78	1.5	6.7	200	22.0
22	1008.1	33.0	30.0	28.1	25.2	76	83	0.0	9.9	230	22.5
23	1009.1	29.2	26.9	24.4	24.7	88	93	8.3	0.1	080	29.2
24	1010.5	28.2	24.9	23.3	22.7	88	93	14.5	1.8	080	33.4
25	1012.0	26.9	26.1	24.9	24.0	89	88	Trace	0.0	080	26.6
26	1011.9	30.9	27.8	26.4	25.3	87	85	0.2	4.7	080	19.9
27	1010.4	32.3	28.8	26.7	25.1	81	60	0.0	10.4	080	19.1
28	1009.8	32.5	28.7	27.0	23.7	75	47	Trace	8.7	090	13.9
29	1008.0	32.3	28.9	26.3	23.5	73	18	0.0	11.5	270	15.5
30	1004.0	34.6	31.2	28.0	25.9	74	14	0.0	11.8	270	15.3
31	1002.1	34.7	31.4	29.6	26.8	77	37	Trace	7.3	100	9.7
Mean/Total	1009.9	29.2	26.6	24.9	23.1	81	75	182.8	131.9	080	19.8
Climatological Normal?	1009.3	28.8	26.3	24.5	23.0	83	76	290.6	138.8	080	19.8

^ *Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989*

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , June 2023

Back Year 2023 Month 6 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1002.8	31.6	29.2	26.2	25.1	79	71	6.0	6.4	240	12.3
02	1004.8	35.2	30.7	28.2	25.9	76	48	0.0	10.7	230	17.7
03	1007.6	34.9	30.8	28.9	26.1	76	47	0.6	9.0	130	11.8
04	1008.4	32.7	30.0	27.9	26.2	81	65	5.1	8.7	090	18.3
05	1007.9	32.9	29.7	27.7	25.7	79	83	4.8	6.2	090	28.7
06	1007.8	30.2	28.4	26.8	26.0	87	90	31.1	1.1	090	23.1
07	1008.7	31.5	28.5	27.0	26.2	88	85	27.1	1.6	140	23.5
08	1007.1	33.1	29.4	27.4	25.9	82	79	2.6	3.9	150	20.0
09	1004.2	32.0	29.0	26.7	25.8	83	86	16.8	5.1	190	9.8
10	1001.9	33.0	29.5	28.0	25.4	79	85	0.3	6.0	190	8.3
11	1001.6	32.5	29.2	27.3	25.9	83	86	25.4	5.8	090	7.8
12	1001.9	33.7	30.2	28.2	25.6	77	82	0.2	8.3	090	16.5
13	1002.6	32.7	29.8	25.8	26.2	81	86	31.8	3.5	170	11.7
14	1004.9	29.6	27.7	25.1	25.4	88	92	62.8	2.2	190	11.4
15	1005.1	28.7	27.4	26.1	25.7	91	88	41.5	0.0	200	10.9
16	1007.1	28.1	26.4	25.2	25.0	92	90	41.7	0.1	230	17.7
17	1009.3	28.0	26.2	25.3	25.2	94	90	89.9	0.0	120	12.0
18	1008.9	29.9	28.0	25.7	25.9	89	88	35.8	0.6#	170	23.8
19	1007.5	31.4	29.1	26.9	26.0	83	87	10.2	4.4	220	26.2
20	1007.0	32.2	30.0	27.8	26.1	80	79	2.3	7.1	220	24.8
21	1007.4	32.2	30.2	28.7	26.1	79	85	1.9	9.0	230	26.3
22	1007.2	32.4	30.2	29.0	25.8	77	88	0.6	9.3	230	25.2
23	1006.5	31.2	30.0	28.0	26.1	80	88	2.3	1.3	200	26.0
24	1007.1	31.0	29.1	27.4	26.3	85	88	8.2	0.1	190	26.0
25	1008.2	32.9	29.4	26.1	26.0	83	88	13.0	6.2	150	15.8
26	1008.5	32.9	29.4	26.6	26.2	83	88	11.4	6.4	070	13.8
27	1009.5	33.9	30.1	28.1	26.1	80	76	Trace	8.1	060	18.9
28	1009.9	31.3	28.8	26.9	26.2	86	84	5.4	3.5	090	14.6
29	1006.9	33.3	29.5	27.1	26.3	84	84	0.9	6.2	050	11.5
30	1005.6	32.5	29.8	26.5	26.3	82	83	11.2	6.6	240	14.5
Mean/Total	1006.5	31.9	29.2	27.1	25.9	83	82	490.9	147.4	090	17.6
Climatological Normal?	1006.1	30.7	28.3	26.5	24.9	82	77	491.5	144.3	220	21.6

 # data incomplete

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , July 2023

Back Year 2023 Month 7 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1006.6	30.9	28.9	26.2	25.6	82	85	4.7	1.9	200	16.2
02	1007.9	29.3	27.5	26.2	25.5	89	88	15.6	0.9	240	11.6
03	1008.8	32.4	28.9	27.0	25.7	83	82	3.6	5.7	200	19.5
04	1008.7	32.0	29.3	26.7	25.8	82	87	10.6	5.5	230	25.5
05	1008.4	33.0	30.4	28.9	25.9	77	86	Trace	9.3	230	25.5
06	1008.9	32.8	30.3	28.4	25.7	77	77	Trace	8.9	230	26.7
07	1009.7	33.4	30.4	29.0	25.7	76	71	0.3	9.8	220	24.7
08	1010.4	33.2	30.4	28.8	25.6	76	48	0.0	11.5	240	18.7
09	1009.8	33.7	30.5	28.7	26.0	77	46	Trace	10.7	240	21.5
10	1008.5	33.7	30.7	28.9	25.7	75	40	0.0	11.1	240	21.5
11	1008.4	33.6	30.7	28.9	25.8	76	42	0.0	11.0	240	18.0
12	1008.2	34.5	30.7	28.9	25.4	74	40	0.0	7.1	180	11.0
13	1006.8	34.8	30.9	28.6	24.8	71	58	0.0	12.0	090	6.5
14	1004.4	33.8	31.3	28.5	25.2	71	68	0.0	10.8	240	9.1
15	1000.8	34.5	31.1	28.2	25.8	74	83	2.5	9.0	270	11.7
16	997.7	33.3	29.7	27.2	24.8	75	87	4.9	5.9	050	45.5
17	997.5	29.4	28.4	27.2	25.7	85	88	29.0	0.1	100	61.4
18	1004.5	31.1	29.2	27.5	26.6	86	88	10.9	1.1	120	35.3
19	1007.5	30.3	28.7	27.3	26.5	88	88	3.9	1.1	120	19.8
20	1008.5	33.6	29.6	26.8	25.6	80	84	4.8	8.4	120	10.6
21	1009.7	32.4	29.7	27.7	25.6	79	76	Trace	4.5	160	5.4
22	1010.8	34.0	30.6	28.3	25.7	76	77	0.0	8.8	120	4.6
23	1009.5	34.1	30.6	28.6	26.0	77	86	Trace	9.5	110	8.0
24	1007.7	34.6	30.7	28.4	26.0	76	62	0.0	9.1	130	5.5
25	1006.3	33.4	30.7	28.4	25.3	73	56	0.0	11.5	240	14.3
26	1002.3	35.5	32.0	29.3	26.1	72	78	0.0	7.9	010	8.7
27	997.7	36.1	32.2	28.4	25.1	67	77	6.9	7.5	360	16.6
28	996.8	34.7	31.5	28.9	25.7	72	86	0.0	6.1	230	16.6
29	1002.3	31.5	29.8	27.2	26.8	84	91	21.0	0.5	220	18.0
30	1005.4	32.1	29.2	27.5	26.7	87	88	10.0	3.0	140	17.3
31	1006.3	32.5	29.1	26.5	26.1	84	85	46.5	9.0	080	21.9
Mean/Total	1006.0	33.0	30.1	28.0	25.8	78	74	175.2	219.2	230	18.6
Climatological Normal?	1005.6	31.6	28.9	26.9	25.2	81	72	385.8	197.3	230	21.3

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , August 2023

Back Year 2023 Month 8 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1004.7	32.2	29.3	27.9	25.3	80	75	Trace	7.0	070	10.6
02	1003.7	34.6	30.4	27.9	24.1	70	52	0.0	11.0	060	9.4
03	1002.8	35.1	30.8	27.9	25.2	73	43	0.0	11.0	230#	11.6#
04	1004.7	33.5	30.5	28.3	26.0	77	86	2.6	9.0	220	28.3
05	1004.5	33.0	30.4	28.3	26.3	79	84	5.9	7.0	230	30.1
06	1002.4	33.0	30.3	29.2	26.1	78	71	Trace	7.2	230	28.8
07	1001.8	32.4	30.1	28.0	25.4	76	69	1.6	6.3	230	21.2
08	1003.6	33.3	30.3	28.9	25.2	74	69	0.0	8.3	230	18.0
09	1004.9	32.8	30.3	28.7	25.4	76	73	Trace	5.9	230	21.5
10	1004.7	32.1	29.2	27.5	25.7	82	86	11.1	1.4	230#	18.0#
11	1003.5	30.1	27.8	25.7	24.9	85	85	26.4	2.6	***	***
12	1003.5	32.1	29.0	26.6	24.9	79	86	0.9	8.5	***	***
13	1003.7	29.6	28.5	26.1	25.6	84	87	34.2	1.0	***	***
14	1005.2	32.2	29.4	27.0	25.9	82	88	3.6	4.0	***	***
15	1006.7	32.5	29.9	28.8	26.2	80	85	Trace	3.2#	***	***
16	1006.8	34.0	30.6	28.8	26.2	78	70	0.0	10.7	220#	21.9#
17	1005.2	32.0	30.0	29.0	26.5	82	85	Trace	5.3	250	22.0
18	1004.0	30.6	29.2	27.2	26.6	86	88	9.3	2.1	240#	16.5#
19	1005.7	30.6	28.8	27.3	25.8	84	88	0.3	3.4	230	11.6
20	1007.7	31.5	29.7	28.4	26.0	80	86	0.6	3.3	120	2.8
21	1007.8	32.1	29.6	28.2	26.2	82	86	0.2	6.0	020	6.4
22	1006.1	33.0	30.0	28.0	25.8	79	88	0.3	6.4	180	5.5
23	1005.3	33.5	30.4	28.2	25.9	78	86	0.3	6.9	190	8.7
24	1006.7	31.4	29.1	27.5	26.1	85	88	5.7	1.4	030	11.7
25	1006.8	30.9	29.3	28.2	26.1	83	77	0.2	3.3	020	8.4
26	1005.2	32.8	29.7	27.9	26.4	83	88	0.0	3.5	110	5.7
27	1003.2	31.9	29.4	26.4	26.4	84	87	2.2	2.8	110	7.1
28	1002.6	33.4	29.9	28.1	26.2	81	88	0.5	3.3	110	5.3
29	1003.5	32.6	29.0	26.8	25.8	83	87	34.4	4.6	020	10.5
30	1003.9	32.0	28.9	26.7	23.3	72	83	0.0	6.7	360	20.0
31	1002.7	32.1	29.2	27.7	23.2	70	88	0.4	3.3	350	31.2
Mean/Total	1004.6	32.4	29.7	27.8	25.6	79	81	140.7	166.4	230#	14.9#
Climatological Normal?	1005.2	31.3	28.7	26.7	25.1	81	70	453.2	182.1	230	18.8

*** *unavailable*
 # data incomplete
^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989
Trace means rainfall less than 0.05 mm
? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , September 2023

Back Year 2023 Month 9 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	996.3	28.7	26.9	25.0	23.2	81	92	98.9	0.0	330	65.9
02	1000.1	27.2	26.2	25.2	24.7	92	95	80.4	0.0	080	51.8
03	1001.9	33.7	29.4	27.0	24.6	76	88	0.1	9.4	050	13.8
04	1002.1	32.6	29.9	27.3	24.4	73	87	Trace	8.9	270	8.5
05	1003.6	31.0	29.1	27.7	23.6	73	88	0.4	0.4	280	13.0
06	1005.4	32.1	29.4	27.8	23.8	72	88	0.0	6.4	220	16.0
07	1006.3	29.7	27.7	25.5	25.6	89	89	215.7	0.2	090	17.4
08	1007.9	26.3	25.7	25.0	24.7	94	96	425.0	0.0	080	30.8
09	1008.2	26.6	26.2	25.5	24.7	92	88	9.8	0.0	080	18.4
10	1008.3	26.5	25.8	24.8	24.5	93	90	67.4	0.0	080	19.8
11	1007.3	28.2	26.5	25.6	25.3	93	89	20.5	0.9	080	21.4
12	1006.5	29.4	27.0	26.0	25.0	89	83	0.9	4.0	070	10.2
13	1006.6	30.4	27.9	26.8	25.7	88	87	2.5	5.0	070	16.2
14	1007.7	28.2	26.9	25.6	25.5	92	88	103.5	0.0	070	18.5
15	1009.5	30.6	27.3	25.2	25.3	89	88	28.5	4.9	070	16.1
16	1011.1	28.8	27.1	25.4	25.2	89	88	4.3	0.8	070	17.6
17	1010.9	31.7	28.5	26.8	25.5	85	79	0.0	9.0	060	15.1
18	1011.4	32.7	29.2	27.4	25.3	80	57	0.0	9.9	060	7.5
19	1011.9	33.5	29.5	27.3	25.3	79	48	0.0	9.0	090	4.6
20	1011.0	32.9	29.6	27.5	24.7	76	28	0.0	8.9	100	2.7
21	1010.5	33.6	30.0	27.6	25.5	77	28	0.0	11.1	220	8.9
22	1010.4	34.4	30.2	28.4	25.3	75	67	Trace	6.8	080	5.7
23	1010.5	33.7	30.1	28.3	24.8	74	52	0.0	9.7	060	22.9
24	1009.9	33.1	29.9	28.5	24.9	75	76	0.0	6.5	060	30.5
25	1010.1	33.1	29.8	27.9	25.0	76	55	1.5	10.2	060	30.4
26	1010.7	33.4	30.0	28.3	25.0	75	52	0.0	8.3	060	28.3
27	1010.5	33.9	30.3	28.6	24.7	72	72	Trace	10.0	080	20.3
28	1011.6	33.6	30.3	28.7	24.4	71	73	0.0	10.7	070	25.9
29	1012.0	33.7	29.8	26.7	25.4	78	59	7.7	9.0	070	21.8
30	1010.4	33.6	30.0	28.2	25.0	75	44	0.0	10.5	140	9.0
Mean/Total	1008.0	31.2	28.5	26.9	24.9	81	74	1067.1	170.5	070	19.6
Climatological Normal?	1008.8	30.5	27.9	26.1	23.6	78	66	321.4	174.4	080	21.4

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , October 2023

Back Year 2023 Month 10 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1009.8	34.0	30.0	28.0	25.4	77	68	0.0	8.2	090	10.5
02	1011.3	32.3	29.5	27.9	24.7	76	64	0.4	7.5	080	26.1
03	1010.6	31.4	29.3	27.7	25.1	78	61	Trace	7.4	090	11.5
04	1009.0	34.6	30.8	28.3	25.1	73	74	0.0	8.7	270	12.8
05	1007.3	34.1	30.5	28.5	21.4	58	82	0.0	9.2	350#	29.5#
06	1008.3	32.2	28.3	26.7	20.3	62	88	Trace	5.1	360	30.2
07	1008.1	27.2	25.1	23.5	20.2	74	88	1.9	0.0	350	48.8
08	1008.1	25.1	24.2	22.7	21.9	87	95	92.2	0.0	360	71.3
09	1013.2	25.0	24.5	23.4	23.4	94	100	369.7	0.0	060	48.3
10	1015.6	26.9	25.3	23.8	22.1	83	91	2.3	0.0	060	39.7
11	1016.9	29.2	25.6	23.7	20.7	75	83	0.0	2.9	010	25.3
12	1017.6	29.2	25.7	23.5	20.3	72	79	0.0	5.2	010	21.0
13	1015.5	30.2	26.7	24.8	20.0	67	81	0.0	6.8	010	18.7
14	1013.2	30.0	26.6	24.7	19.6	66	70	0.0	5.7	360	13.3
15	1013.3	29.9	26.9	25.1	21.4	72	86	0.1	7.5	070	21.6
16	1014.9	28.9	26.5	25.4	20.6	70	88	0.0	4.0	070	39.6
17	1015.4	28.2	25.8	24.5	17.7	61	88	Trace	2.4	060	47.7
18	1015.2	25.4	24.6	23.4	21.8	85	95	38.3	0.0	070	50.3
19	1014.7	26.0	25.3	24.6	23.7	91	96	27.9	0.0	080	32.8
20	1015.2	27.6	25.9	24.6	22.6	82	88	0.2	0.8	060	25.9
21	1018.4	25.4	23.3	22.0	18.8	76	88	Trace	0.0	010	32.1
22	1018.8	27.8	24.5	22.4	18.8	71	88	Trace	4.0	020	22.9
23	1017.4	29.4	26.0	23.8	21.5	77	74	Trace	5.6	070	25.5
24	1016.3	30.1	26.8	24.8	22.2	76	50	0.0	7.5	060	22.2
25	1015.5	29.7	26.6	25.3	22.8	80	57	0.0	4.6	060	18.7
26	1014.6	29.2	26.2	24.8	22.1	78	59	0.0	7.3	070	17.3
27	1014.0	29.6	26.6	24.9	23.0	81	74	0.0	8.5	070	14.5
28	1014.8	27.7	25.8	24.2	23.1	85	87	9.5	1.0	080	24.4
29	1016.1	27.1	25.3	24.1	21.3	79	84	3.5	4.1	080	30.0
30	1017.1	29.3	26.1	24.6	21.7	77	73	Trace	4.7	080	19.3
31	1018.4	28.6	25.8	24.1	19.9	70	54	0.0	10.2	080	29.5
Mean/Total	1014.0	29.1	26.4	24.8	21.7	76	79	546.0	138.9	070	28.4
Climatological Normal?	1014.0	28.1	25.7	23.9	20.2	73	58	120.3	197.8	080	26.3

 # data incomplete

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , November 2023

Back Year 2023 Month 11 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1017.7	29.1	25.8	23.6	19.7	70	36	0.0	10.3	070	27.8
02	1015.5	28.4	25.8	24.4	21.0	75	56	0.0	8.6	070	19.5
03	1013.6	29.1	26.0	24.3	21.7	78	42	0.0	9.8	080	13.8
04	1013.9	29.4	26.3	24.7	21.8	76	34	0.0	9.4	070	15.2
05	1014.4	30.1	26.7	25.0	22.1	77	38	0.0	8.9	050	12.3
06	1015.1	30.7	27.6	25.3	20.3	65	31	0.0	9.3	010	15.5
07	1016.5	26.8	25.9	25.3	19.9	70	80	0.0	0.3	070	36.0
08	1015.8	26.0	25.2	24.7	20.8	77	88	0.0	0.4	080	35.1
09	1015.4	27.3	25.7	24.8	22.2	81	88	Trace	1.3	070	29.6
10	1016.0	29.3	26.9	25.6	23.5	82	83	0.0	6.4	070	19.2
11	1017.7	26.5	25.3	24.8	22.6	85	88	2.5	0.0	080	39.2
12	1020.2	26.6	24.0	22.0	19.5	77	84	0.6	3.9	010	30.5
13	1022.7	25.2	22.0	20.3	15.6	67	79	0.0	6.0	360#	29.0#
14	1022.6	23.9	20.8	18.9	15.2	70	79	0.0	2.6	010#	19.4#
15	1021.7	25.2	22.8	20.7	17.2	71	67	0.0	8.8	070	32.4
16	1023.6	24.0	21.5	17.3	14.4	65	66	0.0	3.9	360	35.0
17	1023.9	21.9	18.8	15.6	3.5	37	9	0.0	10.1	360	41.2
18	1022.9	23.0	19.5	16.6	6.2	42	21	0.0	10.0	360	24.2
19	1020.9	23.3	20.5	18.5	12.3	59	42	0.0	9.1	070	14.3
20	1019.4	24.6	21.3	19.0	14.2	65	23	0.0	9.9	060	18.0
21	1017.5	24.6	22.0	20.3	16.1	70	18	0.0	9.9	080	24.0
22	1016.3	25.7	22.6	20.5	17.4	73	26	0.0	9.9	080	14.4
23	1016.4	26.3	23.0	20.5	17.9	74	42	0.0	9.8	010	6.4
24	1019.6	25.0	22.9	21.5	16.3	67	36	0.0	9.3	070	42.8
25	1021.0	24.3	21.9	20.0	15.1	66	19	0.0	9.9	070	41.0
26	1020.1	25.3	22.1	19.8	15.8	68	20	0.0	9.8	060	21.0
27	1018.1	26.7	23.0	20.2	16.4	68	14	0.0	9.6	010	6.0
28	1018.7	25.4	22.8	20.2	14.9	61	37	Trace	8.4	070	27.7
29	1018.7	24.0	22.7	21.2	17.6	73	85	0.2	0.6	070	30.7
30	1019.9	26.0	23.8	21.9	18.6	73	79	0.0	2.0	070	25.4
Mean/Total	1018.5	26.1	23.5	21.6	17.3	69	50	3.3	208.2	070	24.9
Climatological Normal[?]	1017.3	24.5	22.2	20.3	16.7	72	58	39.3	172.3	070	26.6

 # data incomplete

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , December 2023

Back Year 2023 Month 12 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1021.5	23.2	21.5	19.6	15.5	69	85	0.0	2.9	010	30.0
02	1021.7	21.5	20.0	18.2	14.4	70	79	0.0	1.1	070	22.2
03	1020.4	23.3	21.4	20.1	16.4	73	87	Trace	2.1	070	23.4
04	1017.2	24.4	21.9	20.5	17.3	76	66	Trace	5.2	080	10.9
05	1015.6	24.1	21.7	19.7	16.7	73	57	0.0	9.5	360	5.8
06	1017.6	22.5	21.5	19.9	14.7	67	81	Trace	2.2	360	18.5
07	1017.8	25.1	21.0	18.4	9.1	47	30	0.0	9.7	360	19.8
08	1016.7	24.0	21.4	19.2	15.1	68	56	0.0	8.1	070	17.6
09	1014.6	24.9	22.9	21.6	19.3	80	80	0.0	6.5	060	14.9
10	1013.8	26.3	23.9	22.5	20.1	80	76	Trace	7.5	050	14.2
11	1014.6	27.3	24.2	22.3	21.5	85	68	0.3	2.7	040	5.1
12	1016.2	28.7	24.7	22.3	20.9	80	42	0.3	8.2	080	12.4
13	1019.4	23.2	22.3	21.6	19.1	82	93	Trace	0.2	070	31.8
14	1018.7	24.6	23.1	21.7	19.6	81	88	Trace	0.3	060	21.5
15	1016.3	26.9	24.4	23.2	20.9	81	79	0.0	7.5	050	12.0
16	1020.5	23.9	18.9	13.5	13.4	71	85	0.1	2.8	360	32.7
17	1024.9	15.2	13.4	11.4	7.9	69	88	0.0	0.0	010	30.8
18	1022.1	19.0	17.3	14.8	13.7	80	88	Trace	0.0	040	29.0
19	1021.2	19.0	16.8	14.7	12.4	75	72	0.0	3.2	350	22.2
20	1023.3	15.6	13.6	10.8	7.1	65	67	0.0	1.0	350	34.9
21	1027.1	12.3	10.9	9.8	4.6	65	86	0.0	0.0	350	39.8
22	1030.1	12.3	10.5	8.6	0.9	51	88	0.0	0.4	360	33.0
23	1029.9	13.3	11.0	8.1	2.9	58	64	0.2	1.8	360	30.3
24	1028.6	16.5	13.3	10.1	3.6	52	23	0.0	9.4	360	26.9
25	1026.7	18.2	14.9	12.1	4.8	51	50	0.0	9.4	360	24.8
26	1025.2	19.6	16.6	14.5	9.4	63	65	0.0	6.5	060	23.4
27	1024.0	21.8	18.7	16.6	11.1	62	88	Trace	2.5	040	16.4
28	1022.3	23.6	20.1	18.2	15.0	73	74	Trace	5.1	050	21.8
29	1021.1	21.0	19.4	18.3	15.7	79	72	0.0	5.8	060	29.5
30	1018.3	23.0	20.7	18.3	15.0	70	79	Trace	6.1	040	8.2
31	1018.0	25.7	21.8	19.0	16.7	73	59	0.0	8.3	040	8.4
Mean/Total	1020.8	21.6	19.1	17.1	13.4	70	71	0.9	136.0	360	21.7
Climatological Normal[?]	1020.1	20.4	18.2	16.2	12.4	70	57	28.8	161.6	010	26.4

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , January 2024

Back Year 2024 Month 1 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1019.9	22.0	19.9	18.8	15.4	75	68	0.0	8.6	080	34.1
02	1019.1	20.5	18.7	17.8	14.3	76	59	0.0	3.1	070	26.0
03	1020.0	21.6	18.8	15.7	11.7	64	45	0.0	7.8	010	26.4
04	1020.9	19.6	17.0	15.4	10.8	67	29	0.0	8.8	050	22.8
05	1020.2	22.0	18.8	16.6	14.2	75	24	0.0	9.5	060	15.5
06	1020.1	23.8	20.2	17.8	15.6	76	34	0.0	9.3	030	6.8
07	1021.0	21.8	19.9	18.6	14.4	71	60	0.0	9.0	080	33.4
08	1019.6	20.6	19.1	17.7	14.1	73	70	Trace	6.6	070	30.9
09	1017.2	23.9	20.5	18.1	16.2	77	46	Trace	8.0	040	11.8
10	1018.6	23.2	20.3	17.9	13.7	67	33	0.0	9.0	010	19.0
11	1020.0	21.5	18.9	17.6	13.0	69	59	Trace	8.1	060	21.3
12	1019.1	21.8	18.9	17.1	14.2	75	53	0.0	7.7	060	16.0
13	1019.9	22.0	19.6	17.8	10.5	57	59	0.0	5.7	070	27.9
14	1021.1	23.8	20.7	18.5	11.2	56	48	0.0	5.4	050	22.0
15	1021.2	24.8	20.9	18.8	15.2	71	28	0.0	9.8	070	24.3
16	1022.1	20.5	18.7	17.5	14.1	75	74	0.0	5.7	070	38.5
17	1020.4	20.6	19.2	17.7	14.0	72	78	0.1	2.8	060	29.3
18	1017.7	24.2	21.2	19.1	16.3	74	47	0.0	8.3	050	20.6
19	1016.3	24.2	21.1	19.2	16.5	76	25	0.0	9.8	030	15.3
20	1016.3	24.6	21.4	19.5	16.8	75	50	0.0	7.9	360	12.3
21	1020.3	21.3	19.1	16.3	12.9	68	72	Trace	3.1	360	23.9
22	1023.3	18.5	15.0	9.8	10.0	72	88	0.5	0.0	360	36.4
23	1028.5	10.4	7.9	6.3	3.5	75	88	2.7	0.3	360	41.3
24	1029.2	12.5	9.2	6.5	1.6	59	87	0.0	4.4	360	25.5
25	1028.7	15.5	12.3	9.5	3.8	56	78	0.0	4.2	360	17.7
26	1027.3	17.8	15.0	13.1	7.6	61	84	0.0	5.1	040	22.2
27	1025.8	18.8	15.5	13.1	9.2	67	87	1.0	1.2	030	19.5
28	1026.4	15.7	13.7	11.7	11.0	83	87	2.4	0.1	040	20.1
29	1023.4	17.8	15.9	14.3	12.8	82	88	Trace	0.3	060	26.1
30	1020.7	20.2	18.3	16.8	16.2	88	88	Trace	0.2	050	19.8
31	1019.4	20.2	19.3	17.9	17.9	92	91	Trace	0.0	040	16.5
Mean/Total	1021.4	20.5	17.9	15.9	12.5	72	62	6.7	169.8	060	23.3
Climatological Normal?	1020.1	18.7	16.5	14.6	11.7	74	62	33.2	145.8	060	25.1

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , February 2024

Back Year 2024 Month 2 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1018.0	23.9	21.1	19.8	19.8	92	77	0.2	5.2	040	9.4
02	1017.6	25.7	21.7	18.6	19.6	88	73	Trace	7.0	060	15.5
03	1018.8	22.5	19.6	17.7	17.0	85	89	Trace	3.7	060	24.0
04	1017.3	20.5	19.8	19.3	18.5	92	88	Trace	0.1	030	14.9
05	1018.8	21.7	20.4	19.6	18.0	86	88	Trace	0.5	030	15.3
06	1019.6	20.3	19.1	18.0	16.7	86	88	0.6	1.5	070	28.6
07	1017.3	18.4	16.8	14.7	15.1	90	94	Trace	0.0	050	23.4
08	1018.8	14.8	13.0	11.6	10.4	84	88	2.2	0.0	360	22.8
09	1023.5	14.2	12.7	11.0	8.6	77	88	0.6	0.1	360	22.5
10	1026.5	18.6	14.4	11.3	9.4	72	55	0.5	4.4	360	18.4
11	1026.9	22.8	17.4	13.6	8.8	60	14	0.0	10.4	050	16.4
12	1025.8	21.2	18.1	15.5	8.6	55	20	0.0	10.5	070	34.1
13	1023.2	22.8	19.2	16.8	13.6	71	52	0.0	8.9	050	21.6
14	1020.2	25.1	21.0	18.3	17.0	78	56	0.0	10.5	030	11.7
15	1019.0	26.0	22.3	19.7	16.4	70	70	0.0	9.7	350	6.7
16	1019.7	22.0	20.4	19.4	16.2	77	60	Trace	6.2	080	22.3
17	1017.4	21.2	19.5	17.8	16.3	82	88	Trace	2.2	060	23.3
18	1015.2	23.6	21.6	19.9	19.4	87	85	0.0	2.4	040	11.5
19	1015.1	25.1	22.7	21.1	20.7	88	87	0.0	1.1	090	6.0
20	1014.7	26.0	23.9	22.0	21.6	87	83	0.0	4.1	100	9.2
21	1014.5	27.8	24.5	22.5	21.2	82	55	0.0	9.5	120	6.6
22	1016.6	25.2	23.6	22.4	21.2	87	71	0.0	2.8	080	6.0
23	1019.9	22.9	20.4	19.3	17.8	85	88	Trace	0.0	040	25.6
24	1021.1	21.6	18.8	17.5	13.9	73	88	Trace	1.2	020	18.2
25	1020.7	19.2	17.1	15.6	11.8	71	79	0.0	3.1	010	12.9
26	1021.1	21.1	18.2	16.8	13.9	76	86	Trace	1.5	040	20.5
27	1020.9	19.5	17.6	15.9	12.5	73	88	Trace	0.5	050	25.1
28	1018.0	19.3	18.3	17.5	15.8	85	91	Trace	0.0	070	31.2
29	1017.6	22.0	18.7	16.2	16.1	85	88	Trace	0.3	050	22.1
Mean/Total	1019.4	21.9	19.4	17.6	15.7	80	75	4.1	107.4	060	18.1
Climatological Normal?	1018.7	19.4	17.1	15.3	13.2	79	72	38.9	101.7	060	24.2

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , March 2024

Back Year 2024 Month 3 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1021.2	16.2	13.3	10.4	8.2	72	88	Trace	0.0	360	30.6
02	1022.2	14.1	12.0	9.6	7.5	74	88	0.3	0.4	360	21.8
03	1017.3	18.1	16.1	13.9	12.9	81	88	0.2	1.0	060	29.3
04	1012.3	22.9	19.7	17.3	18.2	91	88	1.4	0.7	080	25.2
05	1008.8	26.8	24.3	22.1	22.0	87	88	Trace	2.1	160	18.0
06	1010.6	26.5	22.9	20.1	20.2	85	87	0.1	2.4	020	8.3
07	1016.6	20.2	18.7	17.1	13.6	72	88	Trace	0.0	010	22.0
08	1018.8	22.4	18.8	15.7	11.8	64	69	0.2	7.2	080	27.5
09	1019.4	19.1	16.6	15.1	11.7	73	88	2.1	0.1	070	45.9
10	1021.0	16.8	16.0	15.3	13.2	83	90	4.6	0.0	070	44.6
11	1018.9	18.6	17.2	16.0	15.7	91	82	11.7	0.0	360	19.6
12	1018.8	24.0	19.3	15.6	11.4	61	6	0.0	11.3	070	24.0
13	1018.6	21.2	19.4	17.7	12.8	66	70	Trace	5.5	070	36.7
14	1017.3	22.0	19.8	18.6	14.4	71	87	0.0	5.1	060	31.1
15	1017.2	21.3	20.2	19.5	16.5	79	88	0.0	0.3	060	28.0
16	1017.8	22.4	20.7	19.5	18.6	88	91	Trace	0.1	040	19.9
17	1016.4	26.8	23.1	20.7	20.5	86	68	0.0	4.9	060	8.3
18	1016.2	23.0	21.0	19.8	19.6	92	83	0.6	0.0	070	15.5
19	1019.5	24.6	21.2	19.5	15.0	69	65	0.3	3.5	360	22.4
20	1022.4	24.3	20.8	18.3	11.2	54	41	0.0	10.5	080	27.0
21	1017.9	23.8	20.7	18.4	13.7	65	57	Trace	10.6	070	25.3
22	1013.3	25.9	22.5	20.4	19.4	83	86	Trace	6.8	060	18.3
23	1012.8	29.1	24.7	22.1	21.7	84	86	0.0	3.0	080	9.2
24	1014.7	31.5	26.4	24.5	22.0	77	65	0.0	10.7	060	8.1
25	1014.5	28.9	25.9	23.8	22.0	79	61	0.0	7.2	220	6.3
26	1017.0	30.3	26.2	23.7	22.0	79	54	0.0	8.6	070	6.7
27	1018.5	25.1	22.4	20.8	19.0	82	85	Trace	4.0	070	29.6
28	1013.9	27.9	24.7	22.4	21.2	82	86	0.0	4.4	240	10.0
29	1013.8	30.0	25.5	23.0	21.8	81	88	Trace	6.9	270	6.9
30	1013.5	30.8	26.4	24.3	22.7	80	80	Trace	5.4	160	6.8
31	1011.1	27.8	27.1	26.0	24.1	84	88	0.1	0.1	210	21.0
Mean/Total	1016.5	23.9	21.1	19.1	16.9	78	77	21.6	122.8	070	21.1
Climatological Normal?	1016.1	21.9	19.5	17.6	16.1	82	77	75.3	100.0	060	23.0

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Daily Extract of Meteorological Observations , March 2024

Back Year 2024 Month 4 Go

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1021.2	16.2	13.3	10.4	8.2	72	88	Trace	0.0	360	30.6
02	1022.2	14.1	12.0	9.6	7.5	74	88	0.3	0.4	360	21.8
03	1017.3	18.1	16.1	13.9	12.9	81	88	0.2	1.0	060	29.3
04	1012.3	22.9	19.7	17.3	18.2	91	88	1.4	0.7	080	25.2
05	1008.8	26.8	24.3	22.1	22.0	87	88	Trace	2.1	160	18.0
06	1010.6	26.5	22.9	20.1	20.2	85	87	0.1	2.4	020	8.3
07	1016.6	20.2	18.7	17.1	13.6	72	88	Trace	0.0	010	22.0
08	1018.8	22.4	18.8	15.7	11.8	64	69	0.2	7.2	080	27.5
09	1019.4	19.1	16.6	15.1	11.7	73	88	2.1	0.1	070	45.9
10	1021.0	16.8	16.0	15.3	13.2	83	90	4.6	0.0	070	44.6
11	1018.9	18.6	17.2	16.0	15.7	91	82	11.7	0.0	360	19.6
12	1018.8	24.0	19.3	15.6	11.4	61	6	0.0	11.3	070	24.0
13	1018.6	21.2	19.4	17.7	12.8	66	70	Trace	5.5	070	36.7
14	1017.3	22.0	19.8	18.6	14.4	71	87	0.0	5.1	060	31.1
15	1017.2	21.3	20.2	19.5	16.5	79	88	0.0	0.3	060	28.0
16	1017.8	22.4	20.7	19.5	18.6	88	91	Trace	0.1	040	19.9
17	1016.4	26.8	23.1	20.7	20.5	86	68	0.0	4.9	060	8.3
18	1016.2	23.0	21.0	19.8	19.6	92	83	0.6	0.0	070	15.5
19	1019.5	24.6	21.2	19.5	15.0	69	65	0.3	3.5	360	22.4
20	1022.4	24.3	20.8	18.3	11.2	54	41	0.0	10.5	080	27.0
21	1017.9	23.8	20.7	18.4	13.7	65	57	Trace	10.6	070	25.3
22	1013.3	25.9	22.5	20.4	19.4	83	86	Trace	6.8	060	18.3
23	1012.8	29.1	24.7	22.1	21.7	84	86	0.0	3.0	080	9.2
24	1014.7	31.5	26.4	24.5	22.0	77	65	0.0	10.7	060	8.1
25	1014.5	28.9	25.9	23.8	22.0	79	61	0.0	7.2	220	6.3
26	1017.0	30.3	26.2	23.7	22.0	79	54	0.0	8.6	070	6.7
27	1018.5	25.1	22.4	20.8	19.0	82	85	Trace	4.0	070	29.6
28	1013.9	27.9	24.7	22.4	21.2	82	86	0.0	4.4	240	10.0
29	1013.8	30.0	25.5	23.0	21.8	81	88	Trace	6.9	270	6.9
30	1013.5	30.8	26.4	24.3	22.7	80	80	Trace	5.4	160	6.8
31	1011.1	27.8	27.1	26.0	24.1	84	88	0.1	0.1	210	21.0
Mean/Total	1016.5	23.9	21.1	19.1	16.9	78	77	21.6	122.8	070	21.1
Climatological Normal[?]	1016.1	21.9	19.5	17.6	16.1	82	77	75.3	100.0	060	23.0

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Appendix D.2

Key Activities Carried Out During the Reporting Quarter

May 2023

Administration Building • Installation of glass balustrade, metal cladding, building services, electrical switchboard, lift, cable laying • carrying out interior finishes at 2/F, 3/F and 4/F • Construction of block wall in the pipe duct.
Chemical building • Installation of handrail, permanent doors, building services, mechanical equipment, and cable laying • Underground utility construction work
Main Electrical & Central Chiller Plant Building • Construction of fuel tank room • Installation metal Doors, chillers, building services, electrical switchboard, cable laying
ActiDAFF • Underground utility construction work • Laying of roof floor screed and tiles • Construction of plinths for saturator tanks • Erection and dismantling of scaffolding, installation of mechanical equipment and piping, bubble test • Installation of underdrain
Product Water Storage Tank Building • Resin Injection Work & Water Test for 1 Water Tanks • Installation of cat ladders in Water Tanks, and door • Installation of louvres, metal cladding, building services, cable laying, mechanical equipment, steel pipe • Underground utility construction
OSCG Building • Installation of Design for Manufacturing and Assembly Panel and metal door • Underground utility construction work • Installation of building services and mechanical equipment
Reverse Osmosis Building • Installation of Design for Manufacturing and Assembly Panels at East Sides • Installation of metal door, metal cladding, hand railings, Louvres & Windows • Installation of building services, electrical switchboard, mechanical equipment, steel pipe, Glass Reinforced Plastics (GRP) pipe and cable laying • Underground utility construction work
Post Treatment Building • Installation of Louvres & Windows, metal door and cat ladders • Installation of Design for Manufacturing and Assembly Panels • Installation of building services, mechanical equipment and GRP pipe • Underground utility construction work

Inspection corridor

- Construction of bondek for segments 7
- construction of staircase 8

CO_2 Tanks

- Installation of pipes and building services

Outfall Shaft

- GRP Diffuser Pipe installation and rock material back fill

Combined Shaft

- Installation of building services, electrical equipment, switchboard, cable laying, mechanical equipment and pipes, stoplogs and band screens
- Underground utility construction work
- Staircases and internal finishing

Pump room

- internal finishing and screeding

Other

- Excavation at slope toe and access erection, Soil anchor and grouting construction
- Foundation & structure construction at Elevated Walkway
- Watermain works at CLP 132 kV Substation
- Concrete Breaking, Structure Construction at Seawall

June 2023

Administration Building • Installation of glass balustrade, metal cladding, building services, electrical switchboard, lift, cable laying • carrying out interior finishes at 2/F, 3/F and 4/F • Construction of block wall in the pipe duct.
Chemical building • Installation of handrail, permanent doors, building services, mechanical equipment, and cable laying • Underground utility construction work
Main Electrical & Central Chiller Plant Building • Construction of fuel tank room • Installation metal Doors, chillers, building services, electrical switchboard, cable laying
ActiDAFF • Underground utility construction work • Laying of roof floor screed and tiles • Construction of plinths for saturator tanks • Erection and dismantling of scaffolding, installation of mechanical equipment and piping, bubble test • Installation of underdrain
Product Water Storage Tank Building • Resin Injection Work & Water Test for 1 Water Tanks • Installation of cat ladders in Water Tanks, and door • Installation of louvres, metal cladding, building services, cable laying, mechanical equipment, steel pipe • Underground utility construction
OSCG Building • Installation of Design for Manufacturing and Assembly (DfMA) Panel and metal door • Underground utility construction work • Installation of building services and mechanical equipment
Reverse Osmosis Building • Installation of Design for Manufacturing and Assembly(DfMA) Panels at East Sides • Installation of metal door, metal cladding, hand railings, Louvres & Windows • Installation of building services, electrical switchboard, mechanical equipment, steel pipe, Glass Reinforced Plastics (GRP) pipe and cable laying • Underground utility construction work
Post Treatment Building • Installation of Louvres & Windows, metal door and cat ladders • Installation of Design for Manufacturing and Assembly(DfMA) Panels • Installation of building services, mechanical equipment and GRP pipe • Underground utility construction work

Inspection corridor • Construction of bondek for segments 7 • construction of staircase 8
CO_2 Tanks • Installation of pipes and building services Outfall Shaft • GRP Diffuser Pipe installation and rock material backfill Combined Shaft • Installation of building services, electrical equipment, switchboard, cable laying, mechanical equipment and pipes, stoplogs and band screens • Underground utility construction work • Staircases and internal finishing Pump room • internal finishing and screeding Other • Excavation works, access erection, soil anchor installation and grouting construction works at the slope toe • Foundation & structure construction at Elevated Walkway • Watermain works at CLP 132 kV Substation • Concrete Breaking, structure construction of Wave Deflector Wall at seawall area

July 2023

Administration Building • Carrying out the floor tiles works at 1/F and 2/F • Installation of building services, cable laying, electrical switchboard, doors and handrails • Construction of block wall in the pipe duct
Chemical building • Installation of permanent doors • Underground utility construction work • Construction of trunk load pits
Main Electrical & Central Chiller Plant Building • Installation of roof tile for fuel tank room, chillers, building services, electrical switchboard and cable laying
ActiDAFF • Underground utility construction work • Construction of staircase no 2 • Erection and dismantling of scaffolding, installation of underdrain media and electrical equipment and installation of access covers on roof
Product Water Storage Tank Building • Resin Injection Work & Water Test for 1 Water Tanks • Installation of cat ladders in Water Tanks • Installation of metal cladding, building services, cable laying, mechanical equipment, steel pipe • Underground utility construction • Sealing slab opening
OSCG Building • Installation of Design for Manufacturing and Assembly (DfMA) Panel and metal door • Underground utility construction work • Installation of building services, mechanical equipment, metal cladding and roller shutters and window
Reverse Osmosis Building • Installation of building services, electrical switchboard, mechanical equipment, steel pipe, Glass Reinforced Plastics (GRP) pipe and cable laying • Installation of metal cladding, handrailing and louvers • Underground utility construction work • Pipe laying at corridor
Post Treatment Building • Installation of Louvres & Windows, cat ladders, handrailing and metal cladding • Installation of building services, mechanical equipment and GRP pipe • Underground utility construction work
Inspection corridor • Construction of roof concrete slab and column and wall

CO_2 Tanks

- Installation of pipes and building services

Combined Shaft and Pump room

- Underground utility construction work
- Installation of door, window and louver

Other

- Watermain works at CLP 132 kV Substation
- Concrete breaking, structure construction of Wave Deflector Wall at seawall area
- Foundation and staircases construction at elevated walkway
- Foot plinth concreting and barrier erection at flexible barrier

August 2023

Administration Building • Carrying out the floor tiles works at 1/F and 2/F • Installation of doors and handrails • Construction of block wall in the pipe duct • Installation of building services, cable laying, electrical switchboard
Chemical building • Installation of permanent doors • Construction of trunk load pits • Underground utility construction work
Main Electrical & Central Chiller Plant Building • Installation of chillers, building services, electrical switchboard and cable laying
ActiDAFF • Underground utility construction work • Installation of access covers on roof • Construction of staircase no 2 • Erection and dismantling of scaffolding, installation of underdrain media and electrical equipment and installation of access covers on roof
Product Water Storage Tank Building • Resin Injection Work & Water Test for Chlorine Contact Tank A • Installation of cat ladders in Water Tanks • Installation of metal cladding, building services, cable laying, mechanical equipment, steel pipe • Underground utility construction • Sealing slab opening
OSCG Building • Installation of Design for Manufacturing and Assembly (DfMA) Panel and metal cladding • Underground utility construction work • Installation of building services, mechanical equipment, metal cladding and roller shutters and window
Reverse Osmosis Building • Installation of building services, electrical switchboard, mechanical equipment, steel pipe, Glass Reinforced Plastics (GRP) pipe, pressure test of the GRP pipe, Membrane Loading, raised floor • Installation of metal cladding, handrailing and louvers • Underground utility construction work • Pipe laying at corridor
Post Treatment Building • Installation of louvres, cat ladders, handrailing and metal cladding • Installation of building services, mechanical equipment and GRP pipe • Underground utility construction work

Inspection corridor • Construction of roof concrete slab and column and wall
CO_2 Tanks • Installation of pipes and building services Combined Shaft and Pump room • Underground utility construction work • Installation of door, window and louver Other • Watermain works at CLP 132 kV Substation • Concrete breaking, structure construction of Wave Deflector Wall at seawall area • Foundation and staircases construction at elevated walkway • Foot plinth concreting and barrier erection at flexible barrier • Finial check of Marine Diffuser Pipe

September 2023

Administration Building • Carrying out the floor tiles works at 1/F • Installation of building services, cable laying, electrical switchboard, doors and handrails • Construction of 3 dog houses on roof • Construction of block wall in the pipe duct
Chemical building • Construction of concrete slab for safety shower • Installation of leakage collection pit cover • Underground utility construction work
Main Electrical & Central Chiller Plant Building • Installation of roof tile for fuel tank room, chillers, building services, electrical switchboard and cable laying
ActiDAFF • Underground utility construction work • Installation of access covers on roof • Construction of staircase no 2 • Installation of mechanical equipment, piping system, building services, electrical switchboards and cable laying
Product Water Storage Tank Building • Installation of Cat Ladders in Water Tank A • Sealing Slab Openings in Water Tank A • Re-construction of Wall PW8 in Water Tank A • Underground utility construction • Installation of building services, cable laying, mechanical equipment and steel pipe
OSCG Building • Installation of Design for Manufacturing and Assembly (DfMA) Panel, metal cladding and roller shutters and window • Underground utility construction work • Installation of building services, mechanical equipment, metal cladding and roller shutters and window
Reverse Osmosis Building • Installation of building services, electrical switchboard, mechanical equipment, steel pipe, Glass Reinforced Plastics (GRP) pipe, pressure test of the GRP pipe, Membrane Loading, raised floor • Installation of metal cladding, handrailing, roller shutters and glass canopy and glass house • Underground utility construction work • Pipe laying at corridor and Backfilling Work
Post Treatment Building • Installation of louvres, cat ladders, handrailing and metal cladding

• Installation of building services, mechanical equipment and GRP pipe • Underground utility construction work
Inspection corridor • Construction of roof waterproofing works • Construction of staircase no. 1 and 2 • Installation of building services
CO_2 Tanks • Installation of pipes and electrical wiring Combined Shaft and Pump room • Internal finishing, door, window and louver Other • Watermain works at CLP 132 kV Substation • Structure Construction and steel fence election of Wave Deflector Wall at seawall area • Staircases construction at elevated walkway • Steel Bridge assembly and installation • Rock anchor installation of slope work • Marine works completed

October 2023

Administration Building • Carrying out the floor tiles works at G/F • Construction of 4 dog houses on the roof. • Construction of block wall in the pipe duct • Installation of building services, cable laying, electrical switchboard
Chemical building • Installation of leakage collection pit cover • Construction of concrete slab for safety showers • Construction of trunk load pits • Underground utility construction work • Defect rectification
Main Electrical & Central Chiller Plant Building • Installation of chillers, building services, electrical switchboard and cable laying • Installation of Roof Tile for Fuel Tank Room
ActiDAFF • Underground utility construction work • Installation of access covers on roof • Construction of staircase no 2 • Installation of mechanical equipment, piping system, installation of building services, electrical switchboards and cable laying
Product Water Storage Tank Building • Installation of Cat Ladders in Water Tank A • Sealing slab opening in water Tank A • Re-construction of Wall PW8 in Water Tank A • Installation of metal cladding, building services, cable laying, mechanical equipment, steel pipe • Underground utility construction
OSCG Building • Installation of Design for Manufacturing and Assembly (DfMA) Panel and metal cladding • Installation of Roller Shutters and Window • Coating and Installation of Grating Cover for Brine Tank • Underground utility construction work • Installation of building services, mechanical equipment and cable laying
Reverse Osmosis Building • Installation of building services, electrical switchboard, mechanical equipment, steel pipe, Glass Reinforced Plastics (GRP) pipe, pressure test of the GRP pipe, Membrane Loading, raised floor • Installation of metal cladding, handrailing, roller shutters, glass canopy and glass house • Underground utility construction work • Pipe laying at corridor outside Toilet and Backfilling Work

Post Treatment Building

- Installation of service staircase tower, louvres, cat ladders, handrailing and metal cladding
- Installation of building services, Installation of mechanical equipment and piping system
- Underground utility construction work

Inspection corridor

- Construction of roof waterproofing works
- Construction of staircases no. 1 and 2
- Installation of Movement Joints
- Construction of Screeding works on the deck level
- Installation of building services

CO_2 Tanks

- Installation of pipes and electrical wiring

Combined Shaft and Pump room

- Internal finishing, Door; window; Lover Installation

Other

- Watermain works at CLP 132 kV Substation
- Structure Construction, steel fence erection of Wave Deflector Wall at seawall area
- Staircases construction; Steel Bridge assembly and installation at elevated walkway
- Foot plinth concreting and barrier erection at flexible barrier

November 2023

Administration Building

- Carrying out the floor tiles works at G/F
- External wall painting works
- Construction of block work for pipe duct
- Installation of building services, cable laying, electrical switchboard, testing and commissioning

Chemical building

- Installation of leakage collection pit cover
- Underground utility construction work
- Landscape work at roof
- Defect rectification

Main Electrical & Central Chiller Plant Building

- Installation of chillers, building services, electrical switchboard and cable laying
- Installation of Roof Tile for Fuel Tank Room

ActiDAFF

- Underground utility construction work
- Installation of access opening cover
- Construction of staircase no 2
- Installation of mechanical equipment, piping system, installation of building services, electrical switchboards and cable laying, fiber-reinforced plastic cover Installation

Product Water Storage Tank Building

- Installation of Cat Ladders in Water Tank A
- Sealing slab opening in water Tank A
- Re-construction of Wall PW8 in Water Tank A
- Installation of metal cladding, building services, cable laying, mechanical equipment, steel pipe
- Underground utility construction

OSCG Building

- Protective Coating for dangerous goods Rooms
- Placing Soil Mix at Roof
- Installation of Metal Cladding (at East Side)
- Installation of Roller Shutters and Window
- Underground utility construction work
- Installation of building services, mechanical equipment and cable laying, testing and commissioning

Reverse Osmosis Building

- Installation of building services, electrical switchboard, cable laying, Installation of mechanical equipment, steel pipe, GRP pipe, raised floor, testing and commissioning
- Installation of metal cladding, handrailing, roller shutters, glass canopy and glass house
- Underground utility construction work
- Construction of RC External Wall for Male Toilet

Post Treatment Building

• Installation of building services, Installation of mechanical equipment and piping system, Pressure Test • Underground utility construction work • Installation of Cat Ladders in Water Tanks and Metal Cladding • Placing Soil Mix at Roof
Inspection corridor • Installation of building services, Lift installation • Construction of roof tiling works and staircases no. 2 • Installation of Movement Joints and glass window
CO2 Tanks • Installation of pipes and electrical wiring, testing and commissioning Combined Shaft and Pump room • Finishing, Grating; window; louvre installation Other • Watermain works at CLP 132 kV Substation • Staircases construction; Steel Bridge assembly and installation at elevated walkway • Road Construction, Footpath Construction, Landscape Construction, Irrigation System Construction, Water Pressure Test for Fire Services and Plumbing System in Zone A, B, C • Structure Construction, steel fence erection of Wave Deflector Wall at seawall area

December 2023

Administration Building • Landscaping works on roof of building. • External wall aluminum features installation • Finishing works for doghouse. • Installation of building services, cable laying, electrical switchboard, Pressure Test, electrical switchboard, testing and commissioning
Chemical building • Landscape work at roof • Construction of hose reel cabinet. • Defect rectification
Main Electrical & Central Chiller Plant Building • Installation of Roof Tile for Fuel Tank Room • Minor Installation of building services, electrical switchboard, cable laying, pressure test
ActiDAFF • Underground utility construction work • Installation of access opening covers for filtered water tank • Carrying out finishing works for staircase no. 3 • Minor Installation of mechanical equipment, piping system, building services, electrical switchboards and cable laying, fiber-reinforced plastic cover Installation
Product Water Storage Tank Building • Water Test in Tank A • Waterproofing work at Roof Slab on Tank A • Tank A water test and defect rectification • Installation of building services, cable laying, Installation of mechanical equipment, steel pipe, Pressure Test
OSCG Building • Installation of Railing on Brine Maker Tank • Protective Coating for dangerous goods Rooms • Installation of building services, mechanical equipment and cable laying, Lightning Installation, testing and commissioning
Reverse Osmosis Building • Installation of Handrailings • Installation of Glass House • Installation of building services, electrical switchboard, cable laying, Photovoltaic Panel. Minor Installation of mechanical equipment and raised floor, testing and commissioning • Underground utility construction work

Post Treatment Building

- Installation of Cat Ladders in Water Tanks
- Placing Soil Mix at Roof
- Curb Construction for Rescue Opening at Water Tanks
- Installation of building services, mechanical equipment and piping system, Pressure Test

Inspection corridor

- Construction of roof tiling works
- Installation of steel balustrade at roof
- Installation of Movement Joints
- Installation of glass window
- Installation of building services, Lift Installation

CO2 Tanks

- Tank surface cleaning, testing and commissioning

Combined Shaft and Pump room

- Internal finishing, defect rectification

Guard House

- Installation of Building Services
- Workshop construction work

Other

- Glass Roof and Glass Canopy installation at elevated walkway
- Security Fence footing construction work
- Manhole 5 Glass Reinforced Plastic Pipe Installation work
- Underground utility rectification work
- Road Construction
- Traffic signage work
- Footpath Construction
- Landscape Construction
- Landscape planting work
- Irrigation System Construction
- Slope work – Shotcreting; Rock anchor installation, Rock break
- Water Pressure Test for Fire Services and Plumbing System
- Traffic signage work

January 2024

Administration Building

- Carrying out the floor tiles works at G/F
- External wall painting works
- Construction of block work for pipe duct
- Installation of building services, cable laying, electrical switchboard, testing and commissioning

Chemical building

- Installation of leakage collection pit cover
- Underground utility construction work
- Landscape work at roof
- Defect rectification

Main Electrical & Central Chiller Plant Building

- Installation of chillers, building services, electrical switchboard and cable laying
- Installation of Roof Tile for Fuel Tank Room

ActiDAFF

- Underground utility construction work
- Installation of access opening cover
- Construction of staircase no 2
- Installation of mechanical equipment, piping system, installation of building services, electrical switchboards and cable laying, fiber-reinforced plastic cover Installation

Product Water Storage Tank Building

- Installation of Cat Ladders in Water Tank A
- Sealing slab opening in water Tank A
- Re-construction of Wall PW8 in Water Tank A
- Installation of metal cladding, building services, cable laying, mechanical equipment, steel pipe
- Underground utility construction

OSCG Building

- Protective Coating for dangerous goods Rooms
- Placing Soil Mix at Roof
- Installation of Metal Cladding (at East Side) and Roller Shutters and Window
- Underground utility construction work
- Installation of building services, mechanical equipment and cable laying, testing and commissioning

Reverse Osmosis Building

- Installation of building services, electrical switchboard, cable laying, Installation of mechanical equipment, steel pipe, Glass Reinforced Plastic pipe, raised floor, testing and commissioning
- Installation of metal cladding, handrailing, roller shutters, glass canopy and glass house
- Underground utility construction work
- Construction of Reinforced Concrete External Wall for Male Toilet

Post Treatment Building

- Installation of building services, Installation of mechanical equipment and piping system, Pressure Test
- Underground utility construction work
- Installation of Cat Ladders in Water Tanks
- Installation of Metal Cladding
- Placing Soil Mix at Roof

Inspection corridor

- Installation of building services, Lift installation
- Construction of roof tiling works and staircases no. 2
- Installation of Movement Joints and glass window

CO2 Tanks

- Installation of pipes and electrical wiring, testing and commissioning

Combined Shaft and Pump room

- Finishing, Grating; window; louvre installation

Other

- Watermain works at CLP 132 kV Substation
- Staircases construction; Steel Bridge assembly and installation at elevated walkway
- Road Construction, Footpath Construction, Landscape Construction, Irrigation System Construction, Water Pressure Test for Fire Services and Plumbing System in Zone A, B, C
- Structure Construction, steel fence erection of Wave Deflector Wall at seawall area

February 2024

Administration Building • Sealing up wall opening • External wall painting works • Construction of block work for pipe duct. • Installation of glass door for laboratory • Minor Installation of building services, cable laying and termination, Photovoltaic Panel Installation, Testing & Commissioning
Chemical building • Installation of Irrigation system • Construction of hose reel cabinet. • Defect rectification
Main Electrical & Central Chiller Plant Building • Installation of Roof Tile for Fuel Tank Room • Minor Installation of building services, electrical switchboard, cable laying, pressure test
ActiDAFF • Underground utility construction work • Installation of drainpipe on corridor • Minor Installation of mechanical equipment, installation of building services, Minor cable laying and termination, Installation of Lightning System, Installation of Fiber Reinforced Polymer Cover Installation, Testing & Commissioning
Product Water Storage Tank Building • Underground utility construction work • Water Test in Tank A and defect rectification • Waterproofing work at Roof Slab on Tank A • Tank A water test and defect rectification • Installation of building services, cable laying and termination, Testing & Commissioning
OSCG Building • Installation of Railing on Brine Maker Tank • Protective Coating for dangerous goods Rooms • Installation of building services, mechanical equipment and cable laying and termination, testing and commissioning
Reverse Osmosis Building • Placing Soil Mix at Roof • Installation of Glass House • Underground utility construction work • Installation of building services, electrical switchboard of cable laying and termination, Minor Installation of mechanical equipment and raised floor, testing and commissioning, Photovoltaic Panel Installation

Post Treatment Building

- Installation of Cat Ladders in Irrigation Tanks
- Placing Soil Mix at Roof
- Curb Construction for Rescue Opening at Water Tanks
- Minor Installation of building services, Minor Installation of mechanical equipment, Cable laying and termination, Pressure Test

Inspection corridor

- Construction of roof tiling
- Internal decoration and finishing works
- Installation of building services, Lift Installation

CO2 Tanks

- Tank surface cleaning, testing and commissioning

Combined Shaft and Pump room

- CCTV Installation, Installation of Lightning System, Minor building services Installation, testing and commissioning
- Internal finishing, defect rectification

Guard House

- Installation of Building Services
- Workshop construction work
- Architectural Builders Works and Finishes

Other

- Master meter Room Architectural Builders Works and Finishes
- Open Channel and Wave deflector Wall
- Glass Roof and Glass Canopy installation at elevated walkway
- Security Fence footing construction work
- Manhole 5 Glass Reinforced Plastic Pipe Installation work
- Underground utility rectification work
- Road Construction
- Traffic signage work
- Footpath Construction
- Landscape Construction
- Landscape planting work
- Irrigation System Construction
- Slope work – Shotcreting; Rock anchor installation, Rock break
- Water Pressure Test for Fire Services and Plumbing System
- Open Channel and Wave deflector Wall
- Traffic signage work

March 2024

- Administration Building
- Installation of Internal partition wall
- External wall finishing works
- Construction of block work for meter cabinet
- Installation of glass door for laboratory
- Minor Installation of building services, cable laying and termination, Photovoltaic Panel Installation, Testing & Commissioning

- Chemical building
- Roof planting works
- Construction of hose reel cabinet.
- Defect rectification

- Main Electrical & Central Chiller Plant Building
- Minor Installation of building services, electrical switchboard, cable laying, pressure test

- ActiDAFF
- Underground utility construction work
- Rectification works for roof tiles
- Minor Installation of mechanical equipment, installation of building services, Minor cable laying and termination, Installation of Lightning System, Installation of Fibre Reinforced Polymer Cover Installation, Testing & Commissioning

- Product Water Storage Tank Building
- Waterproofing work at Roof Slab on Tank A
- Tank A defect rectification, Water proofing,
- Installation of building services, cable laying and termination, Testing & Commissioning
- Underground utility construction work (Sewerage and Waterworks) -

- OSCG Building
- Installation of Promat Board in Skid Room
- Installation of Railing on Brine Maker Tank
- Installation of building services, mechanical equipment and cable laying and termination, testing and commissioning

- Reverse Osmosis Building
- Sanitary Ware Installation in Toilet
- Wall Painting and False Ceiling Installation in Toilet
- Installation of Water Meter Cabinets
- Construction of External Concrete Walls
- Underground utility construction work
- Installation of building services, electrical switchboard of cable laying and termination, Minor Installation of mechanical equipment and raised floor, testing and commissioning, Photovoltaic Panel Installation

• Post Treatment Building • Installation of Cat Ladders in Irrigation Tanks • Placing Soil Mix at Roof • Curb Construction for Rescue Opening at Water Tanks • Minor Installation of building services, Minor Installation of mechanical equipment, Cable laying and termination, Pressure Test
• Inspection corridor • Construction of roof tiling • Internal decoration and finishing works • Installation of building services, Lift Installation
• Combined Shaft and Pump room • CCTV Installation, Installation of Lightning System, Minor building services Installation, testing and commissioning • Internal finishing, defect rectification • Guard House • Installation of Building Services • Guard House B Guard House, Workshop construction work • Other • Underground utility rectification work (Manhole and Draw pit) – • Watermain installation works at CLP 132 Kv Substation • Security Fence footing construction work • Light Pole installation work • Road Construction • Footpath Construction • Landscape Construction • Irrigation System installation • Water Pressure Test for Fire Services and Plumbing System • Landscape planting work • Traffic signage work • Cladding installation for Elevated Walkway • Slope work –Rock anchors installation, Rock break, Concreting • Open Channel and Wave deflector Wall

April 2024

Administration Building

- Installation of signage
- Installation of ceiling
- Painting works
- Installation of sanitary fitting
- Installation of vinyl flooring
- Installation of Aluminium Fins
- Installation of Internal partition wall and ceiling
- External wall finishing works
- Installation of AP doors and cat ladders
- Installation of wood decking
- Minor Installation of building services, cable laying and termination, Photovoltaic Panel Installation, Testing & Commissioning

Chemical building

- Roof planting works
- Defect rectification

Main Electrical & Central Chiller Plant Building

- Minor Installation of building services, electrical switchboard, cable laying, pressure test
- Ladder and Cover installation at Roof

ActiDAFF

- Rectification works for roof tiles
- Installation of signage
- Minor Installation of mechanical equipment, building services, minor cable laying and termination, Installation of Fibre Reinforced Polymer Cover, Testing & Commissioning

Product Water Storage Tank Building

- Installation of signage
- Installation of cladding works
- Tiling work at Roof Slab on Tank A
- Ladder and Cover installation at Roof
- Roof Tiles installation
- Minor Installation of building services, cable laying and termination, Testing & Commissioning

OSCG Building

- Installation of Promat Board in Skid Room
- Installation of cladding works
- Installation of Railing on Brine Maker Tank
- Installation of building services, mechanical equipment and cable laying and termination, testing and commissioning

Reverse Osmosis Building

- Installation of AP doors
- Installation of sanitary fitting
- Sanitary Ware Installation in Toilet
- Tiling Work in Toilet
- Installation of Water Meter Cabinets
- Installation of building services, electrical switchboard of cable laying and termination, Minor Installation of mechanical equipment and raised floor, testing and commissioning, Photovoltaic Panel Installation

Post Treatment Building

- Installation of Cat Ladders in Irrigation Tanks
- Green Roof
- Minor Installation of building services, Minor Installation of mechanical equipment, Cable laying and termination, Pressure Test

Inspection corridor

- Installation of cat ladder
- Internal decoration and finishing works

Combined Shaft and Pump room

- Minor cable laying and termination, testing and commissioning
- Defect rectification

Guard House

- Installation of Building Services, testing and commissioning

Slope Work

- Rock Dowel Installation
- Buttress Construction
- Wire Mesh Laying
- Drilling; Rock anchors installation, Rock break, Concreting

Other

- Watermain installation works at CLP 132 Kv Substation
- Underground utility rectification work for Manhole and Draw pit
- Underground utility Construction Work for Watermain water
- Underground utility repair Work for Sewerage, Watermains work)
- Security Fence footing construction work
- Light Pole installation work
- Road Construction
- Footpath Construction
- Landscape Construction
- Irrigation System installation
- Water Pressure Test for Fire Services and Plumbing System
- Landscape planting work
- Traffic signage work
- Workshop construction
- Cladding installation for Elevated Walkway

- Wave deflector Wall

Appendix D.3
Other Factor Might Affect the Monitoring Results

Month	Other Factors might affect the monitoring results
May 2023	N/A
June 2023	N/A
July 2023	N/A
August 2023	N/A
September 2023	N/A
October 2023	N/A
November 2023	N/A
December 2023	N/A
January 2024	N/A
February 2024	N/A
March 2024	N/A
April 2024	N/A

Appendix E

Site Inspection Proforma

Table E1 Site Inspection Observation Record

Date	Environmental Observations	Follow-up Status
May 2023		
2 May 2023	No major environmental deficiency was observed.	N/A
9 May 2023	No major environmental deficiency was observed.	N/A
16 May 2023	No major environmental deficiency was observed.	N/A
23 May 2023	Chemical containers found near the South end of the site near the slope shall be provided with a proper storage or drip tray to prevent leakage.	Chemical was removed.
30 May 2023	No major environmental deficiency was observed.	N/A
June 2023		
6 Jun 2023	No major environmental deficiency was observed.	N/A
13 Jun 2023	No major environmental deficiency was observed.	N/A
20 Jun 2023	The Contractors are reminded to remove the chemical containers along the haul road of the open channel either proper storage or disposed to avoid possible leakage or contamination.	The chemical along the haul road was removed.
27 Jun 2023	Chemical containers found near the Chemical Building shall be stored on a drip tray to prevent leakage.	The chemical was removed.
July 2023		
4 Jul 2023	No major environmental deficiency was observed.	N/A
11 Jul 2023	No major environmental deficiency was observed.	N/A

Date	Environmental Observations	Follow-up Status
18 Jul 2023	The Chemical containers found near the R.O. Building shall be stored on a drip tray or proper storage.	Chemical container near the R.O. Building was removed.
25 Jul 2023	The chemical containers found near the R.O. Building shall store on a drip tray or provide proper storage to prevent leakage.	Chemical container near the R.O. Building was removed.
August 2023		
1 Aug 2023	No major environmental deficiency was observed.	N/A
8 Aug 2023	No major environmental deficiency was observed.	N/A
15 Aug 2023	No major environmental deficiency was observed.	N/A
22 Aug 2023	No major environmental deficiency was observed.	N/A
29 Aug 2023	No major environmental deficiency was observed.	N/A
September 2023		
5 Sept 2023	No major environmental deficiency was observed.	N/A
12 Sept 2023	No major environmental deficiency was observed.	N/A
19 Sept 2023	No major environmental deficiency was observed.	N/A
26 Sept 2023	Chemical container found near the OSCG shall be properly storage.	Chemical was removed.
October 2023		
3 Oct 2023	No major environmental deficiency was observed.	N/A
10 Oct 2023	No major environmental deficiency was observed.	N/A
17 Oct 2023	No major environmental deficiency was observed.	N/A
27 Oct 2023	No major environmental deficiency was observed.	N/A
31 Oct 2023	Chemical containers found near the OSCG shall be store on a drip tray to prevent leakage.	Chemical removed to proper storage area

Date	Environmental Observations	Follow-up Status
November 2023		
7 Nov 2023	No major environmental deficiency was observed.	N/A
14 Nov 2023	No major environmental deficiency was observed.	N/A
21 Nov 2023	No major environmental deficiency was observed.	N/A
27 Nov 2023	No major environmental deficiency was observed.	N/A
December 2023		
5 Dec 2023	No major environmental deficiency was observed.	N/A
12 Dec 2023	No major environmental deficiency was observed.	N/A
19 Dec 2023	No major environmental deficiency was observed.	N/A
27 Dec 2023	No major environmental deficiency was observed.	N/A
January 2024		
2 Jan 2024	No major environmental deficiency was observed.	N/A
9 Jan 2024	No major environmental deficiency was observed.	N/A
16 Jan 2024	A chemical container found near RO Building without a drip tray, the contractors are reminded to provide a drip tray or proper storage for the chemical containers.	The chemical container was removed.
25 Jan 2024	No major environmental deficiency was observed.	N/A
29 Jan 2024	No major environmental deficiency was observed.	N/A
February 2024		
7 Feb 2024	No major environmental deficiency was observed.	N/A
16 Feb 2024	No major environmental deficiency was observed.	N/A
20 Feb 2024	No major environmental deficiency was observed.	N/A

Date	Environmental Observations	Follow-up Status
28 Feb 2024	No major environmental deficiency was observed.	N/A
March 2024		
5 Mar 2024	No major environmental deficiency was observed.	N/A
12 Mar 2024	No major environmental deficiency was observed.	N/A
19 Mar 2024	No major environmental deficiency was observed.	N/A
25 Mar 2024	No major environmental deficiency was observed.	N/A
April 2024		
2 Apr 2024	No major environmental deficiency was observed.	N/A
9 Apr 2024	No major environmental deficiency was observed.	N/A
16 Apr 2024	No major environmental deficiency was observed.	N/A
23 Apr 2024	No major environmental deficiency was observed.	N/A
29 Apr 2024	No major environmental deficiency was observed.	N/A

Appendix F

Waste Flow Table

Contract No. 13/WSD/17
Environmental Management Plan for Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Appendix F - Monthly Summary Waste Flow Table

Name of Department: WSD Contract No.: 13/WSD/17

Monthly Summary Waste Flow Table for 2023 (year)

W

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of 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 '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)
Jan	3383.820	0.000	0.000	0.000	3383.820	0.000	0.000	0.000	0.000	0.000	143.690
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.138	0.010	0.000	115.880
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	205.410
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	255.720
May	2088.990	0.000	0.000	0.000	2088.990	0.000	0.000	0.000	0.000	0.000	202.270
Jun	1955.240	0.000	0.000	0.000	1955.240	0.000	0.000	0.000	0.0017	0.000	189.680
Sub-total	7428.050	0.000	0.000	0.000	7428.050	0.000	0.002	0.138	0.012	0.000	1112.650
Jul	121.060	0.000	0.000	0.000	121.060	0.000	0.008	0.150	0.042	0.000	186.110
Aug	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	168.220
Sep	762.550	0.000	0.000	0.000	762.550	0.000	0.000	148.944	0.000	0.000	172.440
Oct	568.600	0.000	0.000	0.000	568.600	0.000	0.000	18.574	0.010	0.000	185.010
Nov	15.430	0.000	0.000	0.000	15.430	0.000	0.000	0.000	0.000	0.000	116.960
Dec	215.220	0.000	0.000	0.000	215.220	0.000	0.000	0.000	0.000	0.000	79.680
Total	9110.910	0.000	0.000	0.000	9110.910	0.000	0.010	167.806	0.064	0.000	2021.070

Notes:
(1) The performance targets are given in Section 1.69 of Specification B
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/ foam from packaging material

Contract No. 13/WSD/17
Environmental Management Plan for Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Appendix F - Monthly Summary Waste Flow Table

Name of Department: WSD Contract No.: 13/WSD/17

Monthly Summary Waste Flow Table for 2024 (year)

W

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of 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 '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)
Jan	4978.345	0.000	0.000	4667.745	310.600	0.000	0.000	0.000	0.000	0.000	77.800
Feb	22561.796	0.000	0.000	21883.006	678.790	0.000	0.000	0.000	0.000	0.000	53.480
Mar	81.140	0.000	0.000	0.000	81.140	0.000	0.000	0.000	0.000	0.000	52.260
Apr	57.130	0.000	0.000	0.000	57.130	0.000	0.000	0.000	0.000	0.000	47.390
May											
Jun											
Sub-total	27678.411	0.000	0.000	26550.751	1127.660	0.000	0.000	0.000	0.000	0.000	230.930
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	27678.411	0.000	0.000	26550.751	1127.660	0.000	0.000	0.000	0.000	0.000	230.930

Notes:
(1) The performance targets are given in Section 1.69 of Specification B
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/ foam from packaging material

Appendix G

Summary of Exceedances

Table G1 Cumulative Statistics on Exceedances

Environmental Monitoring	Parameter	No. of non-Project related exceedance in the reporting period		Total No. of non-Project related exceedance in the reporting period	No. of Project related exceedance in the reporting period		Total No. of Project related exceedance in the reporting period	Total No. recorded since the project commencement
		AL	LL		AL	LL		
Noise	$L_{eq\ (30min)}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Water Quality	DO	0	0	0	0	0	0	0
	Turbidity	0	0	0	0	0	0	0
	SS	271	201	472	0	0	0	2755
	pH	0	0	0	0	0	0	0
Landfill Gas	O_2	0	0	0	0	0	0	0
	CH_4	0	0	0	0	0	0	0
	CO_2	0	0	0	0	0	0	0

Appendix H

Complaint Log

Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 May 2023 – 30 April 2024	1	2	Air Quality, Noise and Water Quality

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
1 May 2023 – 30 April 2024	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
1 May 2023 – 30 April 2024	0	0	N/A

Appendix I

Event / Action Plan

Table I1 Event and Action Plan for Construction Noise Monitoring

Event	Action			
	ET	**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

Table I2 Event and Action Plan for Water Quality Monitoring

Event	Action			
	ET	IEC	Contract(s)	ER
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.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice	1. Confirm receipt of notification of exceedance in writing.
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; 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. 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	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.
Limit Level being exceeded by one sampling day	4. Repeat in situ measurement on the next day of exceedance to confirm findings; 5. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 6. Identify source(s) of impact and record in notification of exceedance; 7. Inform IEC, Contractor(s) and ER; 8. 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; 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. 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	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.

Event	Action			
	ET	**IEC**	**Contract(s)**	**ER**
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; 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. 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. 6. As directed by ER, slow down or stop all or part of the marine construction works/ production volume of the desalination plant until no exceedance of Limit Level.	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; 5. Consider and instruct, if necessary, the Contractor(s) to slow down or to stop all or part of the marine construction works/production volume of the desalination plant until no exceedance of Limit Level.