



Quarterly EM&A Compliance Report




SkyCity Nine Eagles Golf Course

November 2014 to January 2015



Project Deliverable No.:	7076024 D01/19 – Revision No 1
Project Name:	SkyCity Nine Eagles Golf Course
Report Name:	Quarterly EM&A Compliance Report – November 2014 to January 2015
Report Date:	January 2015
Report for:	Sky City Nine Eagles Golf Course

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved by
1 (Final)	Jan 2015	Samantha KONG 	Antony WONG 	Alexi BHANJA 

ISSUE REGISTER

Distribution List	Date Issued	Number of Copies
Sky City Nine Eagles – Eddie YUNG	January 2015	1 electronic
SkyCity Nine Eagles – Vincent LEUNG	January 2015	1 electronic
EPD (EIAO Office) – Kenny LEUNG	January 2015	2 hardcopies + 1 CD-ROM
EPD (Regional Office) – Wilson TAM	January 2015	1 hardcopy
Asia Turf Solutions – Rick HAMILTON	January 2015	1 electronic
Airport Authority – Sophia LAU	January 2015	1 electronic
SMEC Project File:	January 2015	1 electronic

SMEC COMPANY DETAILS

SMEC Asia Limited

27/F Ford Glory Plaza, 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

T +852 3995 8100 | F +852 3995 8101

smecasia@smec.com | www.smec.com

The information within this document is and shall remain the property of **SMEC Asia Limited**

CONTENTS

EXECUTIVE SUMMARY	1-1
1 PROJECT DESCRIPTION	1-1
1.1 Overview	1-1
1.2 Operation	1-1
2 LAKE WATER QUALITY EM&A	2-1
2.1 EM&A Programme	2-1
2.1.1 Monitoring This Quarter.....	2-1
2.1.2 Monitoring Next Quarter	2-1
2.2 Equipment and Methodology	2-1
2.3 Maintenance and Calibration.....	2-2
2.4 Parameters Monitored.....	2-2
2.5 Monitoring Locations	2-2
2.6 Monitoring Date, Time, Frequency and Duration	2-2
2.7 Action / Limit Levels.....	2-3
3 MONITORING RESULTS.....	3-1
3.1 Summary of Results	3-1
3.2 Discussion.....	3-1
3.2.1 November 2014.....	3-1
3.2.2 December 2014	3-2
3.2.3 January 2015	3-2
3.3 Operational Practice	3-2
3.4 Complaints and Notifications of Summons.....	3-2
4 COMMENTS, RECOMMENDATIONS AND CONCLUSIONS	4-1

APPENDICES

Appendix 1	Equipment Calibration Details
Appendix 2	Lake Water Quality Monitoring Data
Appendix 3	Graphical Plots of Monitoring Data for the Past Four Months

TABLES

Table 2-1	Monitoring Schedule for This Quarter
Table 2-2	Monitoring Schedule for the Next Quarter
Table 2-3	In-situ Monitoring Equipment Details
Table 2-4	Monitoring Frequency
Table 2-5	Action and Limit Levels for Lake Water Quality
Table 2-6	E/AP for Lake Water Quality Monitoring
Table 3-1	Summary of Compliance Monitoring Data During Reporting Quarter
Table 3-2	Operational Results

FIGURES

Figure 1-1	Location of SkyCity Golf Course on the Airport Island
Figure 1-2	Schematic of Lake Water Control System
Figure 2-1	Locations for Lake Water Quality Monitoring

EXECUTIVE SUMMARY

The project comprises the construction and operation of a 9-hole Golf Course at the east side of the North Commercial District (NCD) on the Airport Island as an interim arrangement prior to the area's future development as a business park. The golf facility, known as "SkyCity Nine Eagles Golf Course" serves airport passengers and workers as well as the general public.

According to the approved EM&A Manual, monthly compliance monitoring of lake water quality at four locations (W1 and W2 in Lake A and W3 and W4 in Lake B) is required during the Operation Period, with reporting on a quarterly basis. Parameters monitored comprise Suspended Solids (SS), Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD₅), nitrogen, phosphorous, temperature and salinity.

This is the thirtieth Quarterly Compliance report covering November 2014 to January 2015 and complies with the reporting requirements stated in the approved EM&A Manual.

In November, two exceedances of Action Level and two exceedances of Limit Level were recorded. SS concentrations at monitoring locations W3 and W4 exceeded the Limit Level and SS concentrations at monitoring locations W1 and W2 exceeded the Action Level. The SS concentration in the lakes is predominantly caused by naturally occurring algae in the water. However, with the gradual cooling of lake water (temperatures were around 5°C cooler on average in November than in October) algal growth has slowed. There were no exceedances of any other parameters.

In December, two exceedances of Action Level and two exceedances of Limit Level were recorded. SS concentrations at monitoring locations W3 and W4 exceeded the Limit Level and SS concentrations at monitoring locations W1 and W2 exceeded the Action Level. With continuing cooling of lake water (water temperatures were around 3°C cooler on average in December than in November) algal growth continued to slow. There were no exceedances of any other parameters.

In January, one exceedance of Action Level and two exceedances of Limit Level were recorded. SS concentrations at monitoring locations W3 and W4 exceeded the Limit Level and the SS concentration at monitoring location W1 exceeded the Action Level. With continuing cooling of lake water (water temperatures were around 2°C cooler on average in January than in December) algal growth continued to slow. There were no exceedances of any other parameters.

Because the lake water was not considered to be of an acceptable quality for discharge into the surrounding marine waters, there were no openings of the control valve, emergency or otherwise, in November, December and January. As such, there was no off-site release of lake water and therefore no impact to the marine environment.

There were no complaints, notifications of summons received during the reporting quarter.

1 PROJECT DESCRIPTION

1.1 Overview

The project comprises the construction and operation a 9-hole Golf Course at the east side of the North Commercial District (NCD) on the Airport Island as an interim arrangement prior to the area's future development as a business park (see *Figure 1-1*). The golf facility, known as "SkyCity Nine Eagles Golf Course" serves airport passengers and workers as well as the general public.

The Project is managed by SkyCity Nine Eagles Golf Course, who has engaged Asia Turf Solutions Ltd to establish and maintain the turfgrass of the Golf Course. SMEC Asia Ltd has been employed as the Environmental Team (ET) for the Operation Period since May 2010 and has engaged ALS Technichem Pty Ltd as the HOKLAS accredited testing laboratory to carry out lake water analysis.

Construction of the golf course was completed on 31 December 2006, the first phase of the Operation Period was completed on 30 April 2007, and the second (and current) phase commenced on 1 May 2007.

1.2 Operation

The Golf Course has been designed to contain water within two artificial lakes, which are linked together by two underwater pipes. The lakes provide a source of freshwater for irrigation. All rainwater and surplus irrigation water collected within the Golf Course will drain back into the lakes for reuse, through a sub-soil drainage system.

The lakes are maintained at a capacity of 15,000m³. This is not "full" but is the level that provides the required visual appearance. During the winter (dry) months, however, the lake water may fall below this level. The maximum capacity of the lakes is 20,000m³.

If the capacity of the lakes exceeds 20,000m³, then the Golf Course may flood. To avoid this, the Golf Course Supervisor can authorise the opening of a control valve to allow the water to overflow from the lakes into storm drains that discharge off-site via Outfall No. 8. However, the valve can only be opened if the lake water monitoring results indicate that water is of an acceptable quality. Under normal circumstances, the control valve remains closed and discharge off-site is not possible. All opening/closing of the control valve is logged on site.

If the latest lake water monitoring results indicate that water is not of an acceptable quality, then the valve cannot be opened, the lake water cannot overflow and the Golf Course may begin to flood. This is part of the mitigation design to prevent off-site discharge of water that does not meet the required standard.

The bund that surrounds the site is at least 1.5m high and up to 90,000m³ of floodwater can be retained within the Golf Course in addition to the 20,000m³ lake capacity. In this situation, water samples from the flooded Golf Course will be taken more frequently. Only when water has returned to an acceptable quality will the control valve be opened to allow water to overflow from the lake and into off-site storm drains that discharge via Outfall No. 8, thereby allowing the flood to recede.

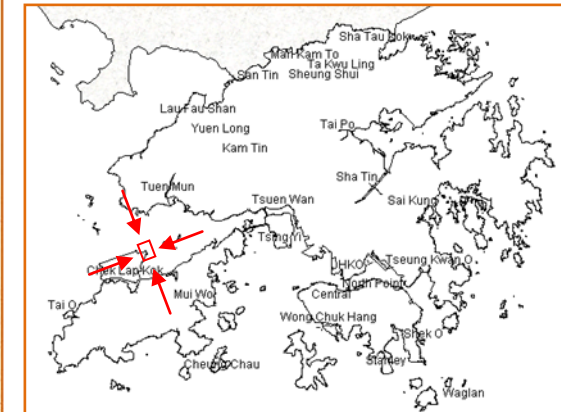
The system by which this water control is achieved is shown in *Figure 1-2*.

Figure 1-1 Location of SkyCity Golf Course on the Airport Island



Source: Image courtesy of Airport Authority.

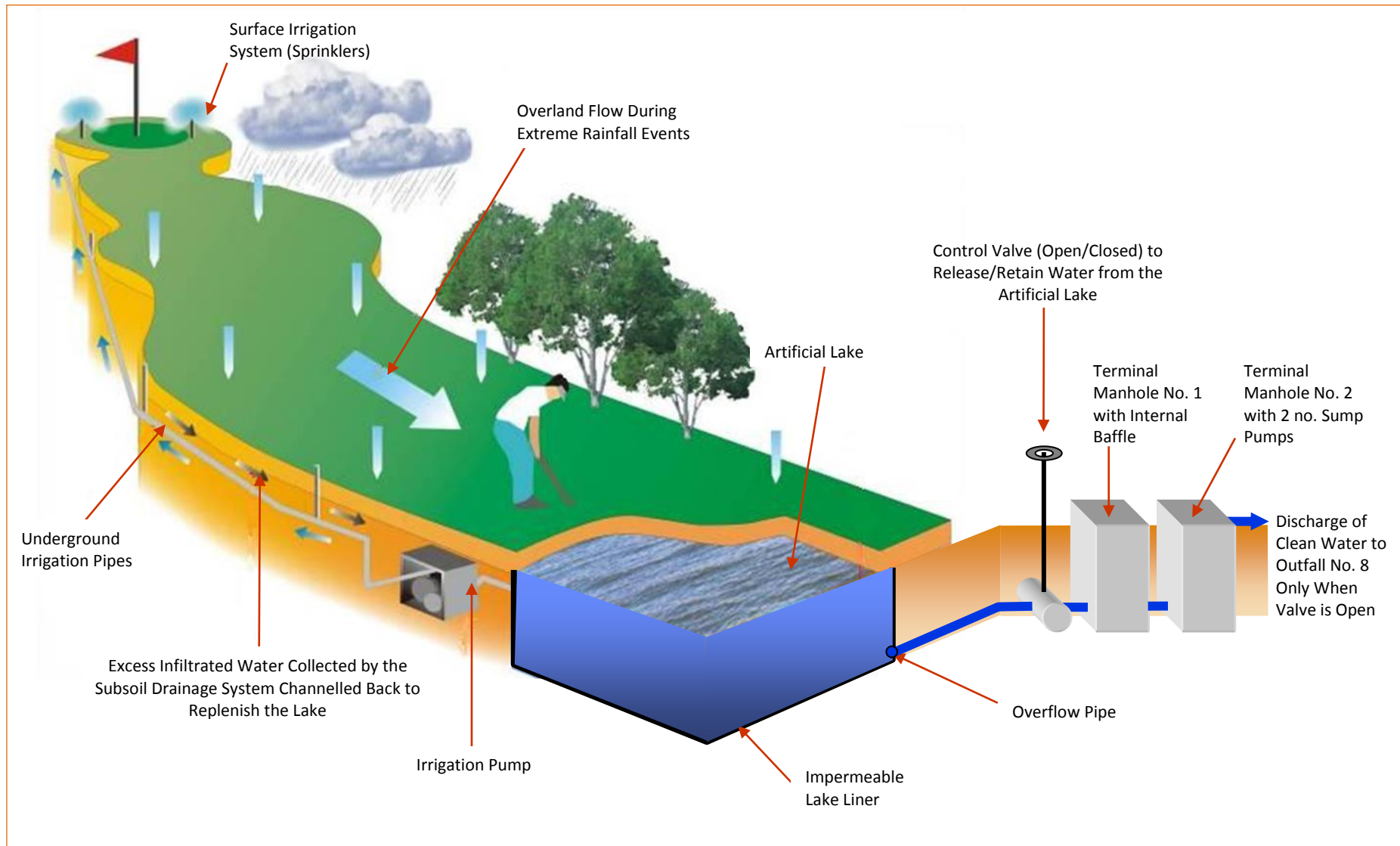
Location Map



Key

- 1 Terminal 2 & SkyPlaza
(Retail, F&B & Entertainment)
二號客運大樓及翔天廊(零售、食肆及娛樂區)
- 2 HKIA Tower
機場行政大樓
- 3 AsiaWorld - Expo
亞洲國際博覽館
- 4 2nd on-airport hotel
第二間機場酒店
- 5 SkyPier
海天客運碼頭
- 6 SkyCity Nine Eagles Golf Course
航天城高爾夫球場
- 7 Airport World Trade Centre
暫名:機場世界貿易中心

Figure 1-2 Schematic of Lake Water Control System



2 LAKE WATER QUALITY EM&A

2.1 EM&A Programme

Monitoring of Dissolved Oxygen (DO) in mg/ℓ, Suspended Solids (SS) in mg/ℓ, Biochemical Oxygen Demand (BOD₅) in mg/ℓ, Total Nitrogen in mg/ℓ, Total Phosphorous in mg/ℓ, Salinity in g/ℓ, and temperature in °C was carried out by the ET to ensure that any deterioration in lake water quality could be readily detected and timely action could be taken to rectify the situation if this was due to site operations.

DO, temperature and salinity were measured in-situ whilst other parameters were determined in a HOKLAS-accredited laboratory.

2.1.1 Monitoring This Quarter

The actual lake water monitoring schedule for this quarter (November 2014 to January 2015) is given in **Table 2-1**, below.

Table 2-1 Monitoring Schedule for This Quarter

Sampling Date	Sampling Locations
14 November 2014	W1 to W4
12 December 2014	W1 to W4
9 January 2015	W1 to W4

2.1.2 Monitoring Next Quarter

The planned lake water monitoring schedule for the next quarter (February to April 2015) is given in **Table 2-2**, below.

Table 2-2 Monitoring Schedule for the Next Quarter

Sampling Date	Sampling Locations
13 February 2015	W1 to W4
13 March 2015	W1 to W4
10 April 2015	W1 to W4

2.2 Equipment and Methodology

Because of the relatively shallow water, in-situ measurements and water sampling were conducted at 0.5m from the surface (the mid-point of the 1m deep lake). Water samples for all monitoring parameters were collected, stored, preserved and analysed according to *APHA Standard Methods for the Examination of Water and Wastewater, 19th Ed, #17*.

In-situ monitoring was carried out using a DO concentration and DO saturation were carried out using a YSI Model 85 CE-C-M-Y multi-parameter meter and the range, resolution and accuracy of the equipment is provided in **Table 2-3**.

Table 2-3 In-situ Monitoring Equipment Details

In-situ Parameters	Measuring Devices	Measurement Precision
Dissolved Oxygen	YSI Professional Plus	0.1mg/ℓ and 0.1%
Salinity		0.1ppt (or g/ℓ)
Temperature		0.1°C

A Kahlisco water sampler was used to obtain water samples for subsequent SS analysis in the laboratory. A sufficient volume of the sample is collected in clean, high density polythene bottles, packed in ice (cooled to 4°C without being frozen), and delivered to the ALS laboratory immediately after monitoring. The analysis of the collected samples starts by the next working day following APHA *Standard Methods #2540D*.

2.3 Maintenance and Calibration

All in-situ monitoring instruments are calibrated and certified by ALS at monthly intervals throughout all stages of the lake water quality monitoring programme.

The YSI Multi-purpose Meter is calibrated once per monitoring day by the wet bulb method. Calibration at the ALS laboratory is carried out once every month in a water sample of known dissolved oxygen concentration. The sensor is immersed in the water and after thermal equilibration, the known mg/ℓ value is keyed in and the calibration is carried out automatically. Calibration details are provided in *Appendix 1*.

2.4 Parameters Monitored

The following parameters are monitored and compared to Action/Limit (A/L) Levels:

- Dissolved Oxygen
- Suspended Solids
- BOD₅
- Total Nitrogen
- Total Phosphorous

There are no A/L Levels for temperature or salinity – these parameters are recorded for information only.

2.5 Monitoring Locations

Monitoring locations together with grid references are shown in *Figure 2-1*. Monitoring Stations are designated as W1, W2, W3 and W4.

2.6 Monitoring Date, Time, Frequency and Duration

In accordance with the EM&A Manual, the monitoring frequency of lake water quality is shown as *Table 2-4*.

Table 2-4 Monitoring Frequency

	Operation Phase	
	Below A/L Level	A/L Level Exceedance
Monitoring Frequency	Monthly	Weekly

2.7 Action / Limit Levels

According to the approved EM&A manual, the A/L Levels for the compliance monitoring (for monitoring locations W1 to W4) are shown in **Table 2-5**, below.

Table 2-5 Action and Limit Levels for Lake Water Quality

Parameter	Acceptable Standard (mg/ℓ)	
	Action Level	Limit Level
Suspended Solids	20	30
BOD ₅	13.5	20
Dissolved Oxygen	4	3
Total Nitrogen	20	30
Total Phosphorous	3.5	5

In case of exceedance of A/L Levels caused by the operation of the Golf Course, the ET shall immediately implement the Event/ Action Plan (E/AP), shown in **Table 2-6**, below, in order to resolve lake water quality problems:

Table 2-6 Event/Action P for Lake Water Quality Monitoring

Event	Action
Exceedance of Action Level	<ul style="list-style-type: none"> Notify the Golf Course Supervisor of the exceedance, providing full details (time, location, parameter, level, etc.) Increase the frequency of monitoring of the particular parameter(s) to “Action/Limit Level Exceedance” as shown in Table 2-4 If water quality continues to worsen, it may be prudent to review the Turfgrass Management Plan (TMP) in terms of application of nutrients and agree any revisions with the Golf Facility Supervisor Notify the Golf Facility Supervisor when water quality falls below “Action Level” and reduce monitoring frequency to “Below Action/Limit Level” as shown in Table 2-4
Exceedance of Limit Level	<ul style="list-style-type: none"> Notify EPD and Golf Course Supervisor of the exceedance, providing full details (time, location, parameter, level, etc.) Suspend any ongoing application of organic nutrients Determine the likely cause of the exceedance(s) Review the TMP in terms of application of nutrients and agree any revisions with the Golf Facility Supervisor Continue to irrigate the Golf Course using lake water Increase the frequency of monitoring of the particular parameter(s) to “Action/Limit Level Exceedance” as shown in Table 2-4 (if not already at this frequency) to demonstrate the effectiveness of remedial measures and to confirm that water quality has returned to acceptable levels Notify EPD and Golf Course Supervisor when water quality falls below “Action Level” (not “Limit Level”) and reduce monitoring frequency to “Below Action/Limit Level” as shown in Table 2-4

Figure 2-1 Locations for Lake Water Quality Monitoring



3 MONITORING RESULTS

3.1 Summary of Results

A summary of scheduled lake water monitoring results for the reporting quarter is provided in **Table 3-1**, below. Detailed results are provided in **Appendix 2** and graphical plots since commencement of the second phase of Operation are given in **Appendix 3**.

Table 3-1 Summary of Compliance Monitoring Data during Reporting Quarter

Monitoring Location		Salinity (g/l)	Temperature (°C)	SS (mg/l)	BOD ₅ (mg/l)	DO Saturation (%age)	DO Concentration (mg/l)	Total Nitrogen (mg/l)	Total Phosphorous (mg/l)
W1	Mean	0.1	19.1	24	2.3	85.3	8.0	1.2	0.0
	Minimum	0.1	17.5	21	2.0	83.9	7.4	1.0	0.0
	Maximum	0.1	21.4	28	3.0	86.8	8.3	1.4	0.1
W2	Mean	0.1	18.9	21	2.3	87.1	8.2	1.2	0.0
	Minimum	0.1	17.2	16	2.0	84.5	7.5	1.0	0.0
	Maximum	0.1	21.3	26	3.0	89.9	8.7	1.4	0.1
W3	Mean	0.1	18.0	59	7.7	81.6	7.8	3.2	0.2
	Minimum	0.1	16.5	40	7.0	76.4	7.0	2.2	0.1
	Maximum	0.1	20.4	72	9.0	86.4	8.3	4.0	0.3
W4	Mean	0.1	17.8	57	7.7	82.8	7.9	3.3	0.2
	Minimum	0.1	15.9	42	7.0	78.0	6.9	2.3	0.1
	Maximum	0.1	20.4	68	8.0	87.4	8.4	4.2	0.2

Note: **Bold** indicates Action Level exceedance; **Bold** indicates Limit Level exceedance.

3.2 Discussion

3.2.1 November 2014

In November, two exceedances of Action Level and two exceedances of Limit Level were recorded. SS concentrations at monitoring locations W3 and W4 exceeded the Limit Level and SS concentrations at monitoring locations W1 and W2 exceeded the Action Level. The SS concentration in the lakes is predominantly caused by naturally occurring algae in the water. However, with the gradual cooling of lake water (temperatures were around 5°C cooler on average in November than in October) algal growth has slowed.

There were no exceedances of any other parameters. Total nitrogen and total phosphorous concentrations remained below Action Levels, which indicate that application of organic nutrients is NOT the cause of the exceedances.

3.2.2 December 2014

In December, two exceedances of Action Level and two exceedances of Limit Level were recorded. SS concentrations at monitoring locations W3 and W4 exceeded the Limit Level and SS concentrations at monitoring locations W1 and W2 exceeded the Action Level. With continuing cooling of lake water (water temperatures were around 3°C cooler on average in December than in November) algal growth continued to slow.

There were no exceedances of any other parameters. Total nitrogen and total phosphorous concentrations remained below Action Levels, which indicate that application of organic nutrients is NOT the cause of the exceedances.

3.2.3 January 2015

In January, one exceedance of Action Level and two exceedances of Limit Level were recorded. SS concentrations at monitoring locations W3 and W4 exceeded the Limit Level and the SS concentration at monitoring location W1 exceeded the Action Level. With continuing cooling of lake water (water temperatures were around 2°C cooler on average in January than in December) algal growth continued to slow.

There were no exceedances of any other parameters. Total nitrogen and total phosphorous concentrations remained below Action Levels, which indicate that application of organic nutrients is NOT the cause of the exceedances.

Nevertheless, because of SS exceedances, the lake water is not considered to be of an acceptable quality for discharge. Therefore, in accordance with the EM&A Manual, the control valve remained closed and there was no discharge off-site into the surrounding marine waters.

3.3 Operational Practice

Table 3-2, below, shows the operational practice during the reporting quarter, i.e., the activities relating to the management of water in the lakes.

Table 3-2 Operational Results

Month	Month-end Lake Water Depth (m)	Can Control Valve Be Opened?	Was Control Valve Opened?	Quantity of Water Discharged (m ³)
November 2014	0.7	No	No	0
December 2014	0.9	No	No	0
January 2015	1.2	No	No	0

Water quality in November, December and January, was not considered to be of an acceptable quality for discharge and so the control valve could not be opened. As such, no water was discharged off-site during November, December and January.

3.4 Complaints and Notifications of Summons

During the reporting quarter, there were no complaint received and no notifications of summons. There were also no openings of the control valve, emergency or otherwise.

4 COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

According to the approved EM&A Manual, monthly compliance monitoring of lake water quality at four locations (W1 and W2 in Lake A and W3 and W4 in Lake B) is required during the Operation Period, with reporting on a quarterly basis. Parameters monitored comprise Suspended Solids (SS), Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD₅), nitrogen, phosphorous, temperature and salinity.

This is the thirty-first Quarterly Compliance report covering EM&A from November 2014 to January 2015 and complies with the reporting requirements stated in the approved EM&A Manual.

In November, two exceedances of Action Level and two exceedances of Limit Level were recorded. SS concentrations at monitoring locations W3 and W4 exceeded the Limit Level and SS concentrations at monitoring locations W1 and W2 exceeded the Action Level. The SS concentration in the lakes is predominantly caused by naturally occurring algae in the water. However, with the gradual cooling of lake water (temperatures were around 5°C cooler on average in November than in October) algal growth has slowed. There were no exceedances of any other parameters.

In December, two exceedances of Action Level and two exceedances of Limit Level were recorded. SS concentrations at monitoring locations W3 and W4 exceeded the Limit Level and SS concentrations at monitoring locations W1 and W2 exceeded the Action Level. With continuing cooling of lake water (water temperatures were around 3°C cooler on average in December than in November) algal growth continued to slow. There were no exceedances of any other parameters.

In January, one exceedance of Action Level and two exceedances of Limit Level were recorded. SS concentrations at monitoring locations W3 and W4 exceeded the Limit Level and the SS concentration at monitoring location W1 exceeded the Action Level. With continuing cooling of lake water (water temperatures were around 2°C cooler on average in January than in December) algal growth continued to slow. There were no exceedances of any other parameters.

Water quality in November, December and January, was not considered to be of an acceptable quality for discharge and so the control valve could not be opened. As such, no water was discharged off-site during November, December and January.

There were no complaints, notifications of summons received during the reporting quarter.

APPENDIX 1

Equipment Calibration Details



ALS Technichem (HK) Pty Ltd
11/F, Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung, N.T., Hong Kong
T: +852 2610 1044
F: +852 2610 2021
www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR ALEXI BHANJA
CLIENT: SMEC ASIA LIMITED
ADDRESS: 27/F, FORD GLORY PLAZA,
37-39 WING HONG STREET,
CHEUNG SHA WAN,
KOWLOON, HONG KONG.
PROJECT: SKY CITY GOLF COURSE

WORK ORDER: HK1501148
SUB-BATCH: 1
LABORATORY: HONG KONG
DATE RECEIVED: --
DATE OF ISSUE: 16/01/2015

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test: Dissolved Oxygen and Temperature
Description: Multimeter
Brand Name: YSI
Model No.: YSI 550A
Serial No.: 14C103000
Equipment No.: --
Date of Calibration: 09 October, 2014

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.


Mr. Fung Lim Chee, Richard
General Manager
Greater China & Hong Kong

This report may not be reproduced except with prior written approval from ALS Technichem (HK) Pty Ltd.

Page 1 of 2

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1501148
SUB-BATCH: 1
Date of Issue: 16/01/2015
Client: SMEC ASIA LIMITED



Description: Multimeter
Brand Name: YSI
Model No.: YSI 550A
Serial No.: 14C103000
Equipment No.: --
Date of Calibration: 09 October, 2014 Date of next Calibration: 09 January, 2015

Parameters:

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.76	2.72	-0.04
4.39	4.48	+0.09
6.55	6.62	+0.07
	Tolerance Limit (\pm mg/L)	0.20

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading ($^{\circ}$ C)	Displayed Reading ($^{\circ}$ C)	Tolerance ($^{\circ}$ C)
10	10.2	+0.2
20	19.8	-0.2
36	36.2	+0.2
	Tolerance Limit (\pm $^{\circ}$ C)	2.0


Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

APPENDIX 2

Lake Water Quality Monitoring Data

Date	Time	Station	Salinity (g/l)	Temperature (°C)	SS (mg/l)	BOD5 (mg/l)	DO Sat (%Saturation)	DO Conc (mg/l)	Total Nitrogen (mg/l)	Total Phosphorous (mg/l)
14-Nov-14	7:00	W1	0.1	29.8	21	2	83.9	7.4	1.0	0.0
	7:30	W2	0.1	30.3	22	2	84.5	7.5	1.0	0.0
	7:45	W3	0.1	30.3	72	7	76.4	7.0	4.0	0.2
	8:15	W4	0.1	30.5	68	8	78.0	6.9	4.2	0.2
12-Dec-14	7:00	W1	0.1	30.0	28	3	86.8	8.3	1.2	0.1
	7:07	W2	0.1	29.8	26	3	89.9	8.5	1.2	0.1
	7:25	W3	0.1	30.0	66	9	86.4	8.3	3.5	0.3
	7:15	W4	0.1	30.1	61	8	87.4	8.4	3.3	0.2
9-Jan-15	7:00	W1	0.1	27.0	24	2	85.2	8.2	1.4	0.0
	7:10	W2	0.1	26.6	16	2	86.8	8.7	1.4	0.0
	7:40	W3	0.1	24.4	40	7	82.1	8.0	2.2	0.1
	7:30	W4	0.1	26.1	42	7	83.0	8.3	2.3	0.1
Mean			0.1	18.4	41	5	84.2	8.0	2.2	0.1
Minimum			0.1	15.9	16	2	76.4	6.9	1.0	0.0
Maximum			0.1	21.4	72	9	89.9	8.7	4.2	0.3

Note: **Bold** indicates Action Level exceedance; **Bold** indicates Limit Level exceedance

APPENDIX 3

Graphical Plots of Monitoring Data for the Past Four Months

