Table D1 Action and Limit Levels for 1-hour and 24-hour TSP

Parameters	Action	Limit
24 Hour TSP Level in μg/m³	ASR1 = 213	260
	ASR5 = 238	
	AQMS1 = 213	
	AQMS2 = 238	
	ASR10 = 214	
1 Hour TSP Level in μg /m³	ASR1 = 331	500
	ASR5 = 340	
	AQMS1 = 335	
	AQMS2 = 338	
	ASR10 = 337	

Table D2 Action and Limit Levels for Water Quality

Parameter	Action Level#	Limit Level#
DO in mg/L (a)	Surface and Middle	Surface and Middle
	5.0 mg/L	4.2 mg/L
	<u>Bottom</u>	<u>Bottom</u>
	4.7 mg/L	3.6 mg/L
Turbidity in NTU (Depthaveraged (b), (c))	120% of upstream control station at the same tide of the same day and 95%-ile of baseline data, i.e.,	130% of upstream control station at the same tide of the same day and 99%-ile of baseline data, i.e.,
	27.5 NTU	47.0 NTU
SS in mg/L (Depth-averaged (b), (c))	120% of upstream control station at the same tide of the same day and 95%-ile of baseline data, i.e., 23.5 mg/L	130% of upstream control station at the same tide of the same day and 10mg/L for WSD Seawater Intakes at Tuen Mun and 99%-ile of baseline
		data, i.e., 34.4 mg/L
		8

Notes:

Baseline data: data from HKZMB Baseline Water Quality Monitoring between 6 and 31 October 2011.

- (a) For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
- (b) "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths $\frac{1}{2}$
- (c) For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
- (d) All figures given in the table are used for reference only, and EPD may amend the figures whenever it is considered as necessary
- (e) The 1%-ile of baseline data for surface and middle DO is 4.2 mg/L, whilst for bottom DO is 3.6 mg/L.

Table D3 Action and Limit Levels for Impact Dolphin Monitoring

	North Lantau Social Cluster			
	NEL	NWL		
Action Level	STG < 70% of baseline &	STG < 70% of baseline &		
	ANI < 70% of baseline	ANI < 70% of baseline		
Limit Level	[STG < 40% of baseling	[STG < 40% of baseline & ANI < 40% of baseline]		
		and		
	STG < 40% of baseling	STG < 40% of baseline & ANI < 40% of baseline		

Notes:

- 1. STG means quarterly encounter rate of number of dolphin sightings, which is **6.00 in NEL** and **9.85 in NWL** during the baseline monitoring period
- 2. ANI means quarterly encounter rate of total number of dolphins, which is **22.19 in NEL** and **44.66 in NWL** during the baseline monitoring period
- 3. For North Lantau Social Cluster, AL will be trigger if NEL or NWL fall below the criteria; LL will be triggered if both NEL and NWL fall below the criteria.

Table D4 Derived Value of Action Level (AL) and Limit Level (LL)

	North Lanta	North Lantau Social Cluster			
	NEL	NWL			
Action Level	STG < 4.2 & ANI< 15.5	STG < 6.9 & ANI < 31.3			
Limit Level	[STG < 2.4	[STG < 2.4 & ANI <8.9]			
	á	and			
	[STG < 3.9 & ANI <17.9]				

Location : ASR 5
Calibrated by : P.F.Yeung
Date : 09/10/2013

Sampler

Model : TE-5170 Serial Number : S/N 0816

Calibration Orfice and Standard Calibration Relationship

 Serial Number
 : 2323

 Service Date
 : 26 Dec 2012

 Slope (m)
 : 2.09107

 Intercept (b)
 : -0.02838

 Correlation Coefficient(r)
 : 0.99996

Standard Condition

Pstd (hpa) : 1013 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1017 Ta(K) : 299

Resi	stance Plate	dH [green liquid]	Z	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.5	3.537	1.705	52	52.02
2	13 holes	9.7	3.115	1.503	45	45.01
3	10 holes	7.6	2.758	1.332	40	40.01
4	7 holes	4.7	2.169	1.051	31	31.01
5	5 holes	3.0	1.733	0.842	24	24.01

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b, Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m): 32.148 Intercept(b): -2.953 Correlation Coefficient(r): 0.9997

Location : ASR10A Calibrated by : P.F.Yeung Date : 15/10/2013

Sampler

Model : TE-5170 Serial Number : S/N 8162

Calibration Orfice and Standard Calibration Relationship

 Serial Number
 : 2323

 Service Date
 : 26 Dec 2012

 Slope (m)
 : 2.09107

 Intercept (b)
 : -0.02838

 Correlation Coefficient(r)
 : 0.99996

Standard Condition

Pstd (hpa) : 1013 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1013 Ta(K) : 301

Resi	stance Plate	dH [green liquid]	Z	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	13.0	3.588	1.729	59	58.71
2	13 holes	10.4	3.209	1.548	52	51.74
3	10 holes	7.8	2.779	1.343	45	44.78
4	7 holes	5.0	2.225	1.078	36	35.82
5	5 holes	3.0	1.723	0.838	28	27.86

 $Notes: Z = SQRT\{dH(Pa/Pstd)(Tstd/Ta)\}, \ X = Z/m-b \ , Y(Corrected \ Flow) = IC*\{SQRT(Pa/Pstd)(Tstd/Ta)\}\}$

Sampler Calibration Relationship (Linear Regression)

Slope(m):34.384 Intercept(b): 1.161 Correlation Coefficient(r): 0.9997

Location : AQM1
Calibrated by : P.F.Yeung
Date : 17/10/2013

Sampler

 Model
 :
 TE-5170

 Serial Number
 :
 S/N 1253

Calibration Orfice and Standard Calibration Relationship

Serial Number : 2323

 Service Date
 :
 26 Dec 2012

 Slope (m)
 :
 2.09107

 Intercept (b)
 :
 -0.02838

 Correlation Coefficient(r)
 :
 0.99996

Standard Condition

Pstd (hpa) : 1013 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1017 Ta(K) : 299

Resi	stance Plate	dH [green liquid]	Z	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	13.4	3.662	1.765	56	56.02
2	13 holes	9.4	3.067	1.480	47	47.01
3	10 holes	7.5	2.739	1.324	41	41.01
4	7 holes	5.0	2.237	1.083	33	33.01
5	5 holes	3.0	1.733	0.842	26	26.01

 $Notes: Z = SQRT\{dH(Pa/Pstd)(Tstd/Ta)\}, \ X = Z/m-b \ , Y(Corrected \ Flow) = IC*\{SQRT(Pa/Pstd)(Tstd/Ta)\}\}$

Sampler Calibration Relationship (Linear Regression)

Slope(m):32.944 Intercept(b): -2.175 Correlation Coefficient(r): 0.9990

Location : ASR 1
Calibrated by : P.F.Yeung
Date : 17/10/2013

Sampler

Model : TE-5170 Serial Number : S/N 0146

Calibration Orfice and Standard Calibration Relationship

Serial Number : 2323

 Service Date
 :
 26 Dec 2012

 Slope (m)
 :
 2.09107

 Intercept (b)
 :
 -0.02838

 Correlation Coefficient(r)
 :
 0.99996

Standard Condition

Pstd (hpa) : 1013 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1016 Ta(K) : 299

Resi	stance Plate	dH [green liquid]	Z	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	13.0	3.605	1.737	52	51.99
2	13 holes	10.4	3.224	1.555	46	45.99
3	10 holes	7.8	2.792	1.349	39	38.99
4	7 holes	5.0	2.236	1.083	30	29.99
5	5 holes	3.0	1.732	0.842	23	22.99

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b, Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m): 32.647 Intercept(b): -4.881 Correlation Coefficient(r): 0.9996

Location : ASR 6A
Calibrated by : P.F.Yeung
Date : 17/10/2013

Sampler

Model : TE-5170 Serial Number : S/N 1059

Calibration Orfice and Standard Calibration Relationship

Serial Number : 2323

 Service Date
 :
 26 Dec 2012

 Slope (m)
 :
 2.09107

 Intercept (b)
 :
 -0.02838

 Correlation Coefficient(r)
 :
 0.99996

Standard Condition

Pstd (hpa) : 1013 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1017 Ta(K) : 299

Resi	stance Plate	dH [green liquid]	Z	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.5	3.537	1.705	56	56.02
2	13 holes	10.0	3.163	1.526	50	50.01
3	10 holes	8.0	2.829	1.367	44	44.01
4	7 holes	5.2	2.281	1.104	35	35.01
5	5 holes	2.8	1.674	0.814	26	26.01

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b, Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):32.148 Intercept(b): -2.953 Correlation Coefficient(r): 0.9997



Performance Check of Turbidity Meter

Equipment Ref. No.

: ET/0505/010

Manufacturer

: HACH

Model No.

: 2100Q

Serial No.

11110 C 014260

Date of Calibration

: 08/102013

Due Date

: 07/01/2014

Gelex Vial Std	Theoretical Value (NTU)	Measured Value (NTU)	Difference %
0-10 NTU	5	5.23	4.50
10-100 NTU	50	52.1	4.11
100-1000 NTU	550	566	2.87

Acceptance Criteria

Difference: -5 % to 5%

The turbidity meter complies * / does not comply * with the specified requirements and is deemed acceptable * / unacceptable * for use. Measurements are traceable to national standards.

Checked by: _____ Approved by: ____



Model No. : HI 8314	Manufacturer Serial No.	: HANNA	
Marriage	Carial Na		
Date of Calibration : 09/10/2013	Serial No.	: 674469	
	Calibration Due Date	: 08/11/2013	
Liquid Junction Error			
Primary Standard Solution Used : Phosphate	Ref No. o	of Primary Solution	n: <u>003/5.2/001/15</u>
Temperature of Solution : 20.0		∆pH ½	= +0.08
pH value of diluted buffer : 6.81		pH (S) =	= 6.881
$\Delta pH = pH(S) - pH$ of diluted buffer = 0.071	(Observed Deviat	ion)	
Liquid Junction Error (ΔpH_i) = $\Delta pH - \Delta pH_{1/2} = -0.00$			
Shift on Stirring			
pH of buffer solution (with stirring), pH _s =	6.88		
Shift on stirring, $\triangle pH_s = pH_s - pH(S) - \triangle pH_j = $	0.008		
Noise			
Noise, ΔpH_n = difference between max and min rea	ding: 0.01		
Verification of ATC			
Ref. No. of reference thermometer used:	ET/0521/00)8	
Temperature record from the reference thermometer	er (T _R): 20.0		° C
Temperature record from the ATC (T _{ATC}):	19.7		_ °c
Temperature Difference, $ T_R - T_{ATC} $	0.3		_°c
Acceptance Criteria		A STATE OF THE STA	
Performance Characteristic	Accep	otable Range	
Liquid Junction Error ΔpHj		≤0.05	
Shift on Stirring ΔpHs		≤0.02	_
Noise ∆pHn		≤0.02	_
Verification of ATC Temperature I	Difference	≤0.5°C	
The pH meter complies * / does not comply * wi unacceptable * for use. Measurements are traceab * Delete as appropriate		ents and is deem	ned acceptable *

CPE/015/W



Internal Calibration &	Performance Chec	k of pH Metei	
Equipment Ref. No.: ET/EW/007/003	Manufacturer	: HANNA	
Model No. : HI 8314	Serial No.	: 674469	
Date of Calibration : 09/11/2013	Calibration Due Date	: 08/12/2013	

Liquid Junction Error			
Primary Standard Solution Used : Phosphate	Ref No. 6	of Primary Solution:	003/5.2/001/16
Temperature of Solution : 20.2		, ΔpH ½ =	
pH value of diluted buffer : 6.80		pH (S) =	
* ***	(Observed Davis	, , ,	0.001
$\Delta pH = pH(S) - pH$ of diluted buffer = $\frac{0.081}{0.081}$	(Observed Devia	uon)	
Liquid Junction Error $(\Delta pH_j) = \Delta pH - \Delta pH_{\frac{1}{2}} = 0.0$	UI		
Shift on Stirring		,	
pH of buffer solution (with stirring), $pH_s =$	6.89		
November of the Control of the Contr	0.008	······································	
Shift on stirring, $\Delta pH_s = pH_s - pH(S) - \Delta pH_j = $	0.000		
Noise			
Noise, ΔpH_n = difference between max and min re	eading: 0.00		
Verification of ATC			***************************************
vermeation of ATC			
Ref. No. of reference thermometer used:	ET/0521/00	08	• .
Temperature record from the reference thermome	eter (T _R): 20.2		°c
Temperature record from the ATC (T_{ATC}) :	19.8		°C
Temperature Difference, T _R - T _{ATC}	0.4		°C
Accontance Critoria			-
Acceptance Criteria		7 A C	1
Performance Characteristic	Accep	otable Range	
Liquid Junction Error ApHj		≤0.05	-
Shift on Stirring ApHs		≤0.02 ≤0.02	-
Noise ΔpHn Verification of ATC Temperature	e Difference	≤0.5°C	
vernication of ATO Temperatur	e Difference	30.0 0	I
The pH meter complies * / does not comply *	with the specified requirem	ents and is deems	d acceptable * /
unacceptable * for use. Measurements are traces	·	ente and is deemle	a acceptable /
* Delete as appropriate			
		ol o	
Calibrated by :	Checked b	y :	

CPE/015/W



Form E/CE/R/12 Issue 8 (1/2) [05/13]

Internal Calibration Report of Dissolved Oxygen Meter

Equipment Ref. No.

ET/EW/008/006

Manufacturer

YSI

Model No.

Pro 2030

Serial No.

12A 100554

Date of Calibration

19/09/2013

Calibration Due Date

18/12/2013

Temperature Verification

Ref. No. of Reference Thermometer:

ET/0521/008

Ref. No. of Water Bath:

	Temp	erature (°C)	
Managrad	20.1	Corrected	10.8

Reference Thermometer reading	Measured	20.1	Corrected	19.8
DO Meter reading	Measured	19.6	Difference	0.2

Standardization of sodium thiosulphate (Na 2S 2O 3) solution

Reagent No. of Na ₂ S ₂ O ₃ titrant	CPE/012/4.5/001/7	Reagent No. of 0.025N K ₂ Cr ₂ O ₇	CPE/012/4.4/001/19 31
		Trial 1	Trial 2
Initial Vol. of Na ₂ S ₂ O ₃ (ml)		0.50	15.00
Final Vol. of Na ₂ S ₂ O ₃ (ml)		10.95	25.50
Vol. of Na ₂ S ₂ O ₃ used (ml)		10.45	10.50
Normality of Na ₂ S ₂ O ₃ solution (N)		0.02392	0.02381
Average Normality (N) of Na ₂ S ₂ O ₃ s	solution (N)	0.02387	
Acceptance criteria, Deviation		Less than ± 0	.001N

Calculation:

Normality of $Na_2S_2O_3$, N = 0.25 / ml $Na_2S_2O_3$ used

Lineality Checking

Determination of dissolved oxygen content by Winkler Titration *

Purging Time (min)		2		5	1	0
Trial	1	2	1	2	1	2
Initial Vol. of Na ₂ S ₂ O ₃ (ml)	0.00	11.20	22.50	0.00	8.10	12.90
Final Vol. of Na ₂ S ₂ O ₃ (ml)	11.20	22.50	30.40	8.10	12.90	17.80
Vol. (V) of Na ₂ S ₂ O ₃ used (ml)	11.20	11.30	7.90	8.10	4.80	4.90
Dissolved Oxygen (DO), mg/L	7.18	7.24	5.06	5.19	3.08	3.14
Acceptance criteria, Deviation	Less that	n + 0.3mg/L	Less than	+ 0.3mg/L	Less than	+ 0.3mg/L

Calculation:

DO $(mg/L) = V \times N \times 8000/298$

Purging time, min	DO meter reading, mg/L			Winkler Titration result *, mg/L			Difference (%) of DO
r urging time, inin	1	2	Average	1	2	Average	Content
2	7.10	7.30	7.20	7.18	7.24	7.21	0.14
5	5.13	5.52	5.33	5.06	5.19	5.13	3.82
10	3.09	3.31	3.20	3.08	3.14	3.11	2.85
Linear regression coefficient					0.9979		



Form E/CE/R/12 Issue 8 (2/2) [05/13]

Internal Calibration Report of Dissolved Oxygen Meter

Zero Point Checking

DO meter reading, mg/L	0.00

Salinity Checking

Reagent No. of NaCl (10ppt)	CPE/012/4.7/002/09	Reagent No. of NaCl (30ppt)	CPE/012/4.8/002/09

Determination of dissolved oxygen content by Winkler Titration **

Salinity (ppt)	10		30	
Trial	1	2	1	2
Initial Vol. of Na ₂ S ₂ O ₃ (ml)	0.00	11.80	24.00	35.10
Final Vol. of Na ₂ S ₂ O ₃ (ml)	11.80	24.00	35.10	46.40
Vol. (V) of Na ₂ S ₂ O ₃ used (ml)	11.80	12.20	11.10	11.30
Dissolved Oxygen (DO), mg/L	7.56	7.82	7.11	7.24
Acceptance criteria, Deviation	Less than -	+ 0.3mg/L	Less that	n + 0.3mg/L

Calculation:

DO (mg/L) = $V \times N \times 8000/298$

Salinity (ppt)	DO	meter reading,	. mg/L	Winkler	Titration resu	lt**, mg/L	Difference (%) of DO
Samily (ppt)	1	2	Average	1	2	Average	Content
10	7.65	7.88	7.77	7.56	7.82	7.69	1.03
30	7.03	7.15	7.09	7.11	7.24	7.18	1.26

Acceptance Criteria

- (1) Differenc between temperature readings from temperature sensor of DO probe and reference thermometer : \leq 0.5 $^{\circ}\text{C}$
- (2) Linear regression coefficient: >0.99
- (3) Zero checking: 0.0mg/L
- (4) Difference (%) of DO content from the meter reading and by winkler titration : within \pm 5%

The equipment complies # / does not comply # with the specified requirements and is deemed acceptable # / unacceptable # for use.

Approved by :	9
۱,	pproved by :

CEP/012/W

[&]quot; Delete as appropriate



Performance Check of Salinity Meter

Equipment Ref. No.

: ET/EW/008/006

Manufacturer

: YSI

Model No.

: Pro 2030

Serial No.

: 12A 100554

Date of Calibration

: 19/09/2012

Due Date

: 18/12/2013

Ref. No. of Salinity Standard used (30ppt)

S/001/5

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30.0	31.8	5.83

Acceptance Criteria

Difference: <10 %

The salinity meter complies * / does not comply * with the specified requirements and is deemed acceptable * / unacceptable * for use. Measurements are traceable to national standards.

Checked by: _____ Approved by:

MetPak IITM

Product Test Report

Product Tested: MetPak
Part Number: 1723-1B-2-111
Serial Number: 13130002
Test Date: 26/03/2013

Location: Gill Instruments Ltd

GILL ensures that quality is inherent in all aspects of their activities and ensures that compliance with BS EN ISO9001: 2008 is maintained.

This report certifies that the above instrument has been tested in accordance with Gill internal procedures



Test	Limits	Results
Wind Still Air Test (Zero Wind Speed) Wind Tunnel Test (12m/s nominal)	Pass/Fail Pass/Fail	Pass Pass
Pressure Sensor (Comparison DPI 142)	Pass/Fail	Pass
Temperature Sensor (Comparison HC2-S (SCS certified)) Humidity Sensor (Comparison HC2-S (SCS certified))	Pass/Fail Pass/Fail	Pass Pass

Wind sensor generic calibration is traceable to the University of Southampton wind tunnel and Gill instrumentation is maintained in accordance with UKAS.

Comparisons for Temperature, Humidity and Pressure are done against reference UKAS traceable instruments. The reference system numbers of these instruments are listed above.

All tests have been successfully completed

On behalf of Gill Instruments Ltd

Tony Raine Quality Control

ann

2002-0396 Issue 1



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www.gill.co.uk





Certification of Quality

This product has been tested in accordance with procedures established through Global Water Instrumentation's Quality Management System. This product meets or exceeds its manufacturing acceptance criteria.

ITEM DESCRIPTION:

Wind Direction

MODEL NAME/ NUMBER:

WE570

PART NUMBER:

ED0000

SENSOR RANGE:

0-360°

SENSOR OUTPUT:

4.01-20.03 mA

ACCURACY:

1% of full scale

POWER REQUIRED

10-36 VDC

SERIAL NUMBER:

1337005143

CABLE LENGTH:

25 ft

CERTIFICATES:

CE Compliant

Technician:

Wright, Jess

Date: 9/12/2013

Global Water Instrumentation warrants that its products are free from defects in material & workmanship under normal use & service for a period of one year from date of original shipment from factory. Repaired components are warranted for a period of 90 days from shipment. Contact us for complete warranty details.



a xylem brand

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Visit our online catalog at www.globalw.com 151 Graham Rd Email globalw@globalw.com College Station, TX 77845



Certification of Quality

This product has been tested in accordance with procedures established through Global Water Instrumentation's Quality Management System. This product meets or exceeds its manufacturing acceptance criteria.

ITEM DESCRIPTION:

Wind Speed Sensor

MODEL NAME/ NUMBER:

WE550

PART NUMBER:

EC0000

SENSOR RANGE:

0-110 MPH

SENSOR OUTPUT:

4.00-19.91 mA

ACCURACY:

.2 MPH over the range 11 to 55 MPH

POWER REQUIRED

10-36 VDC

SERIAL NUMBER:

1337005099

CABLE LENGTH:

25 ft

CERTIFICATES:

CE Compliant

Water Leve Water Flow Water Samplers Water Qualit

Technician:

Wright, Jess

Date: 9/10/2013



Global Water Instrumentation warrants that its products are free from defects in material & workmanship under normal use & service for a period of one year from date of original shipment from factory. Repaired components are warranted for a period of 90 days from shipment. Contact us for complete warranty details.



In the U.S. call toll free at 1-800-876-1172 International, 1-979-690-5560 Our Service Address Fax: 1-979-690-0440

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