Temperature, Ta (K)

303



755.5

Date:

08 July 2020

#### File No. MA20003/18/0003

Project No.	CKL 1 - Flat 121 Cha Kwo					
Date:	8-Jul-20	Next Due Date:	8-Sep-20	Operator:	SK	
Equipment No.:	A-01-18	Model No.:	TE 5170	Serial No.	0723	
		Ambient Condit	ion			

Pressure, Pa (mmHg)

Orifice Transfer Standard Information							
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.0274		
Last Calibration Date:	st Calibration Date: 17-Jan-20 mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$						
Next Calibration Date: 17-Jan-21 $Qstd = \{ \Delta H \ x \ (Pa/760) \ x \ (298/Ta) \}^{1/2} - bc \} / mc$							

		Calibration of	TSP Samplar			
~ 111 .		Orfice	151 Sampler		HVS	
Calibration Point	$\Delta H$ (orifice), in. of water	$[\Delta H x (Pa/760) x (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa)]$	/760) x (298/Ta)] <sup>1/2</sup> <b>Y-axis</b>
1	13.0	3.57	60.68	9.1		2.98
2	9.4	3.03	51.67	6.6		2.54
3	7.4	2.69	45.90	4.8		2.17
4	4.9	2.19	37.43	3.3		1.80
5	3.1	1.74	29.87	2.1		1.43
By Linear Regr Slope , mw =	ession of Y on X 0.0506		Intercept, bw <sup>=</sup>	-0.096	57	
Correlation	coefficient* =	0.9985	_			
*If Correlation (	Coefficient < 0.990	0, check and recalibrate.				
From the TSP Fi	eld Calibration C	Set Point C urve_take Ostd = $43 \text{ CFM}$	alculation			
From the Pagree	sion Equation the	"V" value according to				
Therefore, So	et Point; $W = (mv)$	$\mathbf{mw} \mathbf{x} \mathbf{Qstd} + \mathbf{bw} = [\Delta \mathbf{W} \mathbf{x}]$ $\mathbf{w} \mathbf{x} \mathbf{Qstd} + \mathbf{bw} )^2 \mathbf{x} (760 / Pa) \mathbf{x} ($	x (Pa/760) x (29 Ta / 298 ) =	98/Ta)] <sup>1/2</sup> 4.41		
Remarks:			,			
Conducted by:	SK Wong	Signature:	,		Date:	08 July 2020

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Signature:

Checked by: Henry Leung

303

Temperature, Ta (K)



755.5

#### File No. <u>MA20003/55/0003</u>

Project No.	CKL 2 - Flat 103 Cha Kwo					
Date:	8-Jul-20	Next Due Date:	8-Sep-20	Operator:	SK	
Equipment No.:	A-01-55	Model No.:	TE 5170	Serial No.	1956	
		Ambient Condit	ion			

Pressure, Pa (mmHg)

Orifice Transfer Standard Information						
Serial No.         3746         Slope, mc         0.0592         Intercept, bc         -0.0274						
Last Calibration Date:	Last Calibration Date: 17-Jan-20 $\operatorname{mc} \mathbf{x} \operatorname{Qstd} + \mathbf{bc} = \left[\Delta \mathbf{H} \mathbf{x} \left( \frac{\mathbf{Pa}}{760} \mathbf{x} \left( \frac{298}{Ta} \right) \right]^{1/2}$					
Next Calibration Date:	Next Calibration Date: 17-Jan-21 $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$					

	Calibration of TSP Sampler						
Calibration		Orfice			HVS		
Point	ΔH (orifice), in. of water	$[\Delta H \ x \ (Pa/760) \ x \ (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	[ΔW x (Pa	/760) x (298/Ta)] <sup>1/2</sup> <b>Y-axis</b>	
1	13.1	3.58	60.91	9.2		3.00	
2	10.0	3.13	53.28	7.0		2.62	
3	7.4	2.69	45.90	5.5		2.32	
4	4.7	2.14	36.67	3.4		1.82	
5	2.8	1.65	28.41	2.4		1.53	
By Linear Regr Slope , mw = Correlation	ession of Y on X 0.0457 coefficient* =	0.9982	Intercept, bw = 	0.200	3		
		Set Point C	Calculation				
From the TSP Fi	eld Calibration Cu	urve, take Qstd = 43 CFM					
From the Regres	sion Equation, the	e "Y" value according to					
Therefore, Se	et Point; W = ( mv	$\mathbf{mw} \mathbf{x} \mathbf{Qstd} + \mathbf{bw} = [\Delta \mathbf{W}]$ v x Qstd + bw ) <sup>2</sup> x ( 760 / Pa ) x (	<b>x (Pa/760) x (2</b> 9 Ta / 298 ) =	98/Ta)] <sup>1/2</sup> 4.79		-	
Remarks:							
Conducted by:	SK Wong	Signature:	(		Date:	08 July 2020	
Checked by:	Henry Leung	Signature:	Xay		Date:	08 July 2020	

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302

Temperature, Ta (K)



752

#### File No. MA20003/55/0004

Project No.	CKL 2 - Flat 103 Cha Kwo					
Date:	28-Aug-20	Next Due Date:	29-Oct-20	Operator:	SK	
Equipment No.:	A-01-55	Model No.:	TE 5170	Serial No.	1956	
		Ambient Condit	ion			

Pressure, Pa (mmHg)

Orifice Transfer Standard Information							
Serial No. 3746 Slope, mc 0.0592 Intercept, bc -0.0274							
Last Calibration Date:	Last Calibration Date: 17-Jan-20 $mc x Qstd + bc = [\Delta H x (Pa/760) x (298/Ta)]^{1/2}$						
Next Calibration Date: 17-Jan-21 $Qstd = \{ [\Delta H \ x \ (Pa/760) \ x \ (298/Ta) ]^{1/2} - bc \} / mc$							

		Calibration of	TSP Sampler			
Calibration		Orfice			HVS	
Point	ΔH (orifice), in. of water	$[\Delta H \ x \ (Pa/760) \ x \ (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	$\frac{[\Delta W \ x \ (Pa/760) \ x \ (298/Ta)]^{1/2}}{Y-axis}$	
1	13.4	3.62	61.56	9.6	3.06	
2	10.5	3.20	54.55	7.2	2.65	
3	7.4	2.69	45.87	5.4	2.30	
4	4.8	2.16	37.03	3.2	1.77	
5	3.0	1.71	29.37	2.2	1.47	
By Linear Regr Slope , mw = Correlation *If Correlation C	By Linear Regression of Y on X Slope , mw =0.0498 Intercept, bw =0.0244 Correlation coefficient* =0.9980 *If Correlation Coefficient < 0.990, check and recalibrate.					
From the TSP Fi	eld Calibration C	<b>Set Point C</b> urve, take Qstd = 43 CFM	alculation			
From the Regres	From the Regression Equation, the "Y" value according to $\mathbf{mw} \mathbf{x} \mathbf{Qstd} + \mathbf{bw} = [\Delta \mathbf{W} \mathbf{x} (\mathbf{Pa}/760) \mathbf{x} (\mathbf{298/Ta})]^{1/2}$ Therefore, Set Point; W = ( mw x Qstd + bw ) <sup>2</sup> x ( 760 / Pa ) x ( Ta / 298 ) =					
Remarks:						
Conducted by:	SK Wong	Signature:			Date:         28 August 2020           Date:         28 August 2020	
Checked by.		-temp	m		Duc. 20 Mugust 2020	

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File No. MA20003/04/0001

Project No.	KER 1 - Future	e Residential Dev						
Date:	3-A	.ug-20	Next Due Date:	3-Oct-20	Operator:	SK		
Equipment No.:	A-	01-04	Model No.:	TE 5170	Serial No.	10595		
	Ambient Condition							
Temperatu	ıre, Ta (K)	299.5	Pressure, Pa (mmF	Hg)	760			

Orifice Transfer Standard Information							
Serial No. 3746 Slope, mc 0.0592 Intercept, bc -0.0274							
Last Calibration Date:	Last Calibration Date: 17-Jan-20 $mc x Qstd + bc = [\Delta H x (Pa/760) x (298/Ta)]^{1/2}$						
Next Calibration Date: 17-Jan-21 $Qstd = \{ [\Delta H \ x \ (Pa/760) \ x \ (298/Ta) ]^{1/2} - bc \} / mc$							

	Calibration of TSP Sampler						
Calibration		Orfice			HVS		
Point	ΔH (orifice), in. of water	$[\Delta H \ x \ (Pa/760) \ x \ (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	$[\Delta W \ x \ (Pa/760) \ x \ (298/Ta)]^{1/2}$ Y-axis		
1	12.9	3.58	60.98	6.0	2.44		
2	10.2	3.19	54.28	4.8	2.19		
3	7.8	2.79	47.52	3.6	1.89		
4	4.2	2.04	34.99	2.3	1.51		
5	2.5	1.58	27.10	1.6	1.26		
By Linear Regr Slope , mw = Correlation	By Linear Regression of Y on X Slope , mw = <u>0.0346</u> Intercept, bw = <u>0.3015</u> Correlation coefficient* = 0.9976						
*If Correlation C	Coefficient < 0.990	), check and recalibrate.					
		Set Point C	alculation				
From the TSP Fi	eld Calibration C	urve, take Qstd = 43 CFM					
From the Regres	sion Equation, the	e "Y" value according to					
Therefore, Se	et Point; W = ( mv	$\mathbf{mw} \mathbf{x} \mathbf{Qstd} + \mathbf{bw} = [\Delta \mathbf{W} \mathbf{x}]$ $\mathbf{v} \mathbf{x} \mathbf{Qstd} + \mathbf{bw}^{2} \mathbf{x} (760 / Pa) \mathbf{x} (760 / Pa)$	x (Pa/760) x (29 Ta / 298 ) =	98/Ta)] <sup>1/2</sup> 			
Remarks:							
Conducted by:	SK Wong	Signature:			Date: <u>3 August 2020</u>		
Checked by:	Henry Leung	Signature:	hay		Date: 3 August 2020		

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304

Temperature, Ta (K)



760

File No. <u>MA20003/44/0002</u>

Project No.	KTD1 - Centre of Excellenc						
Date:	3-Aug-20	Next Due Date:	3-Oct-20	Operator:	SK		
Equipment No.:	A-01-44	Model No.:	Model No.: TE-5170		1316		
Ambient Condition							

Pressure, Pa (mmHg)

Orifice Transfer Standard Information							
Serial No.         3746         Slope, mc         0.0592         Intercept, bc         -0.02740							
Last Calibration Date:	17-Jan-20	mc x Qstd + bc = $[\Delta H x (Pa/760) x (298/Ta)]^{1/2}$					
Next Calibration Date:	17-Jan-21	Qstd = { $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc					

	Calibration of TSP Sampler						
Calibration		Orfice			HVS		
Point	ΔH (orifice), in. of water	$[\Delta H \ x \ (Pa/760) \ x \ (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	[ΔW x (Pa/	760) x (298/Ta)] <sup>1/2</sup> <b>Y-axis</b>	
1	13.0	3.57	60.76	8.5		2.89	
2	10.2	3.16	53.88	6.3		2.49	
3	7.8	2.77	47.17	4.7		2.15	
4	5.4	2.30	39.33	3.1		1.74	
5	2.9	1.69	28.94	1.9		1.36	
By Linear Regression of Y on X Slope , mw =0.0480 Intercept, bw :0.0845 Correlation coefficient* =0.9960 *If Correlation Coefficient < 0.990, check and recalibrate.							
From the TSP Fi From the Regres	eld Calibration Cusion Equation, the	Set Point C urve, take Qstd = 43 CFM e "Y" value according to	alculation				
$mw \ x \ Qstd + bw = [\Delta W \ x \ (Pa/760) \ x \ (298/Ta)]^{1/2}$ Therefore, Set Point; W = ( mw x Qstd + bw ) <sup>2</sup> x ( 760 / Pa ) x ( Ta / 298 ) =4.00							
Remarks:							
Conducted by:	SK Wong	Signature:	L.		Date:	3 August 2020	
Checked by:	Henry Leung	Signature: \-lem	X27		Date:	3 August 2020	

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Temperature, Ta (K)

299.5

# CINIMTECH

760

#### File No. MA20003/41/0001

Project No.	KTD 2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)						
Date:	3-Aug-20	Next Due Date:	3-Oct-20	Operator:	SK		
Equipment No.:	A-01-41	Model No.:	Model No.: TE 5170		5280		
Ambient Condition							

Orifice Transfer Standard Information								
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.0274			
Last Calibration Date:	17-Jan-20	mc x Qstd + bc = $[\Delta H x (Pa/760) x (298/Ta)]^{1/2}$						
Next Calibration Date:	17-Jan-21	Ostd = { $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc						

Pressure, Pa (mmHg)

Calibration of TSP Sampler							
Calibration		Orfice	•		HVS		
Point	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	[ΔW x (P	<sup>2</sup> a/760) x (298/Ta)] <sup>1/2</sup> <b>Y-axis</b>	
1	13.0	3.60	61.21	6.1		2.46	
2	10.5	3.23	55.06	4.9		2.21	
3	7.7	2.77	47.22	3.8		1.94	
4	4.4	2.09	35.81	2.4		1.55	
5	2.4	1.55	26.57	1.7		1.30	
By Linear Regression of Y on X Slope , mw =0.0336 Intercept, bw :0.3745 Correlation coefficient* =0.9979 *If Correlation Coefficient < 0.990, check and recalibrate.							
		Set Point	Calculation				
From the TSP Fi	eld Calibration Cu	urve, take Qstd = 43 CFM					
From the Regression Equation, the "Y" value according to $\mathbf{mw} \mathbf{x} \mathbf{Qstd} + \mathbf{bw} = \left[\Delta W \mathbf{x} \left(\mathbf{Pa}/760\right) \mathbf{x} \left(298/\mathbf{Ta}\right)\right]^{1/2}$ Therefore, Set Point; W = ( mw x Qstd + bw ) <sup>2</sup> x ( 760 / Pa ) x ( Ta / 298 ) =							
Remarks:							
Conducted by:	SK Wong	Signature:	L.		Date:	3 August 2020	
Checked by: <u>Henry Leung</u> Signature: <u> </u>					Date:	3 August 2020	



RECALIBRATION DUE DATE:

January 17, 2021

Certificate of Calibration

			Calibration	certificati	on informat	lion		
Cal. Date:	January 17	, 2020	Roots	meter S/N:	438320	Ta:	295	°K
Operator:	Jim Tisch					Pa:	744.2	mm Hg
Calibration	Model #:	TE-5025A	Calil	hrator S/N·	3746			
		12 3023/	Cum		5740			
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	]
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	
	1	1	2	1	1.4340	3.2	2.00	
	2	3	4	1	1.0180	6.4	4.00	
	3	5	6	1	0.9080	7.9	5.00	1
	4	7	8	1	0.8700	8.7	5.50	
	5	9	10	1	0.7150	12.6	8.00	
			[	Data Tabula	tion			]
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	)( <u>Tstd</u> )		Qa	$\sqrt{\Delta H(Ta/Pa)}$	
	(m3)	(x-axis)	(y-ax	is)	Va	(x-axis)	(y-axis)	
	0.9849	0.6868	1.400	56	0.9957	0.6944	0.8904	
	0.9807	0.9633	1.9892		0.9914	0.9739	1.2592	
	0.9787	1.0779	2.224	40	0.9894	1.0896	1.4078	
	0.9776	1.1237	2.3325		0.9883	1.1360	1.4765	
	0.9724	1.3601	2.813	31	0.9831	1.3749	1.7808	
	OCTO	m=	2.092	21			1.31010	
	QSID	=0	-0.02779		QA	b=	-0.01759	
		r= 0.9999					0.99994	
				Calculatio	ns			
	Vstd=	ΔVol((Pa-ΔP)	/Pstd)(Tstd/Ta	a)	Va= ΔVol((Pa-ΔP)/Pa)			
	Qstd=	Vstd/∆Time			<b>Qa=</b> Va/ΔTime			
			For subsequ	ent flow ra	te calculation	าร:		
	<b>Qstd=</b> $1/m \left( \sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)} \right)$			) )-b)	Qa=	$1/m\left(\sqrt{\Delta H}\right)$	l(Та/Ра))-b)	
	Standard	Conditions						
Tstd:	Tstd: 298.15 °K			[		RECA	LIBRATION	
Pstd:	760	mm Hg			LIS EDA roco	mmonde	anual rocalibratio	n nor 100
H. calibrat	K manomot	er roading (in			10 Code	of Endoral E		10 to E1
P: rootsme	ter manome	eter reading (II	mm Hg		Appondix 5	to Dart EO		od for the
a: actual at	osolute tem	perature (°K)			Appendix B to Part 50, Reference Method for the			
Pa: actual ba	arometric pr	essure (mm	Hg)		Dereuungr		enueu Particulate	e iviatter ir
: intercept		,			(ne	- Aunosphe	are, 9.2.17, page :	50
m: slope								

Tisch Environmental, Inc. 145 South Miami Avenue Village of Cleves, OH 45002

<u>www.tisch-env.com</u> TOLL FREE: (877)263-7610 FAX: (513)467-9009

## CIN@TECH 🤳

#### **Cerificate of Calibration - Wind Monitoring Station**

Description:	Yau Lai Estate, Bik Lai House
Manufacturer:	Davis Instruments
Model No.:	<u>Davis7440</u>
Serial No.:	<u>MC01010A44</u>
Equipment No.:	<u>SA-03-04</u>
Date of Calibration	<u>21-Feb-2020</u>
Next Due Date	<u>21-Aug-2020</u>
Model No.: Serial No.: Equipment No.: Date of Calibration Next Due Date	Davis fist unerts           Davis 7440           MC01010A44           SA-03-04           21-Feb-2020           21-Aug-2020

#### 1. Performance check of Wind Speed

Wind S <sub>I</sub>	peed, m/s	Difference D (m/s)
Wind Speed Reading (V1)         Anemometer Value (V1)		D = V1 - V2
0.0	0.0	0.0
1.2	1.3	-0.1
2.0	2.1	-0.1
3.0	3.2	-0.2

#### 2. Performance check of Wind Direction

Wind Di	rection (°)	Difference D (°)
Wind Direction Reading (V1)	Marine Compass Value (V1)	$\mathbf{D} = \mathbf{W1} - \mathbf{W2}$
0	0	0.0
90	90	0.0
180	180	0.0
270	270	0.0

**Test Specification:** 

1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer

2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by: \_\_\_\_\_\_\_ Approved by: \_\_\_\_\_\_\_\_ Leng Leng Leng