

Overview:

This procedure outlines the process of entering Handheld Meter Calibration Forms (SmarTrolls, ExoSondes, YSI's, etc.) into Hilltop and what to do with forms after they have been entered. Calibration forms are filled out as a check to see whether handhelds have any faults with them prior to use in the field. Once field staff have finished with their handheld at the end of the day they will continue to fill out the calibration form to check if any faults with the handheld occurred during use. Calibration forms provide a form of confidence in data collected by handhelds; if handhelds pass checks set out by the calibration form we can be confident they were accurately recording data throughout the day.

Handheld Meter Calibration Forms:

Handheld Meter Calibration Forms are stored in the Water Quality Shed to the rear of Regional House. Handheld books are kept here because this is the primary site where handhelds are calibrated. Each Handheld has its own book of calibration forms which stay in the shed, however on some rear occasions books may be taken by staff who have early starts or overnight trips in order to calibrate handhelds offsite. At the end of each month filled out calibration forms will be picked up by Darren Bentley-Hewitt to be checked for errors. After being checked, calibration forms are pinned up by the Logsheets drop-off with a poo emoji label.

Meter ID: Smart	011 8	Date:	09-11	-201	6	
Staff Member: Day	d Brown	Time:	Time: 07.20 NZST			
Run Name: Lake	Horowh	enua S	OE			
	BAROMETRIC	PRESSURE	CHECKS			
Handheld Meter Readi	ng:	1011-	1		mbar	
Manawatu at Victoria	Avenue:	1011-1			mbar	
	3 POINT pl	I CALIBRA	TION		W ald Value	
pH 7 (calibration)	Calibration Value	Tempe	°C	m		
nH4 (calibration)	1.06	15-2	°C	15	- (
pH 10 (calibration)	4.00	13-0	- °C	-1/6	2	
	CONDUCTIV	TY CALIPP	DATION	166	5. 2	
	Specific Co	nductivity	Temper	ature		
0.001M handheld read	ing 166-4	µs/cm	13-87	°C	0.001M check value	
0.01M calibration valu	e 1412	µs/cm	13.84	°C	µs/cm	
0.001M handheld read	ing 158.0) µs/cm	14.08	°C	() N	
	DISSOLVED OX	YGEN CAL	BRATION			
DO% (after calibration	100-0	%	Temper	ature	99.7%-100.3%	
DO mg/L (after calibra	tion) 10-49	mg/L	13-12	°C	(DIN	
	ORP C	ALIBRATIO	N	atura		
ORP (Calibration)	Calibration	ORP value	Temper	ature		
	END OF		KS	C		
Staff Member: Dou	d Gran	Time:	14:3	2	NZST	
pH	Handheld	Tempera	ture Alle	wable Ra	nge Passed	
pH 7 Buffer	7.06	18-0	°C I	3.80 -7.2	0 YNN	
Specific Conductivity	Handheld	Tempera	ture All	owable Ra	inge	
0.001M	159-3 ^{µs/cm}	18-37	7 °C	120 - 17	5 (Y) N	
ORP	Handheld	Tempera	ture All	owable Ra	ingo	
ORP Check	mV	_	°C	200 - 28	YIN	
COMMENTS:	0 00	12 1				
-> Used	to PO	calibrat	Non e	1	then Dr	
Lake	Torocherry	x 4'	104.04	7 6	SUON PC	
		10000000				

Figure 1. Example Handheld Meter Calibration Form filled out

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Loading Handheld Meter Calibration Forms Into Hilltop

Entering Data into Hilltop:

- 1) Handheld Meter Calibration Forms are entered to the Provisional Water Quality Archive.
 - a. An easy way to get to the Archive is to open Hilltop and click on 'File' at the top of the page
 - b. Scroll down the File Tab and click on 'Open'
 - c. Now click on the drop down menu at the bottom labelled 'Common Name' and select 'Archive: Sampler Provisional' then Open

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- d. Another way to open the file is to follow the link: <u>\\ares\Environmental Archive\Provisional</u> <u>WaterQuality.hts</u>
- 2) Scroll through the sites list on the left hand-side of the page to find the matching handheld for the calibration form you are entering.





Loading Handheld Meter Calibration Forms Into Hilltop

3) Click the '+' symbol next to the handheld name you are entering and then right click on the Handheld_Meter_Calibration Form and select 'Add' to bring up the following window:



- 4) Check to make sure the 'Site' has the same name as the handheld calibration form you are entering, if not click 'Cancel' and select the correct handheld. If you cannot find the handheld name anywhere on the left then it is possible that the handheld may be new to the fleet. You will need to create a new folder for new handhelds which is as simple as entering the new name into the 'Site' bar and filling out the rest of the window as follows. Current meters that are already in the fleet are:
 - Exo2 Sonde 13E103761
 - Exo2 Sonde 13E103859
 - SmarTroll 1
 - SmarTroll 2
 - SmarTroll 3
 - SmarTroll 4
 - SmarTroll 5
 - SmarTroll 6
 - SmarTroll 7
 - SmarTroll 8
 - SmarTroll 9
 - SmarTroll 10
 - YSI Pro 9
 - YSI Pro DSS 10

If you suspect a handheld is new to the fleet consider asking either Darren or one of the field staff first before adding a new handheld site folder.

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5) The date can be entered into the window using various formats such as DD/MM/YYYY, DD:MM:YYYY, or using the TIDEDA format 1YYMMDD.

Manual

For example: 07/05/2016 can also be entered 07:05:2016, or 1160507.

Time must be include hours, minutes and seconds, however does not have to include colons (HH:MM:SS).

For example: 10:30:00 or 103000

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After checking the Site, DataSource, Date and Time are correct click 'OK'

6) After clicking OK an electronic spreadsheet will appear with all the same fields as what is on the calibration form. Transfer all the information from the calibration form onto the electronic field sheet and make sure to select 'Pass' at the bottom if the form has a PASSED stamp on it.

1 3443 HUR	ZONS REG	IONAL COUNCIL	horizone				horizons
HANDHELD	D METER CA	LIBRATION FORM		Site Name SmarTroll	8	Date and Time 9-Nov-	2016 07:20:00
Meter ID: Smartroll	8	Date: 09-11-	2016				
Staff Member: David	Siawn	Time: 07:20	NZST	Meter ID SmarTroll	8	Date 09/11/2016	
Run Name: Lake	Horowhen	ing SOE		Staff Member David Bro	wn <u>•</u>	Time 07:20:00	NZST
B/	AROMETRIC PR	ESSURE CHECKS		Run Name Lake Horon	whenua SoE		
Handheld Meter Reading:		1011+1	mbar	BAROMETRIC PRESSURE CHECKS			
Manawatu at Victoria Avenue	82	1011-1	mbar	Handheld Meter Reading		1011.1 m	ibar
Caliba	3 POINT pH C	ALIBRATION		Manawatu at Victoria Avenue		1011.1 m	ibar
pH 7 (calibration)	ation value	17.7 °C		3 POINT pH CALIBRATION			
pH 4 (calibration) /	06	13.6 %	151.0		Calibration Value	Temperature	mV pH Value
nH 10 (calibration)	00	120	170.0	pH 7 (calibration)	7.06	13.2 °C	-13.7
Print (campration) 10	-08	13:5	166")	pH 4 (calibration)	4.00	13.6 °C	156.8
	Specific Cond	CALIBRATION Juctivity Temperate	ire	pH 10 (calibration)	10.08	13.5 °C	-166.3
0.001M handheld reading	166.4	µs/cm 13.87	C Pass Calibration 0.001M check value	CONDUCTIVITY CALIBRATION			020 2172474 244
0.01M calibration value	1417	µs/cm 13.84	C is between 120-175	0.001M bandheid reading (before)	Specific Conductivity	/ Temperature	Pass Calibratio
0.001M handheid reading	1500	µs/cm 14.00	°G RUN	0.01M calibration reading	1412 us/cm	13.84	between 120-175 us/
DI	SSOLVED OXYC	GEN CALIBRATION		0.001M bandheld reading (after)	158.0 us/cm	14.08	Y -
5.	100.0	%	Pass Calibration				
DO% (after calibration)	100.0	Temperati	are 99.7%-100.3%	DISSOLVED OXYGEN CALIBRATIC			
DO mg/L (after calibration)	10=49	13-12	°C (P)/N	DO% (after calibration)	100.0 °C	Temperature Pass	Calibration 99.7%-100
	Calibration OF	IBRATION RP Value Temperat	ure	DO mg/L (after calibration)	10.49 % [13.12 °C	Y -
ORP (Calibration)			10	ORP CALIBRATION			
	END OF D	AY CHECKS		ORP (calibration)	Calibration OKP	Value	remperature
Staff Memiber:	Bana	Time: N-30	NZST		1		5
Pauloi	landheld	Temperature Allow	able Range Passed	END OF DAY CHECKS			
pH H	700	18 01 °C 6.8	0-7.20 Y N	Staff Member	David Brown	Time 14:30:00	NZST
pH H	101 1000			oH Handh	612121 (Stationers)		
pH PH 7 Buffer	landheld	Temperature Allow	able Range		eld Temper	rature Allowa	able Range Pa
pH 7 Buffer Specific Conductivity	iandheid	Temperature Allow	able Range 0 - 175	pH 7 Buffer 7.06	18.01	°C 6.8 - 7.20	able Range Pa
pH F pH 7 Buffer Conductivity H 0.001M	landheld	Temperature Allow 8-37 °C 12	able Range 0 - 175 Y N	pH 7 Buffer 7.06	Handbeld	°C 6.8 - 7.20	Ilowable Range Pa
pH F pH 7 Buffer Specific Conductivity F 0.001M SP ORP F	Iandheld 59-3 ^{µs/cm} Iandheld	Temperature Allow 8=37 °C 12 Temperature Allow	able Range 0 - 175 Y N able Range	pH 7 Buffer 7.06 Specific Conductivity 0.001M [159.	Handheld	oc 6.8 - 7.20 Temperature A .37 oc 120	Ilowable Range Pa
pH F pH 7 Buffer 5 Specific Conductivity F 0.001 M 5 ORP F ORP F ORP 6 Check 5 Conductivity 6 Conductivity 7 Conductivity 7 Conduct	landheld \$9-3 ^{µs/cm} 1 landheld	Temperature Allow 8=37 °C 12 Temperature Allow 9C 20	able Rangs 0 - 175 Y N able Rangs 0 - 280 Y / N	pH 7 Buffer 7.06 Specific Conductivity 0.001M 159.	Handheld	•C 6.8 - 7.20 Temperature A .37 •C 120	Ilowable Range Pa
pH PH 7 Buffer Specific Conductivity P 0.001M 15 ORP P COMMENTS:	landheld 97-3 µs/cm landheld DO	Temperature Allow 12 Temperature Allow 12 Temperature Allow 0 20 20 20 20 20 20 20 20 20	able Range 0 - 175 YN able Range 0 - 260 Y/N	pH 7 Buffer 7.06 Specific Conductivity 0.001M 159. ORP Handl	Held Temper	ec 6.8 - 7.20 Temperature A .37 eC 120 perature Allow	able Range Pa
pH pH 7 Buffer Specific Conductivity P 0.001M Second Conductivity P 0.001M Second Conductivity P 0RP Check C COMMENTS: Conduct Conductivity P 0RP Check C	Handheld 57-3 µs/cm Handheld PO	Temperature Allow 18=37 °C 12 Temperature Allow °C 20 Subsct.on or	able Range 0 - 175 Y N able Range 0 - 280 Y / N	pH 7 Buffer 7.06 Specific Conductivity 0.001M IS9 ORP Handl ORP Check	Handheld Handheld .3 us/cm 18. held Temp mV	rature Allow °C 6.8 - 7.20 Temperature A .37 °C 120 verature Allow °C 230 - 295	able Range Pa
pH H H pH 7 Buffer Specific Conductivity H 0.001M S ORP H ORP Check C COMMENTS: COMMENTS: Comments:	Handheld 9-3 µs/cm Handheld PO Scherus	Temperature 8-37 °C 12 Temperature Allow °C 20 albertion or af Buoy	able Range 0 - 175 TN able Range 0 - 280 Y / N bottom DO	PH 7 Buffer 7.06 Specific Conductivity 0.001M [159. ORP Handl ORP Check COMMENTS	Handheld Handheld .3 us/cm [18: held Temp mV	rature Allow •C 6.8 - 7.20 Temperature A .37 •C 120 perature Allow •C 230 - 295	able Range Pa
pH PH Buffer Specific Conductivity A 0.001M 12 ORP H ORP Check C COMMENTS: Comments: Comments: Comments:	Handheld Handheld Handheld PO co	Restriction of Budgeting	able Range 0 - 175 PN able Range 0 - 280 Y / N bottom DC	PH 7 Buffer 7.06 Specific Conductivity 0.001M [159, 0RP Handh ORP Check COMMENTS Used for Dissolved Oxygen calibrat	Handheld Handheld us/cm mV tion on Lake Horowhenus at Bu	rature Allow •C 6.8 - 7.20 Temperature A .37 •C 120 verature Allow •C 230 - 295 uoy bottom DO.	able Range Pa
pH H pH 7 Buffer Specific Conductivity H 0.001M 15 ORP H ORP Check COMMENTS: Used for Lake Ho	tandheld 57-3 µs/cm tandheld PO c	Tomperature Allow 12 Tomperature Allow 12 Tomperature Allow 12 12 12 12 12 12 12 12 12 12	able Range 0 - 175 N able Range 0 - 280 Y / N bottom D C	PH 7 Buffer 7.06 Specific Conductivity 0.001M [159, ORP Handl ORP Check COMMENTS Used for Dissolved Oxygen calibrat	Held Temper Handheld Jus/cm 18: held Temp mV tion on Lake Horowhenua at Bu	ature Allow "⊂ 6.8 - 7.20 Temperature A .37 °⊂ 120 erature Allow °⊂ 230 - 295 Joy bottom DO.	bble Range Pa
pH PH 7 Buffer Specific Conductivity 10 Specific Conductivity 11 0.001M 15 ORP P P COMMENTS: 2 Used For 142 Appendix13	tandheld 59-3 µa/cm tandheld PO co contactures	Restance Allow 12 Temperature Allow 20 Restance Allow 06 29 Restance Allow 06 29 Restance Allow 06 20 Restance All	able Range 0 - 175 N able Range 0 - 280 Y / N Lothom D C 05-05-14	PH 7 Buffer 7.06 Specific Conductivity 0.001M [159, ORP Handl ORP Check COMMENTS Used for Dissolved Oxygen calibrat	Held Temper Handheld us/cm 18. held Temp mV tion on Lake Horowhenua at Bu	aure Allow ■C 6.8 - 7.20 Temperature A .37 ●C 120 erature Allow ■C 230 - 295 Joy bottom D0.	bble Range Pa
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Figure 2. Hard Copy Calibration Form and Electronic Forms

Click 'Save' to save form to Hilltop and then stamp the hardcopy with an 'ENTERED' stamp 7)

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Loading Handheld Meter Calibration Forms Into Hilltop

Filing Away Forms:

After calibration forms have been entered they are stored away in a cardboard box in the Archive Room in-between the Science Office and Stairwell in Regional House. Have someone show you where this box is; people who can show you include Ariana Blackwood, Darren Bentley-Hewitt, Matthew Putt, Brent Watson and Maree Patterson. In the box calibration forms are dog-clipped together in bunches relating to what handheld they are for. Forms are also ordered from oldest at the back to most recent in the front; you can judge how to order them based off either the sheet number (in red on the top left corner) or by the date written on the forms.

Who to Contact for help:

Any general questions regarding the procedure can be directed to:

Darren Bentley-Hewitt 021 2277 134 Darren.Bentley-Hewitt@horizons.govt.nz

Brent Watson 021 2277 199 Brent.Watson@horizons.govt.nz

For problems specifically related to the Hilltop Electronic Forms (e.g. missing staff members from the drop down field or any other Hilltop errors) contact Brent Watson.