

## **Direction on NEE 05- Ice Point Test Form and Procedure**

According to a non-compliance that we received from Measurement Canada recently for incorrectly filled out Ice Point Test Form NEE-05, **each Inspector Technician (IT) needs to send their thermometer's Ice Point Test filled out form NEE-05 IMMEDIATELY, and going forward you need to send the form to Roaa Hameed [rhameed@nee.ca](mailto:rhameed@nee.ca) :**

**- Every 6 months from the acquisition date of the thermometer**

**OR;**

**- Whenever you receive a new/replacement thermometer from us**

**IPT procedure:** refer to Quality Assurance Manual > QPM> QPM-17: Ice Point Testing of Electronic Thermometers

**IPT Purpose:** Because the sensors of electronic thermometers are susceptible to damage, and electronic components are susceptible to drift, a scheduled check should be performed every month. The purpose of this check, an ice point test, is to evaluate the performance of electronic thermometers, ensuring that the calibration has not shifted beyond the acceptable limits of error.

**IPT Frequency:** If the Thermometer is used on a regular basis then the ice point test must be done every month. If the thermometer is only used occasionally it must be ice point tested before each inspection takes place. The Thermometers must be sent to Measurement Canada for re-calibration every two years or as often as deemed necessary.

### **Attached is:**

- 1 - The IPT form NEE 05 -Rev04 is a 12-month log that is updated and kept with the thermometer at all times.
- 2- filled out SAMPLE of IPT form for your reference.

### **and here are few things to note before you start using the form including terminologies' used and definitions:**

- Read the Ice point test procedure (QPM-17) and make sure you use the proper equipment to do the Ice point test at your office (such as a blender with ice-crushing capability, wide-mouth vacuum-insulated thermal flask, etc.).
- Follow the sample IPT form attached as a guideline when completing your ice point test
- The IPT time interval is 2 minutes ONLY, meaning that you need to wait for 2 minutes for probe's reading to stabilize before recording the \*\*\*As found result in the designated column.

- **\*\*As left:** the thermometer's reading recorded by MC laboratory at 0.000 °C (indicated on thermometer's certificate > calibration results table > As Left) see below pic as an example :

Measurement Canada An Agency of Industry Canada		Mesures Canada Un organisme d'Industrie Canada		Calibration (CYMO) - Etalonnage (A) <b>V16-0180</b> 2016/07/15 Project/Appoint - Projet/Requiemt Recalibration - Date de réétalonnage CP-VL-16-0057 2018/07/15 National Energy Equipment Inc.	
Certificate of Calibration and Designation			Certificat d'Étalonnage et de Désignation		
<b>CALIBRATION RESULTS TABLES</b>					
<b>TABLES DES RÉSULTATS D'ÉTALONNAGE</b>					
<b>AS FOUND:</b> TEL QUE TROUVÉ:					
Reference Temperature Température de référence		P1	P2	Reading Lecture	
	°C	°C	°C		
Ice Point / Point de glace	0.000	-0.1	0.0		
	49.990	49.8	50.0		
<b>AS LEFT:</b> TEL QUE LAISSÉ:					
Reference Temperature Température de référence		P1	P2	Reading Lecture	
	°C	°C	°C		
Ice Point / Point de glace	0.000	-0.1	0.0		
	49.990	49.8	50.0		
	40.001	39.8	40.0		
	30.002	29.8	30.0		
	19.994	19.8	20.0		
	10.002	9.8	9.9		
	0.002	-0.1	0.0		
	-9.996	-10.1	-10.1		
	-20.000	-20.1	-20.1		
	-29.996	-30.2	-30.2		

- **\*\*\*As Found:** The thermometer's reading after 2 minutes of the probe being immersed in the ice bath when you are doing the IPT.
- Hence, the temperature readings recorded on the IPT form over is the result of ( **As Left - As found** )
- If the **ABSOLUTE value** of the ice point test results from the above equation  $\geq 0.2 \text{ }^\circ\text{C}$ , the probe is removed from service. Vice versa to pass and return to service.

**For example** from the above picture, P1 As left at 0.000C = -0.1C

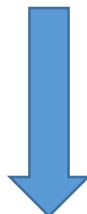
and let's say the As found = 0.1C

The recorded result = **As Left - As found**

$$= (-0.1) - (0.1) = -0.2 \text{ C} = 0.2 \text{ C (which is not within the accepted range then P1 fails)}$$

- Put in the "pass/fail" column that P1 is failed.
- Remove P1 from service, and communicate with Zanyar/Roa to send you a replacement thermometer if needed (in case you only have one probe)
- If you have a second probe P2 that still passes, keep using it until you receive a replacement
- Send back your thermometer with its defective probes as soon as you receive the new one.

NEE 05-IPT Form- Rev04 is on measurement documents website under "Forms"





## Electronic Thermometer Ice Point Test

Make	Cooper	Assigned to	IT name
Model	TM99A-UL	Thermometer's Expiry Date	2018/07/15
Serial	030609008	Certificate/Document#	V16-0180
P1 **As left Value °C	-0.1	P2 **As left Value °C	0.1 (NA if there is no 2nd probe)

lab reading @ 0.000C from As left table on page2 of the thermometer certificate

**The Ice point test is only valid for 30 days from the day it's conducted**

\* As Left: Thermometer's reading when doing the IPT by MC laboratory at 0.000 °C (indicated on thermometer's certificate > calibration results table > As Left)

\*\*\* As Found: Thermometer's reading after 2 minutes of the probe being immersed in the ice bath when you are doing the IPT.

Date	P1 ***As Found °C	Probe 1 absolute value= As Left- As found	P2 *** As found °C	Probe 2 absolute value= As Left- As found	Pass/ Fail
Dec5-2017	0.0	0.1	0.1	0.0	PASS
Jan5-2018	0.0	0.1	0.1	0.0	PASS
Feb5-2018					
and keep going					

**SAMPLE**

Is the absolute value of the ice point test  $\geq 0.2$  °C? YES

NO

select NO since probes pass the IPT

- If No, return to service.
- If yes, has the thermometer been removed from service, sent to Port Coquitlam for adjustment (repairs if necessary) and then sent to Calibration Services Laboratory for recalibration?

Comments:

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Signature: 