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CORRESPONDENTS:

FROM THE JOINT RESEARCH PROJECT (JRP)-CONSORTIUM

Representing by

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TO THE COLLABORATOR

NIST

Material Measurement Laboratory

100 Bureau Drive

Gaithersburg, MD 20899

CONCERNING THE COLLABORATION IN THE FIELD OF MERCURY MEASUREMENTS

Dear Dr Stephen E. Long

As you are aware, in November 2013, a consortium of European organisations submitted a proposal for a Joint Research Project to the European Metrology Research Programme (EMRP) related to the field of mercury measurements. At that time you advised that your organisation was also active in the field and you expressed an interest in collaborating with the consortium. I, Paola Fiscaro, as the JRP-Coordinator and representing the JRP-Consortium, have the honour to inform you that the Joint Research Project "JRP Traceability for mercury measurements", has been selected and will be executed as part of the EMRP (European Metrology Research Programme) in accordance with the Decision No 912/2009/EC of the European Parliament and of the Council of 16 September 2009 on the participation by the European Union in a European metrology research and development programme undertaken by several Member States¹.

I therefore propose, with the agreement of the JRP-Consortium, that the JRP-Consortium and your organisation collaborate in the above field of research, in part or whole, on the basis of this LETTER. Both correspondents shall indicate their agreement by signature of this LETTER, with the arrangement running until 30 September 2017 (*end of the JRP*).

The collaboration addressed in this LETTER is complementary to the JRP-Contract between EURAMET and the JRP-Consortium and shall not be regarded as part of that contract. As a collaborator, your organisation cannot receive funding granted for the JRP and does not deliver the work content of the JRP. Therefore, your organisation is not a partner in the meaning of the JRP-Contract and is not bound by its rights and obligations.

PURPOSE OF COLLABORATION

The expected relevant activities in the field of research related to mercury measurements in air and biota undertaken by the JRP-Consortium are defined in the attached annex (Annex 1). The expected relevant activities in the field of research related to mercury measurements in air and

¹ OJ L 257, 30.9.2009, p.12.

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biota undertaken by your organisation (the "Collaborator") are defined in the attached annex (Annex 2).

Sharing appropriate information related to the activities in the field of research would have clear benefits for the correspondents of this LETTER. Therefore, for the collaboration to be meaningful the correspondents shall endeavour:

1. to perform and fulfil, promptly, actively and on time, all stated intentions, including in particular the submission of sufficient information to each other to enable meaningful reporting of the collaboration conducted under this LETTER.
2. to notify each other promptly of any significant problem and delay likely to affect the intended collaboration and to use reasonable endeavours to ensure the accuracy of any information or materials it supplies hereunder and promptly to correct any error therein of which it is notified.

At the invitation of the JRP-Coordinator, the Collaborator may attend JRP project meetings, except for the parts of such meetings dealing with financial and contractual issues, at which point the Collaborator should formally leave the meeting.

Activities of both correspondents shall be subject to the availability of appropriate funds, personnel and other resources. The expenses incurred related to this collaboration shall be borne by the respective correspondents.

KNOW-HOW TRANSFER AND CONFIDENTIALITY

A prerequisite for collaborating in the field of research specified above is the sharing of information and the transfer of know-how.

However, this LETTER is a statement of intent of the parties to collaborate and the parties do not contemplate the exchange of confidential information. If, however, during the course of research it becomes necessary to exchange confidential information, the parties will enter into a separate binding Confidentiality Agreement prior to such exchange for the purpose of protecting such confidential information.

USE OF RESULTS

If any results or findings capable of being protected are generated within the scope of the collaboration between the correspondents in the field of research specified above, the use, the application for protective rights and the exploitation shall be settled in the individual case and by mutual agreement between the JRP-Consortium and the Collaborator.

The correspondents agree to respect their individual Intellectual Property Rights.

INTENT OF COLLABORATION

The relationship between the JRP-Consortium and the Collaborator established by this LETTER is that of independent collaborators and nothing contained in this LETTER shall be construed to give either correspondent hereto the power to direct and control the day-to-day activities of the other correspondent.

This LETTER may be developed further, extended and/or be amended from time to time as the experience of these provisions develops and if necessary.

This LETTER is a statement of intent of the correspondents to collaborate as detailed herein. This LETTER does not create legally binding obligations and cannot be the basis of any legal claims between the correspondents. All activities contemplated herein are subject to the availability of funds and other necessary resources to the correspondents. No funds are obligated by the LETTER.

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Either the JRP-Consortium or the Collaborator may terminate this collaboration at any time upon written notice to the other. Activities in progress on the date of such written notice may proceed to completion. In the event of termination, the correspondents shall remain bound by the provisions regarding confidentiality with respect to any information obtained.

EURAMET and the JRP-Consortium, including the JRP-Coordinator shall not be liable to the Collaborator and vice versa for damages caused in the scope of the collaboration unless such damages are caused intentionally or by gross negligence.

Yours sincerely,

Paris, 25th March 2015 

Place & Date

Signature of the JRP-Coordinator

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Annex 1 Activity list of JRP-Consortium

Expected relevant activities and planned timescale in the field of research related to mercury measurements in air and biota undertaken by the JRP-Consortium

According to the JRP Protocol, the following WP1 activities will be undertaken:

VSL, NPL, and IJS will compare the VSL primary mercury vapour generator (primary calibrator) developed against the Dumarey equation using equivalent masses of Hg sampled onto gold traps (provided by VSL),

VSL, NPL, and IJS will compare the VSL primary mercury vapour generator (primary calibrator) developed (at least two concentrations in the 0.2 µg Hg/m³ – 60 µg Hg/m³ range) against VSL's, NPL's, and IJS's current calibration facilities.

A scientific paper "Traceability for mercury vapour measurements", on the comparison of the primary calibrator against the current calibration facilities, written and submitted for publication in a peer reviewed journal

NPL will collect at least 10 real samples of Hg particulates on filters (10-50 ng Hg/filter). Using these samples, LGC and LNE will investigate the feasibility of LA-ICP-MS (LGC) versus wet digestion ICP-MS (LNE) for total Hg analysis. IJS will also analyse these samples using the European reference method (EN14902) involving wet chemical digestion and ICP-MS. VSL will provide advice to NPL, IJS, LGC and LNE as required.

LGC and LNE will provide comparative wet digestion ICP-MS (LNE) and LA-ICP-MS (LGC) results to demonstrate coherence for particulate/vapour Hg ratios. The data will be compared and analysed and a report will be written.

According to the JRP Protocol, the following WP3 activities will be undertaken:

LGC and PTB will source and obtain matrix materials including NIST SRM 3133 for external calibration, a standard of another suitable element such as TI SRM 997 for internal calibration. These will be needed for mass discrimination correction for bulk and compound-specific Hg isotope ratios

LGC will source and obtain reference standards including NIST SRM 1947 Lake Michigan Fish Tissue and/or any other available fish matrix reference material with a lower content of Hg. These are needed for method development and validation

REG(CNRS), LGC, and PTB will assess the influence of instrumental parameters, the matrix, and sample introduction methods (e.g. cold vapour generation, etc) on the instrumental mass discrimination for bulk Hg using MC ICP-MS

LGC, PTB, and REG(CNRS) will perform a systematic comparison, in terms of measurement uncertainty and accuracy, of different strategies to correct for instrumental mass discrimination [e.g. sample standard bracketing with NIST SRM 3133 combined (or not) with TI (NIST SRM 997) correction, double spike method and use of gravimetric mixtures of highly enriched inorganic Hg isotopes]

REG(CNRS), PTB, and LGC will to extend the fully validated method (with NIST materials) for bulk isotope ratio analysis of Hg with an expanded uncertainty <0.5 % (e.g. for δ ²⁰²Hg) for use

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with fish fillet samples sourced from ESBs. LGC will use at least 3 samples (depending on sample availability) and REG(CNRS) will use 16 samples (12 samples from D3.1.2, plus 2 oyster and mussel samples and 2 sediment samples). Based on this, REG(CNRS) will select the series of samples to use in its subsequent activities

A scientific paper on the statistical analyses and interpretation of the Hg isotope ratio data obtained from samples from ESBs using the methods developed for bulk analysis written and submitted for publication in a peer reviewed journal

Annex 2 Activity list of the Collaborator

Expected relevant activities and planned timescale in the field of research related to mercury measurements in air and biota undertaken by the Collaborator

NIST will provide matrix reference materials to JRP consortium partners, including NIST SRM 3133 for external calibration, a standard of another suitable element such as Ti SRM 997 (if available), for internal calibration. These will be used for mass discrimination correction for bulk and compound-specific Hg isotope ratios.

NIST will provide matrix reference materials to JRP consortium partners, including NIST SRM 1947 Lake Michigan Fish Tissue and/or any other available fish or food matrix reference material with a lower content of Hg. These will be needed for method development and validation.

NIST will assess the influence and design of sample introduction methods (e.g. cold vapour generation, etc) on the instrumental mass discrimination and efficiency of measurement for bulk Hg using MC ICP-MS.

NIST will investigate analytical methodology for the use of halogenated activated carbon sorbent traps for capture and measurement of speciated mercury in the gas phase.

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The foregoing is accepted by NIST and therefore in this reply I confirm that this LETTER together with its Annexes constitutes the mutual acceptance of the provisions of the foregoing.

Yours sincerely,

NIST/Gaithersburg MD 3/24/0
Place & Date



Signature of the Collaborator
Dr. Laurie Locascio
Director, Material Measurement Laboratory
National Institute of Standards and Technology

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