

## **MEMORANDUM OF UNDERSTANDING**

**between**

**the  
World Meteorological Organization**

**and**

**the  
NPL Management Limited,  
Teddington, Middlesex, United Kingdom**

related to the provision of a Central Calibration Laboratory for Nitrogen Oxides  
(NO<sub>x</sub>) to the World Meteorological Organization, Global Atmosphere Watch  
Programme

(2024)

The World Meteorological Organization, hereinafter referred to as “WMO”, an intergovernmental organization having its seat in Geneva, Switzerland,

and

the United Kingdom’s NPL Management Limited, (hereinafter referred to as “NPL”), the national metrology institute having its seat in Teddington, Middlesex,

jointly and individually referred to hereinafter as “the Parties” and “Party”, respectively,

## **CONSIDERING**

The *Convention of the World Meteorological Organization* dated 11 October 1947;

That WMO is a specialized agency of the United Nations, recognized as such since 1951 through the *Agreement between the United Nations and the World Meteorological Organization*, first established in 1950, having originated from the International Meteorological Organization founded in 1873; and that WMO is the United Nations system's authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources;

That the Global Atmosphere Watch (GAW) Programme of the WMO is the only existing long-term international global programme that coordinates observations and analysis of atmospheric composition changes. The GAW Programme is a collaboration of more than 100 countries and it relies fundamentally on the contributions of its Members to help to build a single, coordinated global understanding of atmospheric composition and its change. The mission of GAW as described in the “Science and Innovation Plan of the Global Atmosphere Watch Programme for the period 2024-2027” is “maintaining and applying global, long-term observations of the chemical composition and selected physical characteristics of the atmosphere, emphasizing quality assurance and quality control, and delivering integrated products and services relevant to society”;

That WMO/GAW Quality Assurance System includes five types of central facilities dedicated to GAW priority measurement variables, which are operated by WMO Members and that a key role is played in this system by Central Calibration Laboratories (herein referred as “CCLs”) whose specific activities are listed in Annex 1;

That NPL, since 1900, has developed and maintained UK's primary measurement standards. As a Public Corporation owned by the Department for Science, Innovation and Technology NPL also collaborates with other national metrology institutes (NMIs) to maintain the international system of measurement. A GAW Central Calibration Laboratory for nitrogen monoxide (NO) was established at NPL and has been operating since March 2016. Additionally, the present agreement covers nitrogen oxides (NOx).

The interest of the Parties in, and the shared benefits anticipated from the cooperation under, this Memorandum of Understanding will be made available to the Member States and Territories and to the international community at large;

The desire of the Parties to create a framework to ensure, on a long-term basis, the consultation, exchange of information and coordination required for the implementation of this Memorandum of Understanding (hereinafter referred to as “MoU”);

## **HAVE AGREED AS FOLLOWS:**

### **I. Purpose and Activities**

1. The purpose of this MoU is to recognize the NPL as a Central Calibration Laboratory for Nitrogen Oxides (NO<sub>x</sub>) for the WMO/GAW Programme.
2. With due regard to their respective competencies, institutional settings and operational frameworks, the Parties will inform and consult with each other, as appropriate, on issues of mutual interest, in particular, on scientific, technological, regulatory and development issues in which cooperation may foster the purposes of the Parties.
3. NPL will perform, within the framework of this MoU, the following activities:
  - a) support stable and accurate gas standard for nitrogen oxides that defines the scale. The intent is to maintain stable and accurate nitrogen oxides gas standards, over extended time periods, such that WMO/GAW can detect and track trends in ambient concentration levels and small spatial gradients;
  - b) Provide a stable and accurate WMO Primary Standard for nitrogen oxides to the WMO/GAW Central Facilities (World and Regional Calibration Centers) and to GAW network members for calibration purposes (on a commercial basis);
  - c) Undertake comparisons with other NMIs for nitrogen oxides to ensure the high quality and stability of this standard;
  - d) Investigate any bias discovered during comparisons between Primary Standard Mixtures for nitrogen oxides that would threaten the achievement of the DQOs and will inform users of any adjustments when needed;
  - e) NPL will make public its involvement in the WMO/GAW Programme (for example on its website and in its publications), and
  - f) NPL will work with the WMO/GAW user community to offer bulk orders of the standard at a reduced cost per mixture.
4. The WMO/GAW will perform, within the framework of this MoU, the following activities:
  - a) Coordinate a regular meeting that brings together inter alia the World Calibration Center for NO<sub>x</sub>, NPL, and the members of the GAW Reactive Gases Monitoring Network. At this meeting NO<sub>x</sub> DQOs will be reviewed;
  - b) Ensure the publications of the Standard Operating Procedures and/or Measurement Guidelines prepared in collaboration with CCL for nitrogen oxides, and
  - c) Acknowledge NPL where appropriate for the support of the CCL for NO<sub>x</sub> (for example on its website and in its publications) and permits NPL to use the designation "WMO Primary Standard" for the standard provided by NPL in its CCL function.

## II. General Conditions

5. With the exception of the following provisions, no legal obligation for either of the Parties can be derived from this MoU.
6. This MoU will be carried out in accordance with the relevant laws and regulations and subject to the availability of appropriated funds and personnel of the Parties.
7. Any differences arising out of the interpretation of this MoU will be resolved in an amicable manner through consultations between the Parties.
8. The Parties shall have the right to terminate this MoU, by written notice to this effect after the entry into force of the MoU, if it considers that completion of the MoU is impossible or impractical. The written notice should preferably be given 90 days prior to the termination of the MoU.
9. The Parties will inform each other regularly about planned and completed work and about the results generated under this MoU. To do this, the Parties will meet at regular intervals in order to exchange information and discuss their respective activities.
10. Nothing in or relating to this MoU shall be deemed a waiver, express or implied, of any of the privileges and immunities of the WMO and NPL.
11. The Parties will not be held responsible vis-à-vis each other for any accident, illness, loss or damage to the other Party which may occur in connection with the implementation of the activities covered by this MoU.
12. Should a provision of this MoU be or become invalid, this will not affect the validity of the rest of the provisions of this MoU or the MoU as a whole. The Parties will make a concerted effort to jointly decide upon a new valid provision, which will reflect as much as possible the invalid provision which it is replacing.
13. Any reference to this MoU will also include the Annex.
14. Each Party will bear its own costs arising in the course of the implementation of this MoU.

## III. Reporting

15. Each Party will appoint a Representative who will coordinate relations with the other Party, including between technical experts of the Parties, and who will keep the head of their organization informed. Any change of Representative will be communicated in writing to the other Party.

Dr Paolo Laj Head, Atmospheric and Environment Research Division World Meteorological Organization 7bis, avenue de la Paix CH-1211 GENEVA 2 Switzerland plaj@wmo.in	Dr David Worton Science Area Leader and Principal Scientist National Physical Laboratory, Hampton Road, Teddington, TW11 0LW United Kingdom dave.worton@npl.co.uk
Representative of WMO	Representative of NPL

16. The Parties agree that should the information in this Article change, the Party making the change shall notify the other Party in writing of such change.

#### **IV. Amendments**

17. This MoU may be amended at any time. Any such amendment will be agreed by mutual consent and will be effected by an exchange of letters.

#### **V. Entry into Force**

18. The present MoU will enter into force upon signature by both Parties and will remain in effect for an initial period of five (5) years and will thereafter be renewed automatically, each time for a new period of five (5) years, unless a written notice of termination is given by one of the Parties to the other at least 90 days prior to the renewal date in accordance with paragraph 3.2 above, or the Parties have agreed on its termination or on its renewal by another period.
19. The Parties shall sign two copies of this MoU. Each Party will have one original copy.

#### **VI. Confidentiality**

20. Either Party shall use all and any information obtained from the other Party within the framework of the present MoU exclusively for the purposes (see Article 2) for which it has obtained such information, shall not disclose it to third parties and shall protect it like its own secrets. This obligation shall not apply to information that is generally known, information that has been provably derived independently by the party receiving such information, or information lawfully obtained from third parties without infringing any obligation of confidentiality. This obligation shall not be applicable either in case a party is compelled to disclose the information obtained on the grounds of legal provisions. This obligation shall be valid for a period of three years after this MoU has ceased to be in force.

Signed in duplicate in the English language.

On behalf of the World Meteorological  
Organization


Prof. Celeste Saulo  
Secretary-General

Signature: \_\_\_\_\_

Date: 19.02.2024

On behalf of NPL Management Limited

Dr Jan-Theodoor Janssen  
UK's Representative on the International  
Committee for Weights and Measures

Signature: \_\_\_\_\_

Date: 27.03.2025

**Central Calibration Laboratories (CCLs)'s specific activities  
from GAW Implementation plan 2016-2023 (section 5.2.1)**

- CCL-1. Host in the long term (many decades) the GAW primary standard and scale for a particular variable.
- CCL-2. Serve the needs of the other quality assurance facilities and activities of GAW.
- CCL-3. Prepare or commission laboratory standards required by GAW network Members for calibration.
- CCL-4. Supply well-calibrated reference materials in to GAW analytical laboratories as needed for conducting intercomparisons of standards (in collaboration with the World or Regional Calibration Centres) where appropriate.