



**International Atomic Reference Material Agency**

## **Instructions for IARMA ETRIT-PT-2024**

### **IARMA Environmental Proficiency Test on the Determination of Tritium in Water at Environmental Levels**

#### **1. Package Receipt**

Kindly perform an inspection of the package contents and cross-reference them with the items enumerated in the enclosed packing list. Once confirmed, endorse and date the packing list before returning it to IARMA. You can utilize your Portal page or forward it via email to: [office@iarma.co.uk](mailto:office@iarma.co.uk).

#### **2. Choice of Method/Procedure.**

Participants may use any routine and validated method of their choice (i.e. you should not use these samples to test a new procedure). The within bottle homogeneity is assured at 5 g test portion for water samples.

#### **3. Water Sample Description:**

##### **a. Matrix origin:**

The dead water utilized for the preparation of test items was sourced in a single batch from a well situated in the lower aquifer of Ljubljansko Barje, the marshland of Ljubljana, Slovenia. This aquifer is sealed by an impermeable clay layer on its upper side, extensively studied for Tritium content over the long term. The Dead Water exhibits a conductivity of  $240 \pm 20$  [ $\mu\text{S}/\text{cm}$ ] and a pH range of  $7.4 \pm 0.2$ . Preceding its usage, the water underwent filtration.

##### **b. Test item preparation:**

The water test items were spiked with precisely measured quantities of a NIST certified standard Tritium solution through a gravimetric procedure. Following bottling, a homogeneity examination demonstrated satisfactory outcomes for both within and between-bottle homogeneity.

#### 4. Handling of test items:

- Weigh the bottles and document the initial gross mass, inclusive of screwcap and labels, on the accompanying Packing List.
- Ensure a thorough mixing of the water prior to transferring its contents to your designated distillation container or any sub-sampling device.
- All outcomes must be expressed on a mass basis. It is advised to measure the test item, or a relevant portion taken for analysis by weight.

#### 5. Reporting Requirements:

- Transmit results or any necessary corrections through your IARMA Portal page. Each participant's Username and password will be communicated.
- Limit the decimal points to two digits in your reporting.
- For unreported results, employ "NR" and use "NA" for not applicable situations.
- Activities that cannot be detected or quantified should be reported as "< the value of the method detection limit in Tritium Units (TU)".
- The measurement result value along with its corresponding combined standard uncertainty must be expressed in Tritium Units (TU).
- Uncertainty should be reported as the combined standard uncertainty (1 sigma level), accounting for all identifiable sources of uncertainty.
- Undetectable/unquantifiable activities should be reported as "< the value of the method detection limit in TU," such as "<0.5 TU." All results must be decay-corrected to the **reference date of September 15, 2024**.
- Following the reporting target date, participants will be requested to verify their most recent set of reported results.
- The deadline for result submission is **November 15, 2024**.

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