Planned Work Programme for 2014

(as revised on 7 October 2013)

1. General tasks of EURL

1.1. Participation in annual co-ordinating meetings and general management activities of other EURLs for residues, as far as necessary.

1.2. Technical and scientific support to the Commission and its offices.

1.3. Compilation of the Technical and Financial Report for 2013 by 31 March, 2014

1.4. Compilation of the planned activities, estimated budget and performance indicators for 2015 by 1 September 2014.

1.5. Maintenance of contacts to established National Reference Laboratories (NRLs) and build-up of contacts to possibly newly selected NRLs. The tasks of the EURL and NRLs is to cover dioxins, dioxin-like PCBs and indicator PCBs in food and feed and in particular analytical issues related to both confirmatory and screening methods. However, the structure and capabilities of NRLs differ from Member State to Member State requiring a more complex system of linking the NRLs with the EURL/NRL network. Therefore, the EURL compiled a list with all NRLs and contact points in this field and keeps this list updated. The list includes contact data and information about analytical capabilities.

1.6. In cooperation with the competent NRLs, maintenance of contacts to Official Laboratories (OFLs) and build-up of contacts to newly selected OFLs in cooperation with NRLs, for inclusion of OFLs in proficiency tests (PTs).

1.7. Cooperation with international organizations, in particular EFSA, CEN, WHO and UNEP (also for harmonization of requirements in the field of POPs analysis), where necessary.

1.8. Documentation services (updating of the CIRCA platform/publicly accessible EURL-website on regular basis with focus on disseminating information to NRLs. Constant monitoring of analytical methodology and EU legislation).

1.9. Participation and presentation of EURL activities at most important international conferences in the relevant area.

2. Development and validation of analytical methodology

2.1. Performance of **two proficiency tests (PT) for determination of dioxins and PCBs in food and/or feed** for further improvement of analytical methods with regard to correct determination of PCDD/Fs and PCBs by screening or confirmatory methods (see 3.3).

2.2. In combination with the different extraction methods the EURL will continue the evaluation of **automated, semi-automated and manual clean-up procedures** using a fully automated system, combinations of automated clean-up steps and manual steps for further improvement of the complete methods for PCDD/F and PCB analysis.

2.3. Development/evaluation of fast **GC/HRMS** and/or **GC/MS-MS screening methods/confirmatory methods** for control of EU-regulated levels in food and feed for sum TEQ of dioxins, furans and dioxin-like with particular consideration of the comparison of the applicability of different stationary phases of GC columns for separation of all relevant PCDD/F, DL-PCB and NDL-PCB congeners.

2.4. In order to have a more comprehensive overview on substances with dioxin-like activities, the EURL continues development of suitable methods for the inclusion of **polybrominated dibenzo-p-dioxins and dibenzofurans (PBDD/Fs)** in the scope of the analysis of different food and feed matrices for PCDD/Fs and PCBs as a permanent task of the EURL.

2.5. Development/evaluation of analytical methods for determination of PCDD/Fs and PCBs in **animal blood**, evaluation of correspondence between blood and animal tissue (meat, fat).

2.6. Evaluation and optimization of **bioanalytical methods and technology** for various food and feed matrices of interest (permanent task). This includes extraction and clean-up steps, assay-performance and evaluation of results, in 2 major lines of development: based on (1) H4IIe rat hepatoma cells as detection system (DR-CALUX, BioDetection Systems, NL) for determination of the sum-BEQ, and (2) H1L6 mouse hepatoma cells (University of California Davis, USA, being similar to cells distributed by Xenobiotic Detection Systems, USA) for separate determination of PCDD/Fs and dl-PCBs.

2.7. Further evaluation of a method for fast extraction of lipids and dioxin-like compounds developed by EU-RL using **ultra-turrax dispersion**. Extension of the technique to additional matrices of interest within the scope of bioanalytical methods. New curve fitting algorithms and criteria for assay working ranges developed by EU-RL shall be tested and applied for **reduction of the bias** in bioanalytical results.

2.8. **Validation of bioanalytical methods** for use within the scope of European official feed and food control will be performed (permanent task). Extensive matrix-matched calibration experiments will be carried out for further food and feed matrices of interest: Compliance of method performance with new criteria for bioanalytical methods as laid down in Commission Regulations (EU) No. 252 and 278/2012 is checked, and matrix-related cut-off concentrations are derived ensuring a false-compliant rate < 5% (ML-based).

2.9. New **"3rd generation" highly sensitive 20 DRE-H4L7.5c2 rat hepatoma cells** developed by Prof. Denison, University of California Davis (USA) were demonstrated by EU-RL to provide lower working ranges than H4IIe rat and H1L6 mouse hepatoma cells, provided procedure blanks are well controlled and a suitable curve-fit is performed. They shall now be included as detection systems in validation studies.

2.10. In 2009, the EURL participated in a PT study organized by the § 64-LFGB-working group "Wirkungsbezogene Analytik" ("effect-directed analysis") hosted by BVL (Berlin) and designed as a pre-test of the **EROD technology**. The EROD assay measures the catalytic activity of cytochrome P4501A [CYP1A] as 7-ethoxyresorufin-O-deethylase [EROD] activity in cultured rat liver cells exposed to sample extracts containing PCDD/Fs and dl-PCBs. As a result of the outcome of the pre-study, extraction and clean-up steps are currently optimized by a sub-working group, and a rather complicating and time-consuming vitality test on the cells after exposure shall be discarded. EU-RL intends to participate in a 2nd PT to be organized by the § 64-LFGB-working group in 2014, provided method optimization proved successful and the set-up of the PT will reflect general requirements of European official feed and food control.

3. Quality assurance and quality control

3.1. Performance of QA/QC activities for the carrying out of the EURL tasks/activities, as required by ISO 17025 and 17043 accreditation.

3.2. Evaluation of **collected QC data**: (1) assay parameters for various stably transfected hepatoma cell lines in use at EU-RL, (2) sample-related quality control data, (3) evaluation of external QC data collected from participation in PT studies, (4) further extension and evaluation of various matrix-related BEQ/TEQ-data bases.

3.3. Organisation of **two interlaboratory studies (proficiency test, PT)** on determination of dioxins, furans, dioxin-like PCBs and marker PCBs in **food** and / or **feed** (see 2.1). The PT will be addressed to NRLs with **confirmatory methods** (based on GC/HRMS, GC/MS or GC/ECD, depending on the analyte) and **screening methods**. Results will be discussed and conclusions be drawn at two EURL/NRL workshops organized in the first respectively second half of 2014.

4. Technical and scientific support to Member States and the Commission, inclusive arbitration and training activities

4.1. Analytical support and training to Member States (NRLs) and Commission

4.2. For specific tasks, working groups might be formed to address specific needs with regard to physical-chemical or bioanalytical aspects, e.g. regulation, development of physical-chemical screening methods, validation schemes, or practical guidelines on validation (in particular for bioanalytical methods).

4.3. In May 2012, a **core working group on Measurement Uncertainty (MU)** was formed which will contribute to the harmonization of the application of MU. The work of this core working group will be continued in 2014; results will be communicated to the NRL network for discussion and reflection.

4.4. Mission to NRLs and dissemination of scientific information if necessary

4.5. Individual follow-up and assistance to NRLs of which the analytical results from the interlaboratory study are not satisfactory

4.6. Analyses of official samples on request (submitted by EU Member States in case of dispute between Member States or in case of analytical problems with a responsible NRL)

4.7. Organisation of **two annual workshops** and discussion of interlaboratory studies in both fields food and feed for dioxins, dioxin-like PCBs and indicator PCBs (see 2.1 and 3.3) for NRLs using confirmatory methods (based on GC/HRMS, GC/MS or GC/ECD, depending on the analyte) and / or bioassay screening methods with follow-up for underperforming NRLs. The workshop concept will be based on organization (at least) of one workshop per year at the EURL in Freiburg and allow the organization of the second workshop at one of the NRLs.