



# Fera NRL Annual Report 2021 to 2022

Report to the Food Standards Agency



# 1. Annual Report

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## **Annual Report on Operation of National Reference Laboratories (Chemical Safety in Food and Feed)**

**Fera Science Ltd.**

**April 2021 – March 2022**

Title	National Reference Laboratory for Food Contaminants
Competent Authority	Food Standards Agency
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## 2. Fera Science Ltd. (Fera)

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Fera is a national and international centre of excellence for interdisciplinary investigation and problem solving across plant and bee health, crop protection, sustainable agriculture, food and feed quality and chemical safety in the environment.

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## 4. Executive summary

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Fera Science Ltd (Fera) acts as National Reference Laboratory (NRL) under Retained Regulation (EU) 2017/625<sup>(1)</sup> on official controls and was appointed by the Food Standards Agency (FSA) to provide five Chemical Safety in Food and Feed UK NRLs:

NRL-MP      NRL Mycotoxins and Plant Toxins in Feed and Food

NRL-MN      NRL Metals and Nitrogenous Compounds in Feed and Food

NRL-PC      NRL Processing Contaminants

NRL-POPs    NRL Halogenated Persistent Organic Pollutants (POPs) in Feed and Food

NRL-FCM     NRL Materials and Articles in Contact with Food.

This Annual Report summarises the activities of the NRLs from 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022.

The NRLs provided impartial advice to the Competent Authorities (CAs), FSA and FSS, Official Laboratories (OLs) and other NRLs throughout the period. Updates were provided to the FSA and FSS on NRL activities on at least a monthly basis. The NRL provided an open website for OLs and a dedicated NRL email address that was regularly monitored. An up-to-date list of OLs and contact details was maintained. Where provided by the EURL, information from EURL Workshops and Core Working Groups, Task Forces and Ad Hoc committees was forwarded to the FSA and FSS.

The NRLs provided Work Plans outlining activities for the year, such as planned PT participation. In addition, a combined list of suggested topics for practical work, identifying where there are gaps in availability of suitable analytical methods was produced and sent to the FSA and FSS. From this a priority list was agreed and practical work has started on method development and validation for those methods. This activity will be built on during the subsequent years of the project.

NRL staff participated in a number of international scientific conferences as speakers and delegates, e.g. Dioxins 2021, 'Plastics and Paper in Contact with Foodstuffs' online conference, 'Food Contact Regulations Europe 2022' online conference, and Mycotoxins EU Regulations online conference.

The UK left the EU on 31st January 2020. The UK and European Union (EU) negotiated arrangements that have allowed some limited participation in EURL PTs and participation in events later in the year.

The NRL-MP and NRL-MN are involved with European Committee for Standardization (CEN) activities. NRL-MP is a member of CEN TC275 WG5 and CEN TC327 WG5 and participated in meetings, which were all held on-line. NRL-MN participated in an online meeting of TC275 WG10.

Advice and methodology were provided to OLs where requested.

During 2021-2022, the NRLs were involved in several Proficiency Tests (PTs) run by the EURLs (for POPs and metals) and other providers (including Fapas® PTs). Most PT results were satisfactory, a very small number of individual results were not. In all cases any issues were investigated in accordance with ISO17025 quality procedures and follow up action completed. Where applicable, OLs were invited to participate in EURL PTs.

NRL Meetings were held on-line in July and November 2021, between FSA, Food Standards Scotland (FSS), and the NRLs. Information on developments in sampling and testing was exchanged and information from the respective EURLs on methodology and PTs was shared.

NRL Annual Reports are published annually on the NRL website. The NRLs provided the FSA and FSS with monthly NRL Activity Logs which are a timely summary of ongoing activities.

## 5. List of abbreviations

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AAS	- Atomic Absorption Spectroscopy
APA	- Association of Public Analysts
BfR	- Bundesinstitut für Risikobewertung (The German Federal Institute for Risk Assessment)
BFR(s)	- Brominated Flame Retardants
CA	- Competent Authority
CEN	- European Committee for Standardization
COT	- Committee On Toxicity of Chemicals in Food, Consumer Products and the Environment
CP(s)	- Chlorinated paraffins
CWG	- Core Working Group
dSPE	- Dispersive solid phase extraction
EC	- European Commission
EFSA	- European Food Safety Authority
EU	- European Union
EURL	- European Union Reference Laboratory
EURL-FCM	- EURL Food Contact Materials
EURL-MN	- EURL Metals and Nitrogenous Compounds
EURL-MP	- EURL Mycotoxins and Plant Toxins
EURL-PC	- EURL Processing Contaminants
EURL-POPs	- EURL Halogenated Persistent Organic Pollutants (POPs) in Feed and Food
EUWA	- European Union (Withdrawal) Act
FAAS	- Flame Atomic Absorption Spectroscopy
Fapas®	- Food Analysis Performance Assessment Scheme
FCM	- Food Contact Materials
Fera	- Fera Science Ltd.
FSA	- Food Standards Agency
FSS	- Food Standards Scotland

GC-MS	- Gas Chromatography – Mass Spectrometry
GFAAS	- Graphite Flame Atomic Absorption Spectroscopy
HBCDDs	- Hexabromocyclododecanes
HPLC F(L)D	- High Performance Liquid Chromatography Fluorescence Detection
HPLC-ICP-MS	- High Performance Liquid Chromatography Inductively Coupled Plasma Mass Spectrometry
HSE	- Health and Safety Executive
HS GC-MS	- Headspace Gas Chromatography – Mass Spectrometry
IAC	- Immunoaffinity Columns
ICP-MS	- Inductively Coupled Plasma Mass Spectrometry
IDF	International Dairy Federation
ILC	- Interlaboratory comparison exercise
ILSI	- International Life Sciences Institute
LCCP	- long-chain chlorinated paraffins (C <sub>&gt;17</sub> )
LC-MS/MS	- Liquid Chromatography Tandem Mass Spectrometry
LOD	- Limit of Detection
LOQ	- Limit of Quantification
MANCP	- Multi Annual National Control Plan
MCCP	- Medium-chain chlorinated paraffins (C <sub>14–17</sub> )
MOAH	- Mineral oil aromatic hydrocarbons
MOSH	- Mineral oil saturated hydrocarbons
MPL	- Maximum Permitted Level
MVS	- Method validation study
NIPH	- Norwegian Institute for Public Health
NRL	- National Reference Laboratory
NRL-FCM	- NRL for Materials and Articles in Contact with Food
NRL-MN	- NRL Metals and Nitrogenous Compounds in Feed and Food
NRL-MP	- NRL Mycotoxins and Plant Toxins in Feed and Food
NRL-PC	- NRL Processing Contaminants
NRL-POPs	- NRL for Halogenated Persistent Organic Pollutants (POPs) in Feed and Food



OL	- Official Laboratory
OCR	- Retained Regulation (EU) 2017/625 <sup>(1)</sup>
PAHs	- Polycyclic Aromatic Hydrocarbons
PBDEs	- Polybrominated diphenyl ethers
PC	- Processing Contaminants
PCBs	- Polychlorinated biphenyls
PCDDs	- Polychlorinated dibenzo-p-dioxins
PCDFs	- Polychlorinated dibenzofurans
PCDD/Fs	- Polychlorinated dibenzo-p-dioxins/dibenzofurans
PCN	- Polychlorinated naphthalenes
PFAS	- Per- and Polyfluoroalkyl Substances
PFOA	- Perfluorooctanoic acid
PFOS	- Perfluorooctanesulfonic acid
POPs	- Persistent organic pollutants
PT(s)	- Proficiency test(s)
RASFF	- Rapid Alert System for Food and Feed
SCCP	- Short-chain chlorinated paraffins (C <sub>10-13</sub> )
SI	- Statutory Instruments
SOPs	- Standard Operating Procedures
TC	- Technical Committee
WG	- Working Group

## 6. Introduction

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Retained (EU) Regulation 2017/625<sup>(1)</sup> requires National Reference Laboratories (NRLs) for food and feed to be designated. The NRLs provide support and advice to the CAs, improve the quality, accuracy and comparability of analytical methods to support Official Laboratories (OLs) in their role of carrying out official controls to protect consumers.

The NRL areas designated to Fera are:

- NRL Mycotoxins and Plant Toxins in Feed and Food (NRL-MP)
- NRL Heavy Metals and Nitrogenous Compounds in Feed and Food (NRL-MN)
- NRL Halogenated Persistent Organic Pollutants (POPs) in Feed and Food (NRL-POPs)
- NRL Processing Contaminants (NRL-PC)
- NRL Materials and Articles in Contact with Food (NRL-FCM)

Since the UK left in the EU on 31<sup>st</sup> January 2020 there has been limited contact with the European Reference Laboratories (EURLs). Fera NRLs have participated in some EURL proficiency tests (PTs) as third country fee paying participants.

Due to the ongoing global coronavirus (COVID-19) pandemic there were restrictions in the UK in this reporting period. This meant some activities had to be postponed or moved on-line. The NRLs have continued to deliver the service as far as possible under these circumstances.

This Annual Report covers NRL activities from 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022.

## 7. Role and scope of the NRL

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The basic duties of the NRLs are based on Retained Regulation (EU) No 625/2017<sup>(1)</sup>, Article 101. The scope of services each NRL in its area of competence provide are outlined as follows:

- a) cooperate internationally (and where possible with the relevant EURL);
- b) collaborate with international laboratories (where possible with the relevant EURL) and participate in training courses and inter-laboratory comparative tests organised by these laboratories.
- c) coordinate the activities of official laboratories responsible for the analysis of samples (in accordance with Article 34 and 37 of Retained Regulation (EU) 2017/625 on official controls) to ensure the verification of compliance with feed and food law;
- d) where appropriate, organise inter-laboratory comparative tests between the official laboratories and ensure an appropriate follow-up of such comparative testing;
- e) ensure the dissemination of any information required by the competent authority;
- f) provide scientific and technical assistance to the competent authority for the implementation of MANCPs referred to in Article 109 and of coordinated control programmes adopted in accordance with Article 112 of Retained Regulation (EU) 2017/625;
- g) where necessary, conduct training courses for the staff of official laboratories;
- h) upon request by the competent authority, actively assist in relevant emergency situations and in cases of non-compliance of consignments, by carrying out confirmatory analysis;
- i) be responsible for carrying out other specific duties as required by the competent authority, where appropriate and by prior agreement.

Fera may also be called upon to offer advice to CAs relating to the impact of EU Exit on food controls.

## 8. Objective 1 – Secretariat Services

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### **8.1. Task 01/01. Disseminate relevant information/advice to the CA, when required, OLs and other relevant laboratories in a timely and effective manner;**

The NRL provides the CA with documents received from EURLs within two weeks of receipt. Publicly available documents or links are added to the Fera NRL website.

A detailed workplan that included all planned PT participation (EURL and Fapas®), and dates for planned EURL training events, workshops and working groups was produced for all five Fera NRLs and sent to the CA at the start of the reporting period.

#### 8.1.1. NRL Network Meeting

NRL Network Meetings were held between Fera and the CAs online via Microsoft Teams to share information between all five NRLs and the FSA and FSS. The meetings were attended by representatives of all Fera NRLs, FSA Scientific Sampling and Laboratory Policy Team and Contaminants Policy Teams, and FSS.

A visit by the CA to the NRL is planned for the next reporting period (May 2022).

#### 8.1.2. NRL-MP

- The EURL Work Programme 2021-22 was downloaded from the EURL website and sent to the CA.
- A representative for the NRL-MP attended and presented information at the NRL Meetings held on 8<sup>th</sup> July 2021 and 25<sup>th</sup> November 2021.
- NRL-MP sent a copy of a draft of the EU sampling and analysis regulation and guidance for plant toxins to the CA.
- Fera participated in the Defra Animal Health NRL Steering Group Meeting held on 20<sup>th</sup> July 2021. NRLs outside the animal health area were included as the purpose of the meeting was information sharing on EURL engagement. It was also attended by FSA. Following Directorate-General (DG) Sante updating its guidance to European Union Reference Laboratory (EURLs) in June, the UK's National Reference Laboratories (NRLs) have largely not been able to access EURL meetings and workshops, although in the vast majority of cases they have been able to procure proficiency testing as a paid service.

### 8.1.3. NRL-MN

- A representative for the NRL-MN attended and presented information at the NRL Network Meetings held on 8th July 2021 and 25th November 2021.
- NRL-MN contacted the EC about recent or forthcoming changes to EU legislation with regard to maximum levels for aluminium in food. A reply was received that there are no concrete discussions ongoing on the setting of maximum levels for aluminium in food and feed in the EU. However, if in the future there are continued findings of high levels of aluminium in feed and food, discussions may be initiated at EU level to regulate the presence of aluminium, but that is not currently the case.
- Information received about possible changes to Maximum Permitted Levels (MPLs) for arsenic and aluminium, as well as links to current regulations were shared with another laboratory as a result of an enquiry.
- NRL-MN received a request from the CA asking to provide assistance interpreting results of analysis of turmeric for Lead Chromate. A further email was received from an OL with details of the results in question. Advice was given to assist in the interpretation of the results. Recent defined maximum limits for lead in spices should assist with screening out adulterated materials.

### 8.1.4. NRL-POPs

- A representative for the NRL-POPs attended and presented information at the NRL Network Meetings held on 8th July 2021 and 25th November 2021.
- EURL/NRL workshop was held online on 20<sup>th</sup> May 2021. A Fera colleague was invited as a speaker in personal capacity to present about the work of the EFSA panel of which he is a member. A meeting note was prepared after the meeting and a link to the presentations shared with the CA.
- In May 2021, the EURL distributed a questionnaire on PFASs in food to get a better picture of regional occurrences across the network, which was completed by the UK-NRL in June along with feedback on the guidance document on analytical recommendations for PFASs.
- Core Working Group (CWG) for PFAS was held online, NRL-POPs did not attend but received feedback after the meeting. There was a change of Chair of the WG on PFAS, the exiting Chair had completed tasks including the questionnaire and the analytical criteria and methods of analysis guidance. The new Chair is now the Dutch NRL (WUR). Planned activities for 2021 include to conduct a questionnaire on PFAS analysis in feed, and preparation of a guidance document on analytical parameters for PFAS in food and feed. The Commission is trying to assess the ability within the EU of OLs in terms of control for PFAS in food and feed.
- CWG on CPs activities planned at the EURL are to generate more data, to collect and analyse congener patterns and to address complications that arise due to

different patterns for the same samples analysed with different instruments etc.. The EURL also plans to conduct some work on transfer factors (feed – >meat, egg, milk, meat -> offal). NRL-POPs did not attend this meeting.

- A Policy Position document entitled 'Risk-based regulation for per- and poly-fluoroalkyl substances (PFAS)' was published by the Royal Society for Chemistry in December. The document was distributed to the CA.
- Fera shared details of Defra of a public call for evidence on the UK REACH PFAS RMOA with the CA. The call opened on 1st December 2021 and closed on 30th January 2022. This call for evidence aimed to gather information and evidence to support the Health and Safety Executive (HSE) and the Environment Agency with the preparation of the RMOA. While not directly applicable to food & feed it was included here to ensure the CA were aware of the consultation.
- A request was received from FSS on 20th December regarding the sample preparation requirements for lobsters, langoustines and cephalopods prior to the analysis of dioxins/PCBs and metals. Though no standard operating procedures are available for this, advice was provided the following day and followed up in early January.

#### 8.1.5. NRL-PC

- A representative for the NRL-PC attended and presented information at the NRL Network Meetings held on 8th July 2021 and 25th November 2021.

#### 8.1.6. NRL-FCM

- A representative for the NRL-FCM attended and presented information at the FSA-NRL Meetings held on 8<sup>th</sup> July 2021 and 25<sup>th</sup> November 2021.
- The EURL-NRL-FCM Network Plenary meeting was held virtually in October 2021. The UK NRL-FCM was not permitted to attend but a copy of the agenda was received and shared with FSA. This included:
  - Overview of 2021 EURL activities
  - News from DG SANTE on food and FCM legislations
  - Overview of NRL activities (tour de table)
  - NRL project presentations
  - An overview of the ILC's carried out in the previous year
  - An overview of guidelines – method performance criteria, kitchenware and repeated use FCM.
  - Planning network activities for 2022

- Next plenary meeting and AOB
- 'Testing Conditions for Kitchenware Articles in Contact with Foodstuffs: Plastics, Metals, Silicone and Rubber' was published and shared with the CA. The inclusion of silicone and rubber articles in the guidance was an extension to the scope of the previous published version which just covered plastic and metal kitchenware.
- Regular (bi-monthly) catch up meetings are held with FSA policy team.
- The Printing Inks Working Group 'GC-MS-MS and LC-MS-MS multi-analyte methods for the determination of photoinitiators and a plasticiser' was published and a copy was sent to FSA.
- The NRL lead for NRL-FCM attended various Committee On Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) meetings as an independent expert, discussing bamboo containing plastics. Feedback and further information were provided to the FSA FCM policy team.
- The NRL lead for NRL-FCM provided FSA policy team with details of the recycled content Eunomia project - "Study to develop options for the calculation, verification and reporting of recycled content with a focus on setting out rules for the implementing act related to certain types of single-use plastic bottles under the Directive (EU) 2019/904"
- The NRL lead for NRL-FCM provided FSA policy team with information on HDPE recycling and followed up with the FSA policy lead on FCM JEG discussions on recycling.
- Information was exchanged between FSA and a NRL-FCM PhD student on the use of chitin / chitosan in FCM to support a COT paper.
- The NRL lead for NRL-FCM attended an ILSI workshop on risk assessment. One of the documents discussed – a comparison table between different available guidance documents for risk assessment and risk management of migrants – was provided to FSA in confidence.
- Monthly literature review summary provided to FSA.

## **8.2. Task 01/02. Co-ordinate the activities of OLs and other relevant laboratories in food in relation to the core functions.**

The NRL Network Meeting is used as one way to manage the operation of the NRLs.

A meeting has not taken place this reporting period. However, all NRLs have been in contact with the OLs during the period, responding to queries and providing advice and support.

The frequency and timing of future NRL Network Meetings has been discussed with the CA. It was agreed the meetings should occur at least annually, and early summer is a suitable time. It was agreed that in future it may be preferred to hold 2 meetings per year, one in person and one on-line. The next meeting will be held in summer 2022 and will be used to

define the training activities required for the next period as well as offer visits and other support required and to disseminate information.

### **8.3. Task 01/03. Create and maintain an efficient two-way channel of communication with OLs and relevant laboratories and international organisations, including information on analytical methods and relevant legislation.**

Fera experts regularly scan different scientific literature (peer reviewed and grey literature) relevant to each area for emerging food and feed safety topics, this includes ResearchGate, HorizonScan and Rapid Alert System for Food and Feed (RASFF). Relevant information on current and new methods and legislation is highlighted on the Fera NRL website.

The NRLs seek feedback on questions or issues from the OLs to raise with other laboratories with whom they already have a dialogue and established working relationship thus ensuring effective two-way communication.

- An up to date list of OLs and contact details was maintained.
- A dedicated NRL email address is regularly monitored: [nrl@fera.co.uk](mailto:nrl@fera.co.uk)
- The CA, and OLs are able to individually email the named lead person for each NRL.
- Working relationships are well established with the other laboratories (including some EURLs) and laboratories from industry and the private sector so this ensures efficient communication.
- Fera NRL staff are Associate Members of the Association of Public Analysts (APA).

There was no annual network meeting of the NRLs and OLs in this reporting period. Fera NRLs will organise a network meeting in 2022.

#### 8.3.1. NRL-MP

- A presentation on Natural Toxins and Processing Contaminants was given as a webinar to contribute at the MChemA training course in February 2022.
- The lead for the NRL-MP is a member of CEN TC/275 WG5 and CEN TC/327 WG5, both of which met on-line in 2021-22.
- The lead for the NRL-MP is a member of the European Directorate for the Quality of Medicines Working Group on pyrrolizidine alkaloids in herbal substances.
- PT reports and other information from the EURL-MP were shared with CAs.

#### 8.3.2. NRL-MN

- The NRL-MN was in regular contact with three OLs that participated in a method trial for methyl mercury in fish.



- The lead for NRL-MN is a member of CEN TC/275 WG10 and attended meetings of WG10 and the plenary TC275 meeting on-line.

#### 8.3.3. NRL-POPs

- A member of Fera staff attended and presented at the EURL Workshop that was held online on 20<sup>th</sup> May 2021. The final report of the meeting was received and shared with the CA.
- A member of Fera staff attended the Virtual Final Workshop for the Fourth Round Biennial Interlaboratory Assessment of Persistent Organic Pollutants on 21-22 July 2021. Meeting notes were sent to the CA on 30th July 2021.
- EURL/NRL-POPs workshop was held as an online meeting on 23 and 24 November 2021, NRL-POPs was not invited to attend.
- EURL-POPs PFAS training course was held 9th November 2021 as an online meeting, NRL-POPs was not invited to attend.

#### 8.3.4. NRL-PC

- None of the OLs are routinely analysing for PAHs and process contaminants, (except acrylamide and 3-MCPD) although there has been dialogue regarding the provision of training in these areas for one OL in the future.
- The NRL-PC maintained contact with the EURL-PC and requested to participate in EURL-PTs on fee paying basis.
- A presentation on Natural Toxins and Processing Contaminants was given as a webinar to contribute at the MChemA training course in February 2022.

#### 8.3.5. NRL-FCM

- A presentation on food contact materials was due to be given at the MChemA training course in 2020/21 but this was postponed due to COVID-19. A series of web-based webinars are being run as an alternative, at 31 March 2022 no date for a webinar on FCM had been scheduled.

### **8.4. Task 01/04. Provide regular updates to the CA on NRL activities, and up-to-date information on UK OLs and other relevant laboratories to the CA as requested.**

A monthly NRL Activity Log was prepared and submitted to the CA. All work carried out during the year is summarised in an Annual Report. Specific topics, or items arising, are dealt with individually in a timely manner.

All NRLs completed a questionnaire from the CA about access to resources, standards, reference materials and PTs now that the NRLs for GB have less access to materials provided by EURLs.

**8.5. Task 01/05. Create and maintain a dedicated website for communication of the work of the NRL including provision of advice and support to OLs, information on methods of analyses, Standard Operating Procedures (SOPs), latest developments and other background information.**

The NRL has a long standing fully accessible dedicated NRL website. This provides information on legislation, analysis and resources. The content of the website is under review by all NRL leads. Once the content has been approved the website will be updated accordingly. In addition, the layout and format of the website will be updated to include information about changes in legislation following EU Exit and to improve accessibility.

- The current NRL website has a landing page:  
<https://www.fera.co.uk/national-reference-laboratory>
- Individual webpages are maintained for each of the NRLs:

NRL-MP

<https://www.fera.co.uk/about-us/national-reference-laboratory/mycotoxins>

NRL-MN

<https://www.fera.co.uk/about-us/national-reference-laboratory/heavy-metals>

NRL-POPs

<https://www.fera.co.uk/about-us/national-reference-laboratory/dioxins-pcbs>

NRL-PC

<https://www.fera.co.uk/about-us/national-reference-laboratory/pahs>

NRL-FCM

<https://www.fera.co.uk/about-us/national-reference-laboratory/food-contact>

- All Fera Contaminants NRLs Annual reports from 2013 onwards are available in a designated area of the website:  
<https://www.fera.co.uk/about-us/national-reference-laboratory>

## 9. Objective 2 - Advice and representation within the UK and internationally

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### 9.1. Task 02/01. Provide impartial expert advice as requested to the CA, OLs and other relevant laboratories on analytical methodology in the context of official controls and risk assessment.

All advice provided by Fera staff is impartial and is based on our heritage as a designated OL. Fera scientists have maintained their experience in evaluation of analytical methods when considering the suitability of data for inclusion in risk assessments, e.g. via participation in FSA Joint Expert Groups.

Fera staff are experienced in method development and validation and have developed methods that are used in Official Controls in the UK. This is complemented by in-depth knowledge of the performance requirements of sampling and analytical methods used in Official Controls.

To fulfil this role Fera provided expert advice and support to the CA in response to requests for information on a variety of topics throughout the year.

Several NRLs were contacted by the NRLs for Northern Ireland requesting contact information for OLs in the network, these will be followed up in collaboration with the CA.

#### 9.1.1. NRL-MP

- Provided advice to an OL about large scale sample preparation for mycotoxins analysis.
- Provided advice to LGC Government Chemist Referee function about current best practice for sample preparation relating to a potential referee case, literature reference information was supplied by email.
- Provided advice to an OL about standard methods of analysis, including confirmation, for ochratoxin A in wheat.
- Provided advice to the CA about methods of analysis of cat food for mycotoxins during an incident.
- Following an enquiry from the CA with a request for information and questions about analysis and availability of methods for T-2 and HT-2 toxins provided answers to all questions and copies of papers / links to additional information.
- Provided advice to the CA about rapid testing kits for mycotoxins, including information on cross reactivity issues.

### 9.1.2. NRL-MN

- An OL consulted NRL-MN for advice on analysis of inorganic arsenic following an audit. The NRL-MN provided advice to the OL.
- As a result of an enquiry from FSS, NRL-MN provided detailed advice on sample preparation and contaminants testing in crustaceans and cephalopods.
- NRL-MN supplied brief information regarding future method development. The possibility of adopting HPLC ICP-MS procedures for the analysis of inorganic arsenic and methylmercury in a range of sample types are being studied. A spreadsheet is in development with more detail on the OLs capabilities and requirements for the implementation of these additional procedures.

### 9.1.3. NRL-POPs

- NRL-POPs responded to an enquiry (21st September) from State Lab, (NRL for Republic of Ireland), regarding the use of deuterated recovery standards in the analysis of HBCDDs. Fera's methodology employs deuterated standards, but the issues experienced by State Lab are not experienced at Fera, suggesting that some difference in their extraction/clean-up procedure results in conditions which facilitate the degradation of the deuterated standard within the final extract.
- Provided advice to an NRL in an EU Member State about the use and application of measurement uncertainty.

### 9.1.4. NRL-PC

- A request for information and assistance for methods for determination of acrylamide in coffee was received from two OLs. Fera supplied both OLs with a copy of the Fera SOP and provided advice on the method.
- The NRL-PC provided advice to the CA about analysis of polycyclic aromatic hydrocarbons in shellfish products, including a brief overview of source determination (i.e. petrogenic vs. pyrogenic).

### 9.1.5. NRL-FCM

- The NRL-FCM provided advice to the FSA / OLs on the following:
  - Sampling and testing requirements for polyamide and melamine products.
  - Implementation of revised (EU) No. 10/2011 Regulations (post 23<sup>rd</sup> March 2021), in particular the changes in the assessment of repeat use articles.

- The NRL-FCM proposed establishing methodology in-house, followed by roll out to the OLS, to ensure capability to deliver against existing and emerging risks for several methods. The items selected for further work are listed in section 9.6.1:
- The NRL-FCM proposed work to be carried out looking at biobased packaging materials, within the scope of an EU funded project.
- The NRL-FCM reviewed recycling data requirements for challenge tests for non-PET FCM.

## **9.2. Task 02/02. Represent the UK at relevant international meetings, and working groups, consulting the CA on objectives and requirements before each meeting and providing the CA with an internal report of the meeting within 10 working days of each meeting**

Due to the on-going pandemic meetings took place on-line in 2021-2022. In some cases, due to the UK Exit from the EU the NRLs were not able to participate in meetings. Where information was received from the EURLs, e.g. EURL work plans, this was forwarded to the CA. This information is not consistently available - some EURLs make it publicly available on their websites, while others treat it as confidential and will not share it. Where attendance at events was possible a meeting note was provided to the CA.

### 9.2.1. NRL-MP

- The work programme for 2021 (including PTs and training) was downloaded and shared with the CA.
- The EURL workshop was held on 5-6 October 2021, Fera NRL-MP was not invited to attend. A copy of the presentation about the EURL PT was received after the meeting.

### 9.2.2. NRL-MN

- The annual EURL-MN Workshop was held on 9<sup>th</sup> - 10<sup>th</sup> November 2021. Fera NRL-MN was not invited to attend.

### 9.2.3. NRL-POPs

- A member of Fera staff attended and presented at the EURL Workshop that was held online on 20th May 2021. The final report of the meeting was received and shared with the CA.
- A member of Fera staff attended the Virtual Final Workshop for the Fourth Round Biennial Interlaboratory Assessment of Persistent Organic Pollutants on 21-22 July 2021. Meeting notes were sent to the CA on 30th July 2021.

- EURL/NRL-POPs workshop was held as an online meeting on 23 and 24 November 2021, NRL-POPs was not invited to attend.

#### 9.2.3.1. CWG: Brominated Flame Retardants (BFRs)

- Guidance Document on the Determination of Organobromine Contaminants was received in December 2021 and shared with the CA in January 2022.

#### 9.2.3.2. CWG: Chlorinated Paraffins (CPs)

- Guidance Document on the Analysis of Chlorinated Paraffins was published, a copy was forwarded to the CA.

#### 9.2.3.3. CWG: Perfluorinated Substances (PFAS)

- Guidance Document on Analytical Parameters for the Determination of Per- and Polyfluoroalkyl Substances (PFAS) in Food and Feed was published, a copy was forwarded to the CA.

#### 9.2.4. NRL-PC

- EURL-PC Workshop was held on 29<sup>th</sup> to 30<sup>th</sup> September 2021. It was held in person and on-line. NRL-PC was not invited to attend. However, the EURL-PC sent PDF copies of the meeting content to NRL-PC. These were forwarded to the CA.
- NRL-PC received notification from the EURL-PC in September that a training course on MCPD analysis had taken place in August 2021. Details were forwarded to the CA.

#### 9.2.5. NRL-FCM

- The EURL-NRL-FCM Network Plenary meeting was held virtually in October 2021. The UK NRL-FCM was not permitted to attend but a copy of the agenda was received and shared with FSA. This included:
  - Overview of 2021 EURL activities
  - News from DG SANTE on food and FCM legislations
  - Overview of NRL activities (tour de table)
  - NRL project presentations
  - An overview of the ILC's carried out in the previous year
  - An overview of guidelines – method performance criteria, kitchenware and repeated use FCM.
  - Planning network activities for 2022
  - Next plenary meeting and AOB

- The NRL lead for NRL-FCM contacted the EURL regarding continued participation in the multi-analyte task force meetings but there has been no response to this, despite the NRL-FCM having previously been asked to take the lead on one of the activities (taking forward the multi-analyte headspace GC-MS method previously provided by the NRL-FCM).
- The NRL lead for NRL-FCM attended a COT meeting discussing bamboo containing plastics and provided feedback and further information to FSA policy team.
- The NRL lead for NRL-FCM attended an ILSI workshop on risk assessment. One of the documents discussed – a comparison table between different available guidance documents for risk assessment and risk management of migrants – was provided to FSA in confidence.
- The NRL Project Manager for NRL-FCM attended:
  - 'Introduction to Food Contact Materials and their Environmental Impact' online training course.
  - 'Plastics and Paper in Contact with Foodstuffs' online conference.
  - IFST Webinar – 'Status and Evolution of UK Packaging Legislation'.
  - 'Food Contact Regulations Europe 2022' online conference.

**9.3. Task 02/03. Participate in activities organised by international organisations and contribute to the scientific input at international meetings and in manner which supports UK policy based on best available scientific knowledge.**

Fera staff continue to be trained in new and emerging areas, including by attending as permitted the respective annual EURL Workshops, training events and relevant conferences to maintain expert knowledge.

Fera staff participated in a number of international scientific conferences, as speakers and delegates: a presentation was given at Dioxins 2021, and other on-line conferences were attended by representatives of all NRLs as well as the activities outlined in Section 9.2.

**9.4. Task 02/04. Advise the CA, OLs and other relevant laboratories on best scientific practice in testing for official controls purposes and undertake activities in consultation with the CA that facilitate and promote their application in the UK within the policy aims of the CA.**

Maintaining an up-to-date website, providing feedback from network meetings in a timely manner and offering practical advice and training to OLs, ensure that this task is met, see also section 8.5.

- Fera participated in a survey from the FSA to determine any impact that EU Exit would have on NRLs in the event that NRLs could no longer access or participate in network meetings, take part in proficiency tests or access reference materials.

- FSA requested ideas for methods that could be suitable that would support official control activities. Each NRL prepared a list of suggested methods to work on during the lifetime of the project, these are listed in section 9.5.

#### 9.4.1. NRL Visits and training

No visits or face to face training were undertaken in the reporting period due to COVID-19.

#### 9.4.2. APA annual conference

The APA annual conference was postponed due to COVID-19.

#### 9.4.3. MChemA

The Mastership in Chemical Analysis (MChemA) is the statutory qualification for practice as a Public Analyst and Agriculture Analyst in the UK. Fera staff continue to contribute to the MChemA training course and were scheduled to present at the MChemA training course at Reading University in April 2020. This event was cancelled due to the COVID-19 pandemic. LGC have started to organise a series of on-line webinars to replace the function of the residential course. Fera gave a presentation on Natural Toxins and Processing Contaminants in February 2022. Further presentations on other contaminants and food contact materials will be given by Fera NRL colleagues in due course.

### **9.5. Task 02/05. Keep abreast of and advise the CA, OLs and other relevant laboratories of developments and research for the sampling, testing and detection of food contaminants, including horizon scanning for future developments in this space.**

Information was shared with CA at various times during the year, either in response to specific questions, during meetings or information was obtained from other sources. NRLs have set up monthly literature searches and these are shared with the CA.

#### 9.5.1. NRL-MP

- The EURL-MP sent a draft publication for comment. This was a literature review carried out as part of a previous EFSA/FSA project. The NRL-MP reviewed and amended the text and returned it to the EURL-MP. It will be submitted to a scientific journal as a joint publication between Fera and the EURL-MP (WFSR).
- NRL-MP attended several on-line conferences and events through-out the year to keep abreast of scientific developments, e.g. RAFA 2021, Affidia Mycotoxins conference and an AOAC contaminants conference.



#### 9.5.2. NRL-MN

- The EURL-MN held a training workshop in December 2021 for determination of inorganic arsenic in feed and food by HPLC-ICPMS, Fera NRL-MN was not invited to attend. A second course will be run in June 2022, and if there are spare places NRL-MN could attend as a third country.
- Training on determination of nitrite and nitrate in feed and food by LC/IC-UV will be held in Autumn 2022, NRL-MN has not requested to attend.

#### 9.5.3. NRL-POPs

- The NRL-POPs has been invited to participate in any training offered by EURL-POPs this reporting period.

#### 9.5.4. NRL-PC

- The EURL-PC held an on-line Training Workshop for analysis of PAHs on 6<sup>th</sup> May 2021. The NRL-PC did not attend the workshop.
- The EURL-PC held an on-line Training Workshop for the determination of free and bound MCPD and GEs in infant formula on 26<sup>th</sup> August 2021. The NRL-PC did not attend.

#### 9.5.5. NRL-FCM

##### 9.5.5.1. Multi-analyte methods

- The NRL lead for NRL-FCM contacted the EURL regarding continued participation in the multi-analyte task force but there has been no response to this, despite the NRL-FCM having previously been asked to take the lead on one of the activities (taking forward the multi-analyte headspace GC-MS method previously provided by the NRL-FCM).
- The Printing Inks Working Group 'GC-MS-MS and LC-MS-MS multi-analyte methods for the determination of photoinitiators and a plasticiser' was published and a copy was sent to FSA.

##### 9.5.5.2. Biobased packaging materials

The NRL-FCM proposed work to be carried out looking at biobased packaging materials, within the scope of an EU funded project.

**9.6. Task 02/06. Identify and inform the CA, OLs and other relevant laboratories of emerging analytical issues or developments at a national or international level and recommending action to address them.**

The NRL website (given in Section 8.5) is updated to contain this information. Specific emergent issues were communicated directly if relevant and a list of contacts for OLs is maintained to ensure that this can be achieved promptly. Information from the EURL-NRL network is used as a useful means of information exchange on this topic.

Fera outcomes:

- NRL-MP gave a presentation on Natural Contaminants as a webinar for the MChemA in February 2022.
- Emerging analytical issues and developments were discussed with the CA and NRLs Network Meeting on 8th July 2021 and 25<sup>th</sup> November 2021.
- Information from EURL Workshops and Working Groups was shared with the CA.

9.6.1. Forward work plan on method development

All Fera NRLs prepared proposals for future method development projects that could be carried under the NRL contract. The lists were reviewed by the CAs and following discussion and prioritisation it was agreed that the following studies will be completed:

NRL-MP will develop and validate in-house methods for existing and emerging risks for the effective provision of official controls:

- Hydrocyanic acid in foods
- Tropane alkaloids – expand matrix capability & accreditation

NRL-POPs has started the following work to support official controls:

- Develop and validate in-house method for PFAS/PFOA in foods

Other work proposed:

- Investigate the feasibility of roll out of GC-MS/MS methods to OLs for dioxins and dioxin-like PCB analysis.

The NRL-FCM proposed establishing methodology in-house for the following, followed by roll out to the OLs, to ensure capability to deliver against existing and emerging risks:

- Perfluorinated compounds from FCM

### **9.7. Task 02/07. Where appropriate, partake and/or keep abreast of standardisation activities (e.g. CEN, ISO, etc.) relevant to the work area.**

The CA asked Fera to provide information about membership of the relevant CEN working groups. Where Fera did not have current membership, nominations were made. Several of the Working Groups are not very active as they do not have current Standardisation Requests (formerly called Mandates).

At the CEN TC275 plenary meeting on 11<sup>th</sup> November 2021 a list of items to be included in a new Standardisation Request under development was presented, this covered several Working Groups.

These were:

#### **WG5 Biotoxins - Plant toxins**

- Atropine and scopolamine in cereal and cereal products and herbal infusions
- Hydrocyanic acid in linseed, almonds/apricot kernels, cassava
- Erucic acid in vegetable oils
- $\Delta^9$ -THC in hemp seeds, hemp seed oil, hempseed flour and milk
- Pyrrolizidine alkaloids in tea, herbal infusions, herbs, food supplements and spices (cumin).
- Glyco-alkaloids ( $\alpha$  – solanine and  $\alpha$ -chaconine) in potatoes and potato products;
- Opium alkaloids (morphine and codeine) in poppy seeds and bakery products

#### **WG5 Biotoxins - Mycotoxins**

- Enniatins
- Alternaria toxins in food for infants and young children, tree nuts, dried figs (new commodities)
- Ochratoxin A in oilseeds, tree nuts (new commodities)
- Deoxynivalenol (EN 17280 + DON-3-glucoside)

#### **WG 10 Elements and their chemical species**

- Determination of MeHg by LC-ICPMS
- Extension of multi-element method for ICPMS
- Arsenic speciation analysis by HPLC-ICPMS
- Nickel
- Metals in insects and insect derived foods
- Lead in infant formula, cereal based foods for infants and young children.

## **WG 13 Process contaminants (and other)**

- 2,3-MCPD esters and glycidyl esters
- Acrylamide
- Furan and alkylfurans
- MOSH and MOAH
- Per chlorate in a wide range of foods
- PFAS (PFOS, PFOA, PFNA, PFHxS)
- HCCDD, TBBPA, PBDE

### 9.7.1. NRL-MP

#### 9.7.1.1. CEN TC275 WG5 – Horizontal methods of analysis in food - Biotoxins

The majority of the work of WG5 has been conducted by correspondence and all meetings have been online during the reporting period. The 41<sup>st</sup> meeting was held on 15<sup>th</sup> October 2021. The main agenda items were discussion of the comments from the CEN enquiry on the draft standards for T-2 and HT-2 toxin in cereals and cereal products for infants and young children (WI 00275365 – Revision of EN 16923) and a Multimethod for mycotoxins by LC-MS (WI 00275369 – prEN 17641). The documents were amended and sent for formal vote.

The group had been asked to give their view on the project ISO 16050 Foodstuffs – determination of aflatoxin B<sub>1</sub> and the total content of aflatoxins B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub> in cereals, nuts and derived products – HPLC method with immunoaffinity column clean-up and fluorescence detection. This is under revision led by Iran. WG5 were asked what their position was on the project. WG5 recommended to not adopt the future ISO standard for several reasons, but two crucial concerns:

1. Cereals, nuts and derived products are included in the scope but only maize was included in the interlaboratory study.
2. Only laboratories from Iran participated, so it is questionable if the study design was in accordance of the requirements for an international standard.

Other methods were also re-confirmed for a further five years after systematic review. These were:

- BS EN 15890:2010, Foodstuffs - Determination of patulin in fruit juice and fruit based purée for infants and young children - HPLC method with liquid/liquid partition clean-up and solid phase extraction and UV detection

- BS EN 15891:2010, Foodstuffs - Determination of deoxynivalenol in cereals, cereal products and cereal based foods for infants and young children - HPLC method with immunoaffinity column clean-up and UV detection

#### 9.7.1.2. CEN TC327 WG5 – Horizontal methods of analysis in feed – Natural toxins

A meeting was held on-line on 26<sup>th</sup> November 2021. The main topics covered were updates on progress of the following projects from Mandates M522 and M523:

- prEN17504 –Animal feeding stuffs: Methods of sampling and analysis – Determination of gossypol in cotton seed and feeding stuff by LC-MS/MS

The Formal vote was in progress with a deadline of 9<sup>th</sup> December 2021.

- WI 00327113 - Methods of sampling and analysis -Determination of pyrrolizidine alkaloids in animal feeding stuff by LCMS/MS

The project leader was not able to attend the meeting and discussion on this item was postponed.

- WI 00327111 – Animal feeding stuffs: Methods of sampling and analysis - Determination of intact glucosinolates in rapeseed by LC-MS/MS

The project leader gave a presentation to update about the project. The interlaboratory study was completed and overall had gone well. There was some discussion about whether this method would become the method of choice as in some countries (e.g. France) another method is widely used by industry. It was pointed out that if new method is referred to in legislation there would be a transition period. The draft standard test was amended after the meeting and the text was sent for enquiry in early 2022.

Fera NRL-MP participated in all of the method validation studies for these methods.

The following method was also reconfirmed as a standard for a further 5 years:

BS EN 16877\_2016 Animal feeding stuffs - Methods of sampling and analysis - Determination of T-2 and HT-2 toxins, Deoxynivalenol and Zearalenone, in feed materials and compound feed by LC-MS

#### 9.7.2. NRL-MN

##### 9.7.2.1. CEN TC275 31<sup>st</sup> Plenary meeting

NRL-MN attended the 31<sup>st</sup> plenary meeting of CENTC275 via telecon during the year. A note of the meeting was sent to the CA and BSI.

##### 9.7.2.2. CEN TC275 WG10

A meeting of CEN/TC 275/WG 10 took place on-line on 12<sup>th</sup> October 2021, Fera NRL-MN participated in the meeting. Several presentations were given and discussions were held

about various items. A report of the meeting was prepared and sent to the CA and BSI. methods were subject to systematic review.

The following items were discussed:

- Methyl Mercury by HPLC-ICPMS - the consensus was it would be useful to develop this methodology further. It was agreed that there was a need for standardisation of the HPLC-ICPMS methodology for methyl mercury and expansion of the matrixes that can be analysed. It was decided that a proposal would be drafted for eventual submission to DG Sante. The hope was to gain funding to further explore the method. The EURL-MN also made an offer of support for further investigation of the me
- Arsenic species – there was discussion about expanding the standard to accommodate matrices other than fish and rice products.
- Insects for food and feed – a request had been received from the International Platform for Insects as Food and Feed. The request was for standardisation of analytical methods aimed at introducing insects and insect products as Novel foods and feeding stuffs to the European market. In response the EURL-MN produced a proficiency test sample, EURL-MN PT-2021-02: Insect meal, (feed and food) to be analysed for As, Cd, Pb, Hg and optionally Ni. The performance of the labs in the NRL network was good. It was concluded the existing methods seem to appropriate for metals analysis on insects and insect products.

There had been discussions between CEN TC/275 and CEN/TC 302 (dairy products) about areas of overlap in the work programmes, and it was recommended to establish a liaison between CEN/TC 275 and CEN/TC 302.

The liaison officer for CEN/TC/275 to CEN/TC/302 reported that the following projects are of interest for WG 10:

EN ISO 15151:2020 Milk and milk products, infant formula and adult nutritionals. Determination of minerals and trace elements Inductively coupled plasma atomic emission spectrometry (ICP-AES) method (ISO 15151:2018)

EN ISO 20647:2020 infant formula and adult nutritionals. Determination of total Iodine Inductively coupled plasma mass spectrometry (ICP-MS) method (ISO 20647:2015)

EN ISO 21424:2020 Milk and milk products, infant formula and adult nutritionals. Determination of minerals and trace elements ICP-MS method (ISO 21424:2018)

prEN ISO 20647rev Milk and milk products, infant formula and adult nutritionals. Determination of minerals and trace elements ICP-MS.

It was agreed that where possible there should be harmonisation between CEN, ISO and IDF.

### 9.7.2.3. CEN TC275 WG10 – confirmation of published standards and work items

The following items were confirmed in March 2022 for another five years after review:

- WI 00275237 EN 16801:2016 - Foodstuffs - Determination of elements and their chemical species - Determination of methylmercury in foodstuffs of marine origin by isotope dilution GC-ICP-MS
- WI 00275238 EN 16802:2016 - Foodstuffs - Determination of elements and their chemical species - Determination of inorganic arsenic in foodstuffs of marine and plant origin by anion-exchange HPLC-ICP-MS

In addition, the following item has been activated as a preliminary work item:

- Preliminary work item pWI00275368 "Analysis of Foodstuffs —Determination of Ag, As, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Tl, U and Zn in foodstuffs by inductively coupled plasma mass spectrometry (ICP-MS) after pressure digestion".

### 9.7.3. NRL-PC

CEN/TC275/WG 13 Process contaminants – there are no current activities of WG13 so no meetings were held this year. A new convenor was appointed in July 2021 for a period of 6 years. Several methods came under systematic review, NRL-PC voted to confirm them through the BSI portal, these documents have all been confirmed for another 5 years.

- EN 16618\_2015 Food analysis - Determination of acrylamide in food by liquid chromatography tandem mass spectrometry (LC-ESI-MS/MS)
- EN 16619\_2015 Food analysis - Determination of benzo[a]pyrene, benz[a]anthracene, chrysene and benzo[b]fluoranthene in foodstuffs by gas chromatography mass spectrometry (GC-MS)
- EN 16620\_2015 Food analysis - Determination of furan in coffee and coffee products by headspace gas chromatography and mass spectrometry (HS GC-MS)
- CEN/TS 16621:2014, Food analysis - Determination of benzo[a]pyrene, benz[a]anthracene, chrysene and benzo[b]fluoranthene in foodstuffs by high performance liquid chromatography with fluorescence detection (HPLC-FD).
- EN 14573:2004, Foodstuffs - Determination of 3-monochloropropane-1,2-diol by GC/MS.
- CEN/TS 17083\_2017 Foodstuffs - Determination of acrylamide in food and coffee by gas chromatography-mass spectrometry (GC-MS).

### 9.7.4. NRL-POPs

Fera has not been involved recently with TC327 WG1. However, a new convenor was appointed in October 2021 (from WFSR, The Netherlands). Fera NRL-POPs will continue

to engage with the WG through the BSI Mirror Group AW/010 and participate in future meetings.

During 2021 this group was responsible for publishing the following standard:

- EN 17517:2021 'Animal feeding stuffs: Methods of sampling and analysis - Determination of mineral oil saturated hydrocarbons (MOSH) and mineral oil aromatic hydrocarbons (MOAH) with on-line HPLC-GC-FID analysis'.



## 10. Objective 3 - Production of standard operating procedures, codes of practice and guidance documents

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### **10.1. Task 03/01. Contribute to the development of standardised operating procedures, relevant codes of practice and guidance documents for use by OLS and other relevant laboratories, as requested by the CA.**

The NRL continues to share appropriately, SOPs generated by Fera when requested by OLS. Any new (non-confidential) SOPs, codes of practice and guidance obtained from the relevant EURL are shared.

In December 2020 a joint statement on sampling and Measurement Uncertainty was issued from EURL-MP, EURL-POPs, EURL-MN and EURL-PC. This was forwarded to the FSA.

#### 10.1.1. NRL-MP

##### 10.1.1.1. CEN TC275 WG5

NRL-MP attended one meeting of CENTC275 WG5 via telecon during the year. A full outline of CEN activities is given in Section 9.7.1.1.

##### 10.1.1.2. CEN TC327 WG5

NRL-MP attended one meeting of CENTC327 WG5 via telecon during the year. A full outline of CEN activities is given in Section 9.7.1.2.

#### 10.1.2. NRL-MN

##### 10.1.2.1. In-house validation and accreditation of a method for methyl mercury

Documentation for the extension to scope under ISO17025 accreditation for a methyl mercury (MeHg) method of analysis has been prepared in consultation with Fera quality staff.

#### 10.1.3. NRL-POPs

Fera NRL-POPs has not participated in these working groups this year, reports received from the groups have been shared.

##### 10.1.3.1. Core Working Group (CWG): Brominated contaminants and PCNs

Guidance Document on the Determination of Organobromine Contaminants was received in December 2021 and shared with the CA in January 2022.

#### 10.1.3.2. Core Working Group: PFAS

Guidance Document on Analytical Parameters for the Determination of Per- and Polyfluoroalkyl Substances (PFAS) in Food and Feed was published, a copy was forwarded to the CA.

#### 10.1.3.3. Core Working Group: Chlorinated Paraffins (CPs)

Guidance Document on the Analysis of Chlorinated Paraffins was published, a copy was forwarded to the CA.

#### 10.1.4. NRL-PC

##### 10.1.4.1. CEN TC275 WG13

No meetings have been held in the reporting period.

#### 10.1.5. NRL-FCM

##### 10.1.5.1. Multi-analyte methods

- The NRL lead for NRL-FCM contacted the EURL regarding continued participation in the multi-analyte task force but there has been no response to this, despite the NRL-FCM having previously been asked to take the lead on one of the activities (taking forward the multi-analyte headspace GC-MS method previously provided by the NRL-FCM).
- The Printing Inks Working Group 'GC-MS-MS and LC-MS-MS multi-analyte methods for the determination of photoinitiators and a plasticiser' was published and a copy was sent to FSA.

## 11. Objective 4 - Compliance assessment via audits and ring trials

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### **11.1. Task 04/01. Ensure consistency and quality of testing approaches applied by UK OLs and other relevant laboratories, including advising on corrective action following adverse reports on OLs from UKAS.**

This is addressed by providing support and advice to OLs to advise on best practices and provide methodology support, any known difficulties in application are explained. Training is offered to OLs that have little experience in a method.

Performance of the OLs in PTs is compiled and training offered in any areas for which performance is either questionable or unsatisfactory; root cause analysis outcomes and corrective measures are requested. There were no opportunities to undertake training in 2021-22 due to the ongoing pandemic, events postponed or the format changed, e.g. the MChemA training course.

With the agreement of the FSA, Fera continued to participate in the EURL organised inter-laboratory comparison exercises and method development/ method evaluation/ method validation studies where permitted and where possible invited the OLs to participate.

### **11.2. Task 04/02. Plan and co-ordinate proficiency tests for UK OLs and other relevant laboratories as appropriate (taking into account the number of relevant laboratories), analysing and evaluating the outcome, informing the CA and OLs of the results and advising on further action.**

Fera NRLs have supported OL participation in EURL PTs historically and where a need has been identified, participation in other PTs has also been encouraged. Alternatively, where there has been insufficient OL participants to run a bespoke NRL-run PT, OLs have been registered within a Fapas® PT round. By participating in PT rounds in this way the OLs give their permission for their performance to be shared with the NRL. Participation has often involved the APA Training Committee and further activities of this type could be undertaken with the agreement of the CA in the future if a need was identified. The NRL follows up on OL performance.

Fera participation in, and results from, PTs is covered in Section 11.4.

#### 11.2.1. NRL-MP

##### 11.2.1.1. EURLPT-MP05 SCL – Ergot sclerotia in cereals

The invitation to register for this PT was received in July 2020. Three OLs and Fera participated during 2020-21. The final report of the PT was received in April 2021, Fera NRL-

MP and the three UK OLs all achieved satisfactory performance. The OL performance was reported on the APA website.

Overall 48 laboratories participated in this PT, the first of its kind to be organised by the EURL. Forty participants (85%) obtained satisfactory results for the contamination level, and forty three participants (91%) correctly indicated the decision on compliance after examination of two sub samples, the overall the general performance was good. The report was sent to the CA.

#### 11.2.1.2. EURLPT-MP07 Multi-mycotoxins

The EURL-MP asked the Commission for permission for NRL-MP to participate as a paying participant, however permission was not given. Therefore, Fera and no UK OLs participated in the PT. A presentation of the results and the final report have been received and shared with the CA.

#### 11.2.2. NRL-MN

11.2.2.1. EURL-MN PT-2021-03 Vegetable-based feed for As, Cd, Pb, Hg, Ni (optional), Cu (optional), inorganic As (optional), NO<sub>2</sub>-and NO<sub>3</sub>- (optional)

The EURL-MN did not offer PT participation for OLs, so UK OLs were not invited to participate.

#### 11.2.3. NRL-POPs

OLs were invited to participate in all of the PTs listed below but no OLs took part.

11.2.3.1. EURL-PT-CP\_2103-IF - EURL POPs Proficiency Test on the Determination of Chlorinated Paraffins in Infant formula 2021

The invitation to participate in this study was received on 27<sup>th</sup> May with a registration deadline of 18<sup>th</sup> June.

11.2.3.2. EURL-PT-PF\_2102-LWE - EURL Proficiency Test on the determination of Perfluoroalkyl Substances in liquid whole egg and honey

The invitation to participate was received on 1<sup>st</sup> June, with a registration deadline of 18<sup>th</sup> July.

11.2.3.3. EURLPT-DPB-2003-FF - EURL Proficiency Test on the Determination of PCDD/Fs, PCBs and BFRs in Feed fat 2020

The certificate of participation for this EURL PT was received in June 2021.

11.2.3.4. EURL-ILS-BC\_2104-CLO - EURL Interlaboratory Study (ILS) on the determination of Brominated Contaminants (BCons) and Polychlorinated Naphthalenes (PCNs) in cod liver oil.

Fera was invited to participate in this PT on 11<sup>th</sup> June 2021 and registered on 30<sup>th</sup> June 2021.

**11.3. Task 04/03. Co-ordinate the participation of UK OLs and other relevant laboratories in international method validation studies and other initiatives, informing the CA and OLs of the results and advising on further action**

11.3.1. NRL-MP

NRL-MP were invited to participate pre-trial method validation studies (MVS) for aflatoxins in oil and quinolizidine alkaloids in lupin products. When the results of these studies are available they will be communicated to the OLs at the annual NRL Network Meeting and methods supplied on request.

11.3.2. NRL-FCM

Details of an Interlaboratory Comparison (ILC) exercise on the determination of primary aromatic amines and amides from cold water extracts of paper, that was run by the German NRL, were forwarded to the OLs. None of them registered to participate.

**11.4. Task 04/04. Where relevant, participate in proficiency tests and method validation studies organised by international organisations, informing the CA of the results and implementing any corrective measures required**

Fera has participated in EURL organised ILCs/PTs per function annually plus additional schemes such as Fapas®. Fera has procedures to investigate and to rectify unsatisfactory performance in PT schemes as part of its ISO 17025 accreditation, these include 'root cause analysis' and improvement plans. Trend analysis of all z-scores to look for systematic bias or drift is also performed. Several of the EURLs also regularly carry out method validation studies and Fera participates where appropriate.

A summary of the EURL-PT rounds for the reporting period relevant to the Fera NRLs is given below in Table 1, with more detail in the following sections. OLs were invited to participate in all EURL-POPs PT rounds. All replies declined the offer as the OLs do not have the methods in place. For other PTs, Fera participated as a fee paying participant and these rounds were not offered to OLs. The EURL-MP PT round where 3 OLs participated (ergot sclerotia) was started before the UK left the EU, and was reported in this period.

**Table 1. Summary of EURL PT rounds 2020-2021**

<b>EURL PT round</b>	<b>No. UK OLS participating</b>	<b>FERA performance</b>	<b>Final report/Results presented</b>	<b>Notes</b>
<b>NRL-MP</b>				
EURLPT 2019 MP01 Pyrrolizidine alkaloids in food and feed matrices	0	37 / 41 satisfactory z-scores for individual PAs. 15 / 16 satisfactory for isomeric groups 2 / 2 for both total sum legislative PA and total sum PAs.	Report sent to CA	Fera overall rank 3
EURLPT-MP05 SCL – Ergot sclerotia in cereals	3	Satisfactory	Report sent to CA, results shared on APA website	All UK OLS had satisfactory results
EURLPT-MP06 Tropane alkaloids in cereals	0	4 / 4 satisfactory z-scores for individual tropane alkaloids (atropine and scopolamine) 2 / 2 satisfactory z-scores for the sum parameters	Report sent to CA	
EURLPT-MP07 Multi-mycotoxins	0	Fera did not participate	Report received and sent to CA.	
<b>NRL-MN</b>				
EURL-MN PT-2021-03, Vegetable-based animal feed (feed), As, Cd, Pb, Hg, Ni (optional), Cu (optional), iAs (optional), NO <sub>2</sub> - and NO <sub>3</sub> - (optional).	0	100% satisfactory z-scores and zeta-scores	Report sent to CA	Not open to OLS Fera ranked in top 3 participants
EURL-MN PT-2022-01 Pet food and EURL-MN PT-2022-02 Marine-based food	0	Underway during this reporting period	-	Fera participating at own cost

Table 1. Summary of EURL PT rounds 2020-2021 contd.

NRL-POPs				
EURL-PT-DPB-2101-BF - EURL Proficiency Test on the Determination of PCDD/Fs, PCBs, PBDEs and HBCDDs in Baby Food	0	Satisfactory for all TEQ and Sum values	Reports and certificate sent to CA.	
EURL-PT-PF_2102-LWE - EURL Proficiency Test on the determination of Perfluoroalkyl Substances in liquid whole egg and honey	0	Fera NRL-POPs did not submit results as method work was still underway.	Report of PT sent to CA.	
EURL-PT-CP_2103-IF - EURL POPs Proficiency Test on the Determination of Chlorinated Paraffins in Infant formula 2021	0	Fera NRL-POPs did not register.		
EURL Interlaboratory Study (ILS) on the determination of Brominated Contaminants (BCons) and Polychlorinated Naphthalenes (PCNs) in cod liver oil [EURL-ILS-BC_2104-CLO]	0	ILS rather than a PT. Fera NRL-POPs' performance was very good for contaminants for results submitted, and consensus values were achieved.	Report sent to CA.	
EURL PT - 2021 PCDD/Fs, PCBS, PBDEs and HBCDDs in Dried Citrus Pulp 2021 [EURL-PT-DPB_2105-DCP].	0	Generally satisfactory. Number of decimal places used to report caused some values to be just above 2.	Reports sent to CA.	
EURL PT on PCDD/Fs, PCBS, PBDEs, HBCDDs, PFASs and CPs in Pork Liver 2022 [EURL-PT-POP_2201-PL].	0	Analysis underway at time of reporting.	Reports sent to CA	

Table 1. Summary of EURL PT rounds 2020-2021 contd.

NRL-PC				
EURL-PC PT-2021-06 Furans in cereals	0	Fera NRL-PC was not invited to participate.		
EURL-PC PT-2021-07 PAH in plant material		Fera NRL-PC was not invited to participate.		
EURL-PC PT-2021-08 3-MCPD and 3-MCPDE in infant formula		Fera NRL-PC emailed the EURL to ask to participate on a fee paying basis but was not allowed to participate.		
EURL-PC PT-2021-09 Acrylamide in dry cereal based infant food		Fera NRL-PC was not invited to participate.		
NRL-FCM				
EURL-FCM-20/01 Determination of MOSH and MOAH in muesli and paperboard.	0	NRL-FCM did not register to participate in this as they do not have this capability.	Report published and sent to CA.	
EURL-FCM-20/02 Determination of the mass fractions of i) Cd and Pb migrated from ceramics and of ii) As, Cd, Cr, Pb, Eu, La, Gd, Hg and Tb in food simulant B solution.	0	NRL-FCM obtained satisfactory results, with the exception of one questionable result.	Report sent to CA.	
JRC IF 2020-01 Determination of MOAH in Infant Formula, an exploratory interlaboratory comparison.	0	NRL-FCM did not register to participate in this as they do not have this capability.	Report published and sent to CA.	
JRC IF 2020-02 Determination of MOAH in Infant Formula, the second interlaboratory comparison.	0	NRL-FCM did not register to participate in this as they do not have this capability.	Report published and sent to CA.	



#### 11.4.1. NRL-MP

##### 11.4.1.1. EURLPT 2019 MP01 Pyrrolizidine alkaloids in food and feed matrices

Fera NRL-MP participated in the EURL-MP PT for pyrrolizidine alkaloids in food and feed in 2019. The results of the study were presented at the EURL Workshop in October 2020, when the study was described as a research study and was no longer being evaluated as a PT. When the results were treated as a sum parameter, 19 out of 26 laboratories had satisfactory z-scores for both test materials. Individual results varied more widely. A full final report of the study was received in June 2021 and sent to the CA. Fera obtained 37 out of 41 satisfactory z-scores for individual PAs, 15 of 16 for isomeric groups and 2 of 2 for both total sum legislative PA and total sum PAs. There were only two other labs that had slightly better performance than Fera.

##### 11.4.1.2. EURLPT-MP05 SCL – Ergot sclerotia in cereals

Fera NRL-MP and three OLs participated, all achieved satisfactory performance, the final report of the PT was received in April 2021 (see 11.2.1.1).

##### 11.4.1.3. EURLPT-MP06 Tropane alkaloids in cereals

The final report of the PT was received in April 2021. Fera NRL-MP obtained 4/4 satisfactory z-scores for individual tropane alkaloids (atropine and scopolamine) and 2/2 satisfactory z-scores for the sum parameters. Thirty-eight laboratories participated, a lower number obtained satisfactory results for the low level sample (79 and 71%), at a level close to the EU maximum permitted level of 1 µg/kg for each alkaloid, compared to 90% satisfactory for the higher level sample. The report was sent to the CA.

##### 11.4.1.4. EURLPT-MP07 Multi-mycotoxins

The EURL-MP asked the Commission for permission for NRL-MP to participate as a paying participant, however permission was not given and so Fera did not take part in the PT. The results of the PT were presented at the EURL workshop that Fera did not attend, however the presentation was shared with Fera after the workshop. These and the final report of the PT were shared with the CA.

##### 11.4.1.5. Participation in Fapas® PT rounds

Fera participated in 27 Fapas® mycotoxins PT rounds during the reporting period, obtaining 97 z-scores. Of these 92 were satisfactory (95%), 4 were questionable and one was unsatisfactory. The ISO17025 procedures for non-conforming work investigations were carried out. Three of these results were obtained in a single round, it was a multi-mycotoxin PT round.

#### 11.4.1.6. MVS Determination of Aflatoxins in vegetable oil ISO/NP 20948

Fera was invited to participate in this method validation study that is being co-ordinated by the Technology Center of Qingdao Customs (a Chinese laboratory), to validate a method that will become an ISO standard. Samples were received in the first quarter of 2022; results have not been submitted to date.

#### 11.4.1.7. MVS for quinolizidine alkaloids in lupin products

Fera NRL-MP registered to participate in this MVS, co-ordinated by BfR, Germany in December 2020. Pre-trial samples were received in March 2021, and results reported in June 2021. The co-ordinator confirmed receipt of results and stated the main trial would be delayed while some issues with the method were resolved. Samples for a second pre-trial for 'wet' samples (dairy replacements) were received in July 2021, results were reported in September. No further feedback has been received to date.

### 11.4.2. NRL-MN

#### 11.4.2.1. EURL-MN PT-2021-01 and EURL-MN PT-2021-02

Registration deadlines for these PTs were missed.

#### 11.4.2.2. EURL-MN PT-2021-03, Vegetable-based animal feed (feed), As, Cd, Pb, Hg, Ni (optional), Cu (optional), iAs (optional), NO<sub>2</sub>- and NO<sub>3</sub>-(optional).

Fera NRL-MN registered to participate in this PT in June 2021 and received samples in September 2021, with a reporting deadline of 7<sup>th</sup> October 2021.

Preliminary and final reports were shared with the FSA. NRL-MN obtained 100% satisfactory z-scores and zeta-scores and was awarded a certificate for being one of the top three best performing laboratories with the lowest average z-score in the PT. NRL-MN was one of only seven laboratories that analysed the test material for methyl mercury, all obtained satisfactory results.

#### 11.4.2.3. EURL-MN PT rounds for 2022

Fera contacted the EURL-MN with an enquiry regarding FERA's participation in the EURL\_MN PT rounds for 2022. The reply received stated that the UK NRL-MN would not receive a formal email invitation, but it would be welcome to participate. UK NRL-MN will monitor the EURL-MN website and request inclusion when the PT rounds are announced.

#### 11.4.2.4. EURL-MN PT-2022-01 Pet food and EURL-MN PT-2022-02 Marine-based food.

NRL-MN received an email from the EURL-MN advising that registration was open for the first two PT rounds of 2022: EURL-MN PT-2022-01 Pet food and EURL-MN PT-2022-02 Marine-based food. The NRL-MN registered for both PT rounds and requested notification of registration being opened for the third and final PT round of the year.

#### 11.4.2.5. Participation in Fapas® PT rounds

Fera participated in 13 Fapas® metals PT rounds during the reporting period, obtaining 59 z-scores. Of these 100% were satisfactory, they included a range of elements as well as the four metals included in the contaminants regulations.

#### 11.4.3. NRL-POPs

##### 11.4.3.1. EURL PTs

##### 11.4.3.1.1. EURL-PT-DPB-2101-BF - EURL Proficiency Test on the Determination of PCDD/Fs, PCBs, PBDEs and HBCDDs in Baby Food

PCDD/Fs and PCBs results were reported to the EURL for EURL-PT-DPB-2101-BF on 9th April 2021 (deadline 11th), and results for PBDEs and HBCDDs were reported on the 23rd April (deadline 25th).

Fera received preliminary PT results for the PCDD/Fs and PCBs and PBDEs and HBCDDs in July. Results were forwarded to the CA. The final report for the PBDEs and HBCDDs for this PT was received on the 5th August, and forwarded to the CA on the same day. A certificate of participation was received on 2nd September; participation completed with good performance. An updated final report on PCDD/Fs and PCBs (v1.1) was received from the EURL on 26th November after a review of z-scores on the lipid content was performed. The updated report was forwarded to the CA in early December.

##### 11.4.3.1.2. EURL-POPs Proficiency Test on the Determination of Chlorinated Paraffins in Infant formula 2021 [EURL-PT-CP\_2103-IF]

Fera NRL-POPs received an invitation to participate on 27th May 2021, with a registration deadline of 18th June 2021. Fera did not register.

##### 11.4.3.1.3. EURL-POPs Proficiency Test on the determination of Perfluoroalkyl Substances in liquid whole egg and honey [EURL-PT-PF\_2102-LWE]

Fera NRL-POPs received an invitation to participate on 1st June 2021, with a registration deadline of 18th July 2021. Fera registered to participate. Received preliminary results for this PT from the EURL on the 23rd November - results were forwarded to the CA on 3rd December. Fera had not submitted results as development work was required on the method.

#### 11.4.3.1.4. EURL Interlaboratory Study (ILS) on the determination of Brominated Contaminants (BCons) and Polychlorinated Naphthalenes (PCNs) in cod liver oil [EURL-ILS-BC\_2104-CLO]

Fera NRL-POPs received an invitation to participate on 11th June 2021, registration was completed on 30th June 2021. Submitted results for PBDEs, HBB, BTBPE, HBCDDs, TBBPA and PCNs on the extended deadline of 8th October. A request was received from the EURL on 22nd October to check the submitted results for PCNs regarding reporting co-eluting congeners. Participants had been requested to submit only one result for each co-eluting congener pair. It was apparent to the EURL that some participants had misunderstood this and reported a value for each congener. Deadline to submit amended results is 5th November. Fera's results had been reported as requested, so no further action was required. Received preliminary results for participation in this PT from the EURL on the 23rd November. The results were forwarded to the CA on 3rd December. Fera's performance was very good for contaminants for those results that were submitted, and consensus values were achieved.

#### 11.4.3.1.5. EURL PT - 2021 PCDD/Fs, PCBS, PBDEs and HBCDDs in Dried Citrus Pulp 2021 [EURL-PT-DPB\_2105-DCP].

Fera NRL-POPs received an invitation to participate in August. Registration was completed on 1st September 2021, lab code received 7th September, and the PT sample received 14th September. Deadlines for results submission were 1st November (Dioxins and PCBs) and 10th November (PBDEs and HBCDDs). Preliminary results were received for PCDD/Fs and PCBs on 3rd December, followed by preliminary results for PBDEs and HBCDDs on 6th December. For the PCDD/Fs, performance was generally acceptable, though due to the low concentrations of analytes and Fera reporting results to 2 decimal places (d.p.), the upper bound TEQ for PCDD/Fs alone was slightly outside the acceptable range (-2.2). If 3 d.p. had been reported, the z-score would have been acceptable. Fera resubmitted results for PCDD/Fs using 3 d.p. which will be evaluated, but original results will still be used for participation.

#### 11.4.3.1.6. EURL PT on PCDD/Fs, PCBS, PBDEs, HBCDDs, PFASs and CPs in Pork Liver 2022 [EURL-PT-POP\_2201-PL]

Invitation to take part in this PT was received on 8th December and forwarded to UK OLs in early January but no other laboratories wished to take part. Fera registered to participate before the deadline. The test material was received in February. Extraction and analysis was performed for the sample for PCDD/Fs, PCBs and PBDEs during March. Analysis will be completed in early April for submission by 8th April. Analysis of PFAS is in progress using both Fera's usual method and by the method currently in development. HBCDDs will also be analysed in April by the later deadline of 22nd April.

#### 11.4.3.2. Participation in Fapas® PT rounds

Fera participated in 5 Fapas® organic environmental contaminants PT rounds during the reporting period, obtaining 132 z-scores, 100% of these were satisfactory.

#### 11.4.4. NRL-PC

##### 11.4.4.1. EURL-PC PT-2021-06 Furans in cereals

Registration closed on 8 April 2021. Fera NRL-PC was not invited to participate.

##### 11.4.4.2. EURL-PC PT-2021-07 PAH in plant material

Registration closed on 5th May 2021. Fera NRL-PC was not invited to participate.

##### 11.4.4.3. EURL-PC PT-2021-08 3-MCPD and 3-MCPDE in infant formula

Fera NRL-PC emailed the EURL to ask to participate on a fee paying basis but was not allowed to participate.

##### 11.4.4.4. EURL-PC PT-2021-09 Acrylamide in dry cereal based infant food

Registration was open in March 2022, Fera NRL-PC was not invited to participate.

##### 11.4.4.5. Participation in Fapas® PT rounds

Fera participated in 13 Fapas® processing contaminants PT rounds during the reporting period, obtaining 45 z-scores. Of these 43 were satisfactory (96%), 1 was questionable and one was unsatisfactory. The ISO17025 procedures for non-conforming work investigations were carried out.

#### 11.4.5. NRL-FCM

Participated in an Interlaboratory Comparison (ILC) exercise on the determination of primary aromatic amines and amides from cold water extracts of paper, that was run by the German NRL. The results submitted by UK NRL-FCM were satisfactory. A copy of the final report was shared with the CA.

##### 11.4.5.1. EURL PTs

Results from the following EURL-FCM Proficiency Test (PT) rounds were published and the results shared with FSA:

- EURL-FCM-20/01 Determination of MOSH and MOAH in muesli and paperboard.

The NRL-FCM did not register to participate in this as they do not have this capability.

- EURL-FCM-20/02 Determination of the mass fractions of i) Cd and Pb migrated from ceramics and of ii) As, Cd, Cr, Pb, Eu, La, Gd, Hg and Tb in food simulant B solution. The NRL-FCM obtained satisfactory results, with the exception of one questionable result. An internal CAPA investigation will be carried out to investigate this result further.

Results from the following EURL-FCM Interlaboratory Comparison (ILC) exercises were published and the results shared with the CA:

- JRC IF 2020-01 Determination of MOAH in Infant Formula, an exploratory interlaboratory comparison.
- JRC IF 2020-02 Determination of MOAH in Infant Formula, the second interlaboratory comparison.

The NRL-FCM did not register to participate in these as they do not have this capability.

No details were received of the EURL-FCM 2021 PTs or ILCs.

The Printing Inks Working Group 'GC-MS-MS and LC-MS-MS multi-analyte methods for the determination of photoinitiators and a plasticiser' was published and a copy was sent to the CA.

#### 11.4.5.2. Participation in Fapas® PT rounds

Fera participated in 6 Fapas® food contact materials or migration PT rounds during the reporting period, obtaining 8 z-scores, 100% of these were satisfactory.

### **11.5. Task 04/05. Co-ordinate training exercises to promote best laboratory practice in respect of analysis.**

Under normal circumstances training is offered to be carried out on request, either at Fera or in the individual OLS. Training at Fera allows many OLS to be trained at the same time giving economies of scale and the opportunity for interaction. This has not been possible in the last year due to COVID-19.

None of the Fera NRLs were able to participate in training provided by the EURLs. However, NRL-MN requested to be considered for EURL-MN training in the use of HPLC for inorganic arsenic determination. NRL-MN was informed that as a "third country" it would not be prioritised to attend, but if places were available then an invitation would be extended.

#### 11.5.1. MChemA training course

Fera staff continue to contribute to the MChemA training course (see section 9.4.3).

#### 11.5.2. APA annual conference

The conference did not take place in 2021 due to the COVID pandemic; however, Fera plan to participate in future conferences.

## 12. Objective 5 - Co-ordination within the UK of international initiatives

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### **12.1. Task 05/01. Co-ordinate the recommendations of international organisations related to the standardisation of testing methods.**

Information and documentation received from the EURL was provided to the CA, to the OLs and where appropriate other relevant laboratories. Any EURL recommendations have been fed back promptly to the CA, OLs and other relevant laboratories and any specific issues would be disseminated by e-mail to the OL distribution list. This has been limited this year due to reduced communications from some EURLs.

Fera is a member of four CEN Working groups, the activity on the groups has been on-line this year, some groups are currently not very active as their Mandates or work programmes have been completed. In many areas new standardisation requests are under discussion and it is anticipated activity will increase.

NRL staff are on the mailing list to receive updates from Defra about Codex activities, NRL leads keep abreast of development in their areas.

Fera NRL participation in international organisations is summarised below in Table 2.



**Table 2. Fera participation in international organisations related to the standardisation of testing methods**

<b>NRL Function</b>	<b>International Group</b>	<b>Activity</b>
NRL-MP	CEN TC275 WG5	Participation in working group on analytical methods for natural toxins in food
NRL-MP	CEN TC327 WG5	Participation in working group on analytical methods for natural toxins in feed
NRL-MP	CEN TC327 WG5	Participation in MVS for quinolizidine alkaloids in feed and food, organised by BfR (Germany)
NRL-MP	ISO NP 20948	Participation in MVS for aflatoxins in vegetable oil, organised by Technology Center of Qingdao Customs of China
NRL-MP	AOAC CASP	Registered member of working groups for analytical methods and method criteria for mycotoxins and cannabinoids.
NRL-MN	CEN TC275 WG10	Participation in working group on analytical methods for elemental species in food
NRL-MN	CEN TC275 WG7 –	NRL-MN will participate in working group on analytical methods for Nitrates and nitrites in food
NRL-POPs	CEN TC327 WG1	Participation in working group organic contaminants in feed. Group has been inactive but new convenor has been appointed and NRL-POPs will participate in future meetings.
NRL-PC	CEN TC275 WG 13	Participation in working group on analytical method for processing contaminants
NRL-FCM	The Printing Inks Working Group 'GC-MS-MS and LC-MS-MS multi-analyte methods for the determination of photoinitiators and a plasticiser'	Participation in working group. Report was published and a copy was sent to FSA

## 13. Objective 6 – Role in Regulation of Food Contact Materials

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The FSA in its food contact materials authorisation guidance:

<https://www.food.gov.uk/business-guidance/regulated-products/food-contact-materials-guidance>

requires applicants submitting substances for authorisation for use in an FCM, namely:

- additives and starting monomers in plastic food contact materials
- additives in active and intelligent food contact materials (AIMs)
- additives in regenerated cellulose film (RCF)

to provide:

- a physical sample of the substance (250g)
- the relevant product safety sheet and spectroscopic data (if applicable)
- the analytical method(s) including performance parameters (as set out in the EFSA note for guidance: <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2008.21r>).

As such three tasks were agreed for the NRL-FCM within this new contract:

### **13.1. Task 06/01. Receipt and secure storage of substances and method information submitted to the FSA for approval for use in FCMs**

Fera NRL-FCM received notification that a substance had been shipped, however it did not arrive within the reporting period as it was held up by delays due to issues at customs.

### **13.2. Task 06/02. Verification of the applicability and performance of the analytical methods provided by the applicants**

There was no requirement to perform this task as no substances were received with the reporting period.

### **13.3. Task 06/03. Provide analytical data to support risk assessment of emerging issues/contaminants arising from food contact materials**

There was no requirement to perform this task as no substances were received with the reporting period.

## 14. Objective 7 - Communication of results and data use

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In the reporting period:

### 14.1. Task 7 (a), (j)

NRL Activity Logs were sent monthly to the FSA providing updates relating to developments in core functions. Timely emails were sent to the relevant FSA contact in each policy area and the FSA manager for Contaminants NRLs as items arose in the intervening periods.

### 14.2. Task 7 (b)

Costs, specifications and timings were tracked and the FSA was kept updated. No deviations were encountered.

### 14.3. Task 7 (c)

No unusual occurrences were encountered.

### 14.4. Task 7 (d)

No additional interim reports were requested.

### 14.4. Task 7 (e and f)

Fera NRLs uphold confidentiality with work for all customers including the FSA. No results or reports were communicated, and no data was presented without permission of the FSA.

### 14.5. Task 7 (g, h, i and j)

Fera has systems in place to maintain records for the required period. Reports and information were sent regularly to the FSA, to agreed deadlines for core functions. If required all information can be transferred as necessary at the end of a contract period.

## 15. Summary

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Under Retained Regulation (EU) 2017/625<sup>(1)</sup> on official controls Fera Science Ltd. (Fera) is designated by FSA as UK NRL for the following areas:

- NRL-MP**     NRL Mycotoxins and Plant Toxins in Feed and Food
- NRL-MN**     NRL Metals and Nitrogenous Compounds in Feed and Food
- NRL-PC**     NRL Processing Contaminants
- NRL-POPs**  NRL Halogenated Persistent Organic Pollutants (POPs) in Feed and Food
- NRL-FCM**    NRL Materials and Articles in Contact with Food.

This Annual Report describes the activities of these NRLs from 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022 and demonstrates how the requirements of Retained Regulation (EU) No 625/2017<sup>(1)</sup> (Article 101) have been met.

To assist with communication, a dedicated fully accessible website (<https://www.fera.co.uk/national-reference-laboratory>) and a shared NRL email address that is regularly monitored ([nrl@fera.co.uk](mailto:nrl@fera.co.uk)) are available. This Annual Report is published on the Fera NRL website and is available to all, thereby meeting the FSA openness and transparency commitments.

All five NRLs provided the FSA with monthly NRL Activity Logs. Impartial advice was provided to the FSA, FSS, UK OLs and other NRLs throughout the period. EURL information was disseminated to the CA. NRL Meetings were held on 8<sup>th</sup> July 2021 and 25<sup>th</sup> November 2021 online, these were attended by Fera NRLs, the FSA and FSS. Advice and methodology were provided to OLs where requested.

Where provided by the EURL, Work Programmes were forwarded to the CA. The NRLs also planned Work Programmes and these were sent to the FSA. A priority list of methods was agreed and practical work has started on method development and validation for those methods.

Fera NRLs were not able to participate in EURL training this year, however future participation in EURL activities may be possible in some areas. For the EURL Workshops and Core Working Groups etc. that NRLs attended, Meeting Notes, official reports and documents and where available, presentations were sent to the CA. Where attendance had not been possible, documents from these meetings were requested by the respective NRL, and if provided, sent to the CA.

The NRLs participated in several Proficiency Tests (PTs); EURL PTs and PTs from other providers, and a large number of Fapas® PT rounds covering a broad range of analyses across all NRLs for a wide range of contaminants. Most PT results were satisfactory, a very small number of individual results were not. In all cases any issues were investigated in accordance with ISO17025 quality procedures and follow up action completed.

## Appendix 1: References

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- (1) Retained Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products, amending Regulations (EC) No 999/2001, (EC) No 396/2005, (EC) No 1069/2009, (EC) No 1107/2009, (EU) No 1151/2012, (EU) No 652/2014, (EU) 2016/429 and (EU) 2016/2031 of the European Parliament and of the Council, Council Regulations (EC) No 1/2005 and (EC) No 1099/2009 and Council Directives 98/58/EC, 1999/74/EC, 2007/43/EC, 2008/119/EC and 2008/120/EC, and repealing Regulations (EC) No 854/2004 and (EC) No 882/2004 of the European Parliament and of the Council, Council Directives 89/608/EEC, 89/662/EEC, 90/425/EEC, 91/496/EEC, 96/23/EC, 96/93/EC and 97/78/EC and Council Decision 92/438/EEC (Official Controls Regulation)Text with EEA relevance. OJ L 95, 7.4.2017, p. 1–142. ELI: <https://www.legislation.gov.uk/eur/2017/625/contents>

## Appendix 2: Fera NRLs

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General enquiries and information	<p>Fera Science Ltd (Fera) York Biotech Campus, Sand Hutton, York, YO41 1LZ.</p> <p><a href="mailto:nrl@fera.co.uk">nrl@fera.co.uk</a> +44 (0)1904 462000 <a href="https://www.fera.co.uk/national-reference-laboratory">https://www.fera.co.uk/national-reference-laboratory</a></p> <p>Head of NRL Chemical Safety in Food and Feed Susan MacDonald <a href="mailto:susan.macdonald@fera.co.uk">susan.macdonald@fera.co.uk</a> +44 (0)1904 462558</p>
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NRL Heavy Metals and Nitrogenous Compounds in Feed and Food	<p>Mike Walls <a href="mailto:michael.walls@fera.co.uk">michael.walls@fera.co.uk</a> +44 (0)1904 462150 <a href="https://www.fera.co.uk/about-us/national-reference-laboratory/heavy-metals">https://www.fera.co.uk/about-us/national-reference-laboratory/heavy-metals</a></p>
NRL Halogenated POPs in Feed and Food	<p>Frankie Smith <a href="mailto:frankie.smith@fera.co.uk">frankie.smith@fera.co.uk</a> +44 (0)1904 462525 <a href="https://www.fera.co.uk/about-us/national-reference-laboratory/dioxins-pcbs">https://www.fera.co.uk/about-us/national-reference-laboratory/dioxins-pcbs</a></p>
NRL Processing Contaminants	<p>Sean Panton <a href="mailto:sean.panton@fera.co.uk">sean.panton@fera.co.uk</a> +44 (0)1904 462098 <a href="https://www.fera.co.uk/about-us/national-reference-laboratory/pahs">https://www.fera.co.uk/about-us/national-reference-laboratory/pahs</a></p>
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