Fera NRL Annual Report
2022 to 2023

Report to the Food Standards Agency




1. Annual Report

Annual Report on Operation of National Reference Laboratories

(Chemical Safety in Food and Feed)

Fera Science Ltd.

April 2022 – March 2023

Title	National Reference Laboratory for Food Contaminants
Competent Authority	Food Standards Agency
FSA Project Officer	Rashmi Seneviratne
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Note: Whilst care has been taken to ensure that the web links contained in this report are correct at the time of issue, changes may occur.

2. Fera Science Ltd. (Fera)

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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3. Contents

4. Executive summary

Fera Science Ltd (Fera) acts as National Reference Laboratory (NRL) under Retained Regulation (EU) 2017/625[(1)] on official controls and was appointed by the Food Standards Agency (FSA) and Food Standards Scotland (FSS) 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 1st April 2022 to 31st March 2023.

The NRLs provided impartial advice to the Competent Authorities (CAs), FSA and Food Standards Scotland (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 European Union Reference Laboratory (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 proficiency test (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.

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. NRL-PC is a member of TC 275 WG13 which did not meet in the time period.

Advice and methodology were provided to OLs where requested.

Following UK exit from the EU on 31st January 2020, there has been limited participation in EURL PTs, and it varied across the 5 different NRL functions. During 2022-2023, the NRLs were involved in several Proficiency Tests (PTs) run by the EURLs (for POPs and metals) and other providers (including Fapas®). 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 4th April, 20th September and 1st December 2022 and 8th March 2023. The meetings were held on-line between FSA, 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. A network meeting was held with OLs on 23rd March 2023.

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

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 ($C_{>17}$)
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 ($C_{14–17}$)
MOAH	-	Mineral oil aromatic hydrocarbons
MOSH	-	Mineral oil saturated hydrocarbons
MPL	-	Maximum Permitted Level
MVS	-	Method validation study
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[1]
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)
RAFA	-	Recent Advances in Food Analysis
RASFF	-	Rapid Alert System for Food and Feed
REPs	-	Relative effect potencies
SCCP	-	Short-chain chlorinated paraffins ($C_{10–13}$)
SI	-	Statutory Instruments
SOPs	-	Standard Operating Procedures
TC	-	Technical Committee
WG	-	Working Group

6. Introduction

Retained (EU) Regulation 2017/625[(1)] 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 by FSA/FSS 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 the EU on 31st 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.

This Annual Report covers NRL activities from 1st April 2022 to 31st March 2023.

The following sections describe the activities of the NRLs to achieve six main Objectives that are outlined in the contract. These Objectives are split into a series of tasks. In many cases the same Tasks are carried out by all five NRLs. In these instances, these activities are described first, followed by the activities of the individual NRLs. Information is also given about an additional Objective that is specific to NRL-FCM only.

7. Role and scope of the NRL

The basic duties of the NRLs are based on Retained Regulation (EU) 625/2017[(1)], 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.

8. Objective 1 – Secretariat Services

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 or shared with the FSA via a Teams channel.

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.

Where available, EURL Work Programmes 2023-24 were downloaded from the EURL website and sent to the CA.

8.1.1. Quarterly Fera NRL Meetings

NRL-CA 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.

Representatives for each of the NRLs attended and presented information at the meetings held on 4th April, 20th September and 1st December 2022 and 8th March 2023.

8.1.2. NRL Network Meeting

Network meeting was held with the OLs on 23rd March 2023. The meeting was attended by Fera, FSA and FSS and the UK OLs. Updates were provided by FSA and FSS. Fera-NRLs gave an update on activities and presented a plan designed to provide support for the OLs. This was an initial introduction to a scheme to provide access to testing for novel or emerging issues that OLs may not be currently set up to carry out. This additional testing capability is funded by FSA. The OLs provided feedback on the plan that will be used to inform next steps and how the programme can be developed and rolled out. Another network meeting will be held later in the year, the date will be confirmed.

8.1.3. NRL Symposium Meeting

Fera NRLs attended the NRL Symposium organised by the FSA and held on Teams on 5th October 2022. The aim of the conference was to foster collaborative relationships between NRLs; promote FSA/FSS colleagues' engagement with NRLs and provide updates to NRLs on FSA/FSS strategies.

Fera presented summaries of recent activities including method development work that was underway or planned.

8.1.4. FSA Fera Visit

The FSA colleagues visited Fera on 5th May 2022. They were shown around site, and discussed Fera capabilities and activities to allow broader understanding within FSA of how the NRLs and Fera can support FSA needs, particularly in the event of an incident or an emergency.

8.1.5. Incident response/Novel testing

Three contract extensions were made. The first was to enable Fera to provide support to the FSA in the event of an incident. A work plan was prepared to outline the activities that would be developed under this extension. This facility was used in March 2023, when Fera was asked to respond to an incident of oil contamination in Shellfish beds by the FSA. Samples from Poole Harbour were delivered to Fera and analysis for PAHs was conducted. This analysis will continue into the reporting period covering 2023-2024.

The second extension was to allow the NRLs to provide support to the OLs by offering testing services for novel or emerging issues for analyses the OLs do not have capability or capacity to undertake at a preferential rate. A work plan for this was also prepared and this was discussed with OLs at the Network meeting (8.1.2).

The third contract extension was for analysis of wild caught fish samples for per- and polyfluoroalkylated substances (PFAS). This is reported in more detail in Section 10.1.2.

8.1.6. NRL-MP

- Monthly meetings were held with the Head of FSA Contaminants branch since January 2023, with ongoing regular meetings following this. Topics discussed included changes to EU Regulations and results from work carried out as part of the NRL contract as well as other Fera projects funded by the FSA.

8.1.7. NRL-POPs

- EURL published Guidance Document on the Determination of Organobromine Contaminants v1.1 on 20th April 2022. The document was downloaded and shared with FSA via Teams on May 6th 2022.
- EURL published Guidance Document on Analytical Parameters for the Determination of PFAS in Food and Feed v1.2 (incl. Annex v1.0) on 11th May 2022. The document was downloaded and shared with FSA via Teams on May 13th 2022.
- EURL PT reports were shared with the FSA via Teams as they were received.

8.1.8. NRL-FCM

- A poster on EU-China Safe project work on bamboo and bio-based articles was presented at a RAFA conference on 23/09/2022, and a copy was shared with the FSA.
- Provided FSA with monthly literature reviews.
- Regular update meetings held between Fera and FSA FCM policy team.

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 took place on 23rd March 2023 as mentioned previously in *8.1.2*.

The next meeting will be held in summer 2023 and will be a face to face / hybrid meeting. It 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.

- An up to date list of OLs and contact details was maintained.
- A dedicated NRL email address is regularly monitored: 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.
- PT reports from NRLs and EURLs and other information were shared with CAs.
- Internal discussions within Fera to investigate possible set up of information-based system to monitor and capture changes in Regulations pertinent to food and feed.
- Fera NRL staff are Associate Members of the Association of Public Analysts (APA).
- 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 2022-23.

- 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.
- The lead for the NRL-MN is a member of CEN TC/275 WG 10.
- The lead for the NRL-PC is a member of CEN TC/275 WG 13.

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.

Meetings were held between FERA and FSA on 4th April, 20th May, 15th July and 23rd September 2022 which all the NRLs attended. Further specific meetings took place between Fera and FSA throughout the year to discuss other items such as PFAS, FCMs and other topics.

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

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, 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.

9.1.1. NRL-MP

- Provided advice to Defra about possible issues of mycotoxins associated with grain stored in Ukraine.
- Provided suggestions to FSA for retail surveillance sampling programme in response to a request.
- Replied to a query from a test kit manufacturer laboratory about information on how to classify foods as e.g. high fat, high sugar for the purposes of method validation for mycotoxins. Provided information and links to documents for pesticides method quality assurance where a classification system like this is used.
- Replied to a query from a commercial company about best practice in determining homogeneity for test materials to be used for method validation.
- Paper - Emerging Issues on Tropane Alkaloid Contamination of Food in Europe.de Nijs, M.; Crews, C.; Dorgelo, F.; MacDonald, S.; Mulder, P.P.J. Toxins 2023, 15, 98. https://doi.org/10.3390/toxins15020098 was published. This was a review on tropane alkaloids that was started during a previous project, the co-authors are from Wageningen Food Safety Research (WFSR), in The Netherlands. This is the EURL-MP.

9.1.2. NRL-POPs

- Paper "The transfer of environmental contaminants (PCDD/Fs, BFRs, PCBs, PCNs, PFAS, etc.) from recycled bedding materials to the eggs and tissues of chickens"' A.

R. Fernandes*, I. R. Lake, A. Dowding, M. Rose, N. R. Jones, F. Smith, S. Panton ready for submission for publication. It had previously been checked by FSA, but the final version was sent to FSA for clearance to submit.

9.1.3. NRL-FCM

- Advice provided to an OL regarding potential migration from plastic (HDPE) containers into palm oils.
- Advice provided to the CA on primary aromatic amines and formaldehyde migration via email.
- Advice provided to an OL on formaldehyde migration.
- Advice provided to an OL on testing of single use packaging.
- Advice provided to a company seeking FCM authorisation.
- Advice provided to an OL on testing of PS take away packaging.
- Advice provided on overall migration testing.
- Bamboo bowl set FCM testing for migration deterioration effects. Samples received at Fera in January. Testing protocol approved in March 2023.
- Advice provided to an OL about copper testing on a drinking bottle.

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.

Meetings continued to be held on-line in 2022-2023. 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 do 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 2023-24 (including PTs and training) was downloaded and shared with the CA.
- The EURL workshop was held on 4-5 October 2022, Fera NRL-MP was not invited to attend.

9.2.2. NRL-MN

- CEN/TC 275/WG 10 32nd meeting “Elements and their chemical species” on the 23rd and 24th May 2022. The meeting was held as a hybrid meeting hosted in Berlin, with the majority of attendance being online. The UK NRL representative attended both days of the meeting via the online facility. A report was produced by the representative on 17th June 2022 and was copied to BSI and CA.
- 32nd plenary meeting of CEN/TC 275 was held on 20th & 21st October 2022.
- 33rd CEN/TC 275/WG 10 meeting was held virtually on 1st December 2022. An NRL-MN representative attended and supplied interested parties with the meeting report and other documents.
- The annual EURL-MN Workshop was held on 16th and 17th November 2022. Fera NRL-MN was not invited to attend.

9.2.3. NRL-POPs

- An NRL representative attended the WHO expert consultation on updating the 2005 toxic equivalency factors for dioxin like compounds. There was consensus among all the invited experts that the updated REPs database indicated a need to revaluate the 2005 WHO TEF values for dioxins, furans and dioxin-like PCBs. The outcome and details of this expert consultation will be published in a peer-reviewed paper in early 2023.

9.2.4. NRL-PC

- The annual EURL-PC Workshop was held on 27-28th September 2022. Fera NRL-PC was not invited to attend.

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 training events and relevant conferences to maintain expert knowledge.

9.3.1. NRL-MP

Fera NRL-MP staff participated in a number of international scientific conferences, as speakers and delegates:

- The Science of Cannabis Testing Online Symposium 2022 – mycotoxin analysis in CBD products.

- Food-MetNet European Metrology Network on Food Safety, 22-23rd November 2022. Held in Istanbul, Turkey and on-line – gave presentation on method validation and measurement uncertainty in mycotoxin analysis.
- NRL-MP is registered to participate in WMFmeetsBelgium the 14th conference of The World Mycotoxin Forum taking place 9-11 October 2023 and will give an oral presentation on ergot alkaloid analysis.

For information the following events were attended although not specifically under the NRL remit:

- The Fera Science Symposium November 2022
- New Food Live
- Westminster Forum Next Steps for UK Food Policy.

9.3.2. NRL-FCM

- A representative attended 'Recycled materials: Food contact compliance considerations in the United States' webinar (21st April 2022).
- A representative spoke at 'Plastics, from Cradle to Grave and Resurrection III' virtual conference on 15th June 2022.
- A representative spoke at the '3rd Recycled Packaging for Food Contact' conference on 5th July 2022.

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.

- 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.

9.4.1. NRL-MP

- Provided information from a CEN method for screening for mycotoxins, and also links to DGSANTE documents for pesticides method quality assurance in response to a query from a test kit manufacturer laboratory about information on how to classify

foods as e.g. high fat, high sugar for the purposes of method validation for mycotoxins.

- Replied to a query from a commercial company about best practice in determining homogeneity for test materials to be used for method validation.
- Received query from FSA imported Foods assurance team seeking advice on contaminants in honey – no further follow up.

9.4.2. NRL-FCM

- Training on Food Contact Materials via two virtual presentations was delivered in August 2022 to FCM JEG.
- Four training courses were delivered to FSA across the year with following titles:
  - An introduction to materials and articles in contact with food.
  - Overview of migration testing – why and how do we test and an overview of non-intentionally added substances (NIAS) analysis.
  - Dossier evaluation.
  - Recycled plastics for use in food contact materials.
  - Discussions around the possible purchase of MOSH/MOAH instrumentation began in September 2022. Purchase has been completed and training / installation is planned for 2023 / 24.

9.4.3. NRL Visits and training

No visits or face to face training were undertaken in the reporting period, however a schedule to visit OLs in 2023-24 will be agreed at the next NRL-OL meeting.

9.4.4. APA annual conference

No APA conference was held this year.

9.4.5. MChemA

The Mastership in Chemical Analysis (MChemA) is the statutory qualification for practice as a Public Analyst and Agriculture Analyst in the UK. No request was made of Fera staff to provide training in the reporting period.

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 when information was obtained from other sources (e.g. conferences, webinars or other events). NRLs have set up monthly literature searches and these are shared with the CA.

9.5.1. NRL-MP

- A literature review carried out as part of a previous EFSA/FSA project was published as a joint publication between Fera and the EURL-MP (WFSR):
    - https://www.mdpi.com/2072-6651/15/2/98/pdf
- Literature reviews are carried out throughout the year and relevant or important articles are shared with the CAs.

NRL-MP attended several on-line conferences and events through-out the year to keep abreast of scientific developments as described in 9.3.1.

9.5.2. NRL-PC

- Literature reviews are completed every 3 months, searching for highlights related to Food Processing Contaminants and are then shared via the FSA NRL Teams portal.
- Started correspondence with Creative Diagnostics enquiring about their ELISA kits for the testing of PAHs and Acrylamide in foods.
- A representative attended the virtual conference 'Affidia Talks: Acrylamide and other process contaminants in Food' on 15th to 16th December 2022.

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 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 validation and uncertainty in mycotoxin analysis at EuraMet EMPIR project FOODMETNET - MycoTWIN Joint Training Course on the Measurement Reliability in Mycotoxin Analysis, 23rd November 2022. There were ~150 participants.
- Emerging analytical issues and developments were discussed with the CAs at the NRLs Network Meetings.

9.6.1. Forward work plan on method development

All Fera NRLs prepared proposals for future method development projects that could be carried out 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

9.6.1.1. Method for hydrocyanic acid foods

An SOP was supplied by EURL-MP. The method has been set up on the LC-MS/MS system. Initial validation data for spiked samples at low levels show promising results. In addition, PT samples supplied by WFSR PT have been analysed and the results fell with Z-scores of +/- 2. Further validation at higher concentrations will be completed when more standard materials are received.

9.6.1.2. Method for tropane alkaloids in food

An LC-MS/MS method that was previously validated for some matrices will be validated for other foods including maize (popcorn), other cereals, and herbal teas. This work has been delayed but will be carried in the first quarter of 2023-24.

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

- Inorganic arsenic in foods of marine origin by HPLC-ICPMS
- Methyl mercury by HPLC-ICPMS.

9.6.1.3. Inorganic arsenic in foods of marine origin by HPLC-ICPMS

The NRL-MN is in the process of incorporating HPLC-ICPMS arsenic speciation into our routine methodology. The method in development is based on EN 16802 and is initially being employed to quantify arsenic species as part of the FSA Wild Caught Fish Project. The HPLC technique is less labour intensive and an improvement from a safety perspective as it does not use chloroform. The HPLC method will also provide information about all the arsenic species present rather than just organic and inorganic. The aim is to obtain accreditation of the method by 2024.

9.6.1.4. Methyl mercury by HPLC-ICPMS

The NRL-MN is currently in the process of accrediting an in-house developed solvent extraction technique for the analysis of methylmercury (meHg) in products of marine origin. With the acquisition of HPLC instrumentation it would be advantageous to apply this technology to the analysis of samples for meHg. As with the inorganic arsenic procedure the solvent extraction method for meHg is labour intensive. It also involves larger volumes of harmful solvents and does not discriminate between the organic species extracted. Several presentations have been made at recent CEN meetings showcasing studies into this procedure. A workplan has been prepared for submission to the CA outlining development of an HPLC/ICP-MS procedure for extracting meHg and quantifying it in seaweed.

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.

9.7.1. Membership of CEN TC Working groups

BSI was contacted regarding Fera NRLs participation in CEN TC 275 and CEN TC 327 working groups and attendance at plenary meetings. NRL-MN membership in CEN TC 327 WG10 and the BSI mirror group were confirmed. There were very few meetings held in the reporting period.

9.7.2. NRL-MP

Fera NRL-MP participates in CEN TC275 WG5 and CEN TC327 WG5.

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

The work of WG5 has been conducted by correspondence, there were no meetings during the reporting period.

The following method was published as a standard:

- BS EN 17641:2022 'Foodstuffs - Multimethod for the determination of aflatoxins, deoxynivalenol, fumonisins, ochratoxin A, T-2 toxin, HT-2 toxin and zearalenone by LCMS/MS' has been published.

The following document underwent formal vote, it was reviewed and a vote in favour of adoption as a standard was cast via the BSI portal:

- FprEN 16923 Foodstuffs - Determination of T-2 toxin and HT-2 toxin in cereals and cereal products for infants and young children by SPE clean up and HPLC-MS/MS.

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

- EN 16924:2017 Foodstuffs - Determination of zearalenone in edible vegetable oils by LC-FLD or LC-MS/MS.

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

Fera NRL-MP participates in meetings when they are held, and also reviews and votes on documents via the BSI Standards Portal.

A meeting was held on-line on 1st September 2022. The main topics covered were:

- prEN 17683 'Animal feeding stuffs- Methods of sampling and analysis – Determination of pyrrolizidine alkaloids in animal feeding stuff by LCMS/MS (WI 00327113). The formal vote took place from 20th October 2022 until 15th December 2022. There was a positive result from the vote, the document will be edited and published as a standard in due course.
- EN 16877 '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/MS'. During the systematic review France voted withdrawal of this standard since it is not used in France. After discussion it was agreed that EN 16877 is still a valid method and provides reliable results so it is not necessary to withdraw it. The working group concluded that the standard (EN 16877) should not be withdrawn and that a wider inventory will be performed to determine how many laboratories are still using this method.

  The following document also underwent formal vote, it was reviewed and a vote in favour of adoption as a standard was cast via the BSI portal:

- FprEN 17853 – Animal feeding stuffs: Methods of sampling and analysis - Determination of intact glucosinolates in rapeseed by LC-MS/MS. It will be published as a standard in due course.

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

- BS EN 16160:2012 - Animal feeding stuffs - Determination of Hydrocyanic acid by HPLC

9.7.3. NRL-MN

- The following methods were reviewed by the NRL-MN on behalf of AW/10 "Animal feeding stuffs" at the request of BSI. All methods were found fit for purpose.
  - EN 16206
  - EN 15510
  - EN 15550

- EN 17050
- EN 16159
- EN 15621

- The NRL-MN voted their approval for the activation of the following:
  - pWI 13806-1 - Hg cold vapour AAS
  - pWI 13806-2 - Hg atom fluorescence
  - pWI 13806-3 - Hg AAS
- The NRL-MN voted yes to activating the above projects and agreed to participate actively in the development of the project, even if only by commenting on working drafts.
- Membership of the CEN/TC 327 committee and the ISO mirror committee ISO/TC 34/SC 10 Animal feeding stuffs (Mike Walls to join the committee) were approved in a notification received from BSI in March 2023.

9.7.4. NRL-PC

- NRL-PC received an e-mail from EURL-PC on 31st August 2022 with a letter attached from the Commission, stating that the EURL-PC will be the lead EURL for mineral oil hydrocarbons in foods. This letter was shared with the FSA via the Teams portal.
- A representative attended the 125th Plenary meeting of EFSA CONTAM 13th – 15th September 2022. The representative attended online as an observer and shared an agenda with FSA.
- EURL-PC shared presentations given at the EURL-PC Workshop. These files were shared via the FSA NRL Teams portal on 7th October 2022.

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

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.

10.1.1. NRL-MP

As described above (Section 9.7.2) NRL-MP participates in activities for CEN TC275 WG5 and CEN TC327 WG5, attending meetings when these are held and participating in ballots and systematic reviews via the BSI portal.

When the method validation for hydrocyanic acid and tropane alkaloids (Section 9.6.1) are completed, SOPs will be produced that will be shared with OLs. Training on the methods will also be provided.

10.1.2. Method development PFAS

10.1.2.1. NRL-POPS

- PFAS method development began in January 2023. The internal standard concentration was changed to help with a more robust quantification. A PFAS Masslynx processing method was created for the automation of quantification, enabling data to be processed more quickly and efficiently. An SOP was also compiled for the PFAS method.
- As interferences were seen, the LC-MS method conditions were reviewed; columns and gradients were assessed to improve the chromatography to ensure interfering peaks were shifted to allow acceptable resolution and quantification of the compounds of interest.
- A project for the analysis of PFAS in wild caught fish (WCF) is expected to be completed in July 2023.

10.1.2.2. NRL-FCM

- PFAS IN FCM discussions started in October 2023. Work has been completed to:
    - Develop a screening method for PFAS in FCM using high resolution mass spectrometry.

- Conduct a small-scale survey of UK produced paper and board-based food packaging for the presence of PFAS and compare the findings to the ‘olive oil droplet’ test.
- This work will be reported in early 2023/24.

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

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.

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. It was not possible for the NRL-MPs and NRL-FCM or OLs to participate in EURL PTs in 2022-23.

The NRL follows up on OL performance at the request of the competent authority.

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.

Some EURLs had no opportunity for OLs to participate in PTs in this reporting period.

The EURL-MP have agreed UK laboratories can participate as fee paying participants in 2023-24, details of PTs will be shared with OLs.

NRL-POPs invited UK OLs to participate in EURL PTs but there was no uptake from the invitation.

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 participates in EURL organised ILCs/PTs where possible. 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.

11.4.1. NRL-MP

Fera NRL-MP was not invited to participate in the EURL-MP PT rounds this year. Fera NRL-MP participates in other schemes such as Fapas®. Fera NRL-MP regularly participates in method validation studies through participation in CEN working groups.

- Participated in the main trial for a Method Validation Study for an LC-MS method for Quinolizidine Alkaloids in foods organised by BfR Germany, through CEN TC 327 WG5.
- Participated in a pretrial for an ISO method validation study for aflatoxins in vegetable oil, organised by organised by Technology Center of Qingdao Customs of China.
- Participated in the main trial for an ISO method validation study for aflatoxins in vegetable oil, organised by organised by Technology Center of Qingdao Customs of China.
- Registered for PT for hydrocyanic glycosides organised by Wageningen Food Safety Research, The Netherlands.
- Participated in Fapas® Series 4, 16, 17 and 22 to support ISO17025 accreditation for a range of mycotoxins and plant toxins.

11.4.2. NRL-MN

Participated in:

- EURL-MN PT-2022-03 Vegetable-based food
- EURL-MN PT-2022-01: As, Cd, Pb, Hg and inorganic As in pet food
- EURL-MN PT-2022: As, Cd, Pb, Hg and inorganic As in marine-based food
- EURL-MN-PT-2022-03 Al, As, Cd, Pb and nitrate in vegetable based food
- 23/02/2023 the UK NRL-MN received an invitation from (WFSR) Wageningen via CEN-TC 275 WG 10 to participate in the following: - CEN/TC 454 "Algae and algae products" - Interlaboratory Trial (ILT) and Interlaboratory Study (ILS)

11.4.3. NRL-POPs

- Participated in the EURL PT on PCDD/Fs, PCBS, PBDEs, HBCDDs, PFASs and CPs in Pork Liver 2022. Many of the congeners were very low level and not assigned consensus values. Fera’s z-scores for PCDD/F-PCB-TEQ, PCDD/F-TEQ and PCB-TEQ were unsatisfactory. Z-scores for non-dioxin like PCBs and PFAS were satisfactory. An investigation into unsatisfactory scores for individual congeners was

carried out. It was noted that whilst the scores for the congeners were not in ±2, they did fall within measurement uncertainty.

- Participated in Fapas® PTs for a range of POPs including Dioxins, PCBs and PFAS.
- Participated in EURL PT on PCDD/Fs, PCBS, PBDEs, HBCDDs and PFASs in fish meal (feed) 2022 [EURL-PT-POP_2203-FM].
- Final report for EURL Interlaboratory Study on the Determination of Brominated Contaminants and PCNs in Cod liver oil 2021 [EURL-ILS-BC_2104-CLO] received and shared with FSA.

11.4.4. NRL-PC

- Participated in FAPAS® PTs for a range of Processing Contaminants including Acrylamide, MCPD, Furans and PAHs.
- EURL-PC is considering our participation in planned PT rounds for 2023-24, which may include MOAH MOAH. This resulted in invitations to participate in the following rounds:
    - EURL-PC PT-2023-13 Furan and alkylated furans in a salty baked cereal product.

11.4.5. NRL-FCM

- Participated in FAPAS® PTs for a range of Food Contact Materials including melamine, BPA, formaldehyde and PAAs.

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

Training is offered to be carried out on request, either at Fera or in the individual OLs.

Fera NRLs were not able to participate in training provided by the EURLs.

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

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 were 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.

12.1.1. NRL Participation in international organisations

Fera NRLs are members of four CEN Working groups, the activity on the groups has been on-line this year. The groups have been less active this year as their Mandates or work programmes are near completion or 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 1.

Table 1. Fera participation in international organisations related to the standardisation of testing methods.

NRL Function	International Group	Activity
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-PC	CEN TC275 WG13	Participation in working group on analytical methods for processing contaminants in food
NRL-MN	CEN TC275 WG10	Participation in working group on analytical methods for metals and nitrogenous compounds in food

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

This Objective applies to NRL-FCM only.

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:

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

13.1.1. Samples (x4) were received in September 2022.

13.1.2. NRL-FCM worked with FSA FCM policy team to update their authorisation guidance webpage.

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

NRL-FCM expecting clarification on this from FSA FCM policy team in 2023 /24.

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

NRL-FCM expecting clarification on this from FSA FCM policy team in 2023 /24.

14. Objective 7 - Communication of results and data use

This Objective was delivered by all five NRLs 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

Under Retained Regulation (EU) 2017/625[1] 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 1st April 2022 to 31st March 2023 and demonstrates how the requirements of Retained Regulation (EU) No 625/2017[1] (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) 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 4th April, 20th September and 1st December 2022 and 8th March 2023. The meetings were held on-line between FSA, Food Standards Scotland (FSS), and the NRLs. A network meeting was held with OLs on 23rd March 2023. 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

(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

Area	Name and Contact Details
General enquiries and information	Fera Science Ltd (Fera) York Biotech Campus, Sand Hutton, York, YO41 1LZ. nrl@fera.co.uk +44 (0)1904 462000 https://www.fera.co.uk/national-reference-laboratory Head of NRL Chemical Safety in Food and Feed Susan MacDonald susan.macdonald@fera.co.uk +44 (0)1904 462558
NRL Mycotoxins and Plant Toxins in Feed and Food	Susan MacDonald susan.macdonald@fera.co.uk +44 (0)1904 462558 https://www.fera.co.uk/about-us/national-reference-laboratory/mycotoxins
NRL Heavy Metals and Nitrogenous Compounds in Feed and Food	Mike Walls michael.walls@fera.co.uk +44 (0)1904 462150 https://www.fera.co.uk/about-us/national-reference-laboratory/heavy-metals
NRL Halogenated POPs in Feed and Food	Frankie Smith frankie.smith@fera.co.uk +44 (0)1904 462525 https://www.fera.co.uk/about-us/national-reference-laboratory/dioxins-pcbs
NRL Processing Contaminants	Sean Panton sean.panton@fera.co.uk +44 (0)1904 462098 https://www.fera.co.uk/about-us/national-reference-laboratory/pahs
NRL Materials and Articles in Contact with Food	Claire McKillen claire.mckillen@fera.co.uk +44 (0)1904 462609 https://www.fera.co.uk/about-us/national-reference-laboratory/food-contact