NCLOG & LCC Submission: Understanding the threats and benefits from using Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

This submission is a joint submission from the National Contaminated Land Officers Group (NCLOG) and the Land Condition Community (LCC) at the Institution of Environmental Sciences. NCLOG represents 246 Contaminated Land Officers (CLO) working in local authorities across the UK. The Land Condition Community (LCC) represents 89 professionals working in land condition across industry, local government and consultancy. Both groups promote consistency and good practice across the sector. As such this response represents a consensus of local authority Contaminated Land Officers, industry professionals and consultants.

NCLOG and the LCC are happy to provide further information on any of the points in the response below if required.

Summary

- Currently, PFAS poses a very real threat, but it is not clear who is responsible for managing PFAS contamination when it is found, what action should be taken, and who pays for the treatment.
- Regulatory certainty is urgently required. Government guidance, support, and coordination is needed to ensure a clear, pragmatic, and consistent approach across agencies, regulators, and teams. Without this landowners and developers will struggle to address their liability, leading to inconsistent outcomes or inaction.
- New consultation requirements in the planning process may be necessary, but these would significantly expedite - rather than delay - the process, due to the substantial barriers to projects currently posed by uncertainty.
- The response to PFAS must be pragmatic and risk-based, dealing with legacy issues while also seeking to prevent new sources of PFAS.

2. To what extent are UK health and environmental regulators equipped to detect, monitor and understand the risks posed by PFAS?

NCLOG members working as Contaminated Land Officers (CLOs) across the country have seen clear evidence that CLOs and other regulators are not currently equipped to detect, monitor and understand the risks posed by PFAS.

PFAS is ubiquitous in the environment. There is a basic understanding by regulators of what the key contaminated sites are likely to be, and monitoring is in place for some key sites, such as airports. The LCRM framework can be applied to the investigation of sites where PFAS contamination is a consideration, but there is insufficient detailed technical support available for regulators and consultants to be confident that PFAS specific decision making throughout that process meets best practice. For example, investigation design, sampling protocols, laboratory analysis and risk assessment.

There are huge uncertainties around the assessment criteria for PFAS and at what levels action needs to be taken. To a certain extent, this reflects scientific uncertainty around assessment criteria (the US and Australia have repeatedly changed their assessment criteria for PFAS). Linked to this a better understanding of ambient PFAS levels is required for regulators to be able to contextualise the risks posed by a site and take a risk-based approach (as discussed in Question 10).

The Construction Industry Research and Information Association (CIRIA) has produced guidance on PFAS detection, monitoring and risk assessment, but local authorities and others must pay to access it. The Drinking Water Inspectorate has issued information that they would expect PFAS to be considered within risk assessments, but because they were not classified as a Group A or Group B parameter, local authorities are unable to reclaim the costs of any sampling to private water supplies.

Efforts to detect and monitor PFAS are therefore restricted due to the lack of clarity on next steps if PFAS is found, causing regulators and clients to not want to monitor, as they don't know what action may be required, and what costs will be incurred. Central government guidance and direction on assessment criteria is needed to address this uncertainty.

There are also technical challenges with analysing PFAS. The overwhelming majority of sites are likely to have some level of contamination, so random sampling will not be effective. Only appropriately accredited laboratories should be used for PFAS analysis, and there is a high risk of PFAS contamination in labs which can impact results.

These challenges are exacerbated by a lack of training; training budgets have been depleted or frozen completely resulting in inconsistency in the level of understanding regulators hold. More guidance and upskilling is needed for local authorities on the types of sites that should be sampled, effective sample collection methods, and robust lab analysis so that they can assess whether appropriate action is being undertaken by developers on sites.

4. How sophisticated is current knowledge of how and where PFAS enter the supply chain?

There are many sources of PFAS. Certain sites are known to be at higher risk of significant PFAS contamination, such as fire training grounds, certain manufacturing plants, and wastewater treatment works. PFAS can also enter the supply chain through the lifecycle of numerous consumer and industrial products.

PFAS can be highly mobile through contaminated land and ground and surface waters. Contamination of drinking water is a particular concern. Vegetation and animals such as fish and shellfish have been shown to be able to accumulate PFAS.

Knowledge on PFAS sources and entry routes could be improved by increased information sharing. The Environment Agency and private water suppliers should make their research and data on PFAS easily accessible to local authorities and industry.

It should also be noted that while the PFAS family comprises thousands of distinct substances, regulatory and research focus is often directed towards specific groups, such as

the perfluoroalkyl acids (PFAAs), due to their greater environmental mobility, persistence, and propensity for bioaccumulation.

6. To what extent are the Environment Agency, and other relevant UK bodies and research institutions, resourced to understand the current threat posed by PFAS and to monitor their impact going forward?

The Environment Agency, the Scottish Environment Protection Agency and the Northern Ireland Environment Agency are not resourced to understand risks or monitor PFAS effectively, facing similar challenges to local authorities as outlined in Q2.

The current status of measures to address PFAS

7. What are the current technologies and solutions to treat PFAS pollution, how cost effective and efficient are they and do they create additional risks?

Destruction and stabilisation are two broad ways used to remediate PFAS in the UK. The best remediation method to use will depend on the specifics of the site, including the chain length of the PFAS (effectively different molecular arrangements of PFAS which respond differently to different remediation techniques). Often a combination of methods will be the most effective for PFAS remediation.

Destruction methods typically require PFAS to be extracted from the contaminated media, after which destruction methods can then be employed. Established water treatment methods such as granulated activated carbon (GAC) filtration, ion exchange resins, and reverse osmosis have demonstrated effectiveness in removing PFAS from drinking water sources. The disposal of contaminated soils is a particular concern; capacity of hazardous landfill sites is limited and some soils contaminated with high levels of specific PFAS should not go to landfill (though specific limits have not yet been set). There are also limits on the amount of waste material that can be sent for incineration.

Stabilisation is often used with PFAS contamination of soils, adding materials that limit the risk to receptors, such as people or the natural environment, by preventing the PFAS from leaching out of contaminated materials into water sources or groundwater, and subsequently spreading into the wider environment.

The US has piloted some innovative technologies in this space, but often the tried-and-tested methods are used in practice, such as soil removal and capping and carbon resin systems for groundwater treatment. Action should be accelerated, alongside increased support for innovative solutions so that the relevant permits can be obtained.

Is the current regulatory regime for PFAS fit for purpose?

9. Is the current regulatory regime for the use and disposal of PFAS, including UK registration, evaluation, authorisation and restriction of chemicals (UK REACH), adequate? If not, how can it be improved?

The existing regulatory regime for PFAS is not fit-for-purpose. It includes environmental permitting, drinking water standards, contaminated land, waste and planning. Across these regimes it is not clear who is responsible for managing PFAS contamination when it is found, what action should be taken, and who pays for the treatment. This means that PFAS management is often delivered *ad hoc* by interested parties.

Environmental Permitting Regulations are important for managing the sources of PFAS but have not provided a clear and consistent approach. The vast majority of permitted sites have PFAS in surface water discharges at a rate that is not seen as acceptable, but it is unclear what the exact rate is. Drinking Water Inspectorate guidance values are currently being used as indicators, but this is for a limited suite of substances.

If the contaminated land regime (Part 2A of the Environmental Protection Act 1990) has a part to play in managing the legacy of PFAS contamination, then central government needs to recognise and publicise its role, and resource it appropriately. Should that be forthcoming the questions around what level of contamination might constitute a PFAS Part 2A site (as highlighted in Question 2) would still need resolving. Decisions will also be needed about whether such sites should be deemed Special Sites and have the Environment Agency as the lead regulator.

It is also not clear how to manage PFAS when re-using potentially contaminated materials, for instance if self-regulated schemes such as CL:AIRE's Definition of Waste: Code of Practice (DoWCoP) can be used. This uncertainty impacts both local authority officers dealing with planning permission and consultants trying to create sustainable and cost-effective reclamation schemes.

Similarly under the planning regime, given the ubiquitous nature of PFAS contamination, it is unclear for Local Planning Authorities which sites should require PFAS consideration, and when remedial action should be required.

Clear and consistent regulation needs to be developed across permitting, drinking water standards, contaminated land, waste and planning. Regulation needs to be pragmatic and balance the need for action against the reality of the significant existing legacy contamination.

To support this, statutory guidance is required to ensure consistency and certainty of what is being required. Local authorities and the Environment Agency need to be sufficiently trained and resourced to implement this in an effective way.

The current lack of clarity has a chilling effect. NCLOG stresses that local authorities are hesitant to investigate or monitor PFAS because they do not have a clear or funded plan to address it if it is found. Practitioners working as consultants within the IES Land Condition Community have seen a clear trend that clients are hesitant to move forward with projects where they do not know what they are monitoring or what the outcomes of that monitoring could be if there is not a consistent approach from regulators. This lack of clarity is stopping developments where PFAS is a factor, including critical projects such as new towns.

Similarly, NCLOG has observed that this reflects the wider problem that the contaminated land regime is not fit-for-purpose. In practice, many local authorities have been unable to

undertake basic land contamination work for years, due to a lack of resourcing and land contamination specialists. The emergence of PFAS has added significant pressures to this chronically under-resourced system, with many local authorities not having the expertise to manage PFAS issues. For example, lab costs and clean drilling requirements alone significantly drive-up costs.

It should be noted that local authorities are often risk-holders, for example of historic landfill sites, and are acutely aware of an absence of support in addressing associated legacy PFAS contamination issues. At a time when many local authorities are struggling to balance budgets, there is currently no way of addressing this.

Perversely, PFAS is making contaminated land remediation less likely, because of the risks to both developers and local authorities of starting an investigation and finding PFAS halfway through a site's development, with minimal resources for local authorities to act and no clear understanding of what response developers should expect. Addressing PFAS therefore requires reform to the wider contaminated land regime, with increased contaminated land resourcing for local authorities.

10. Is a precautionary approach to PFAS desirable or is an approach that uses regulation to assess their benefits and risks more appropriate?

Given the ubiquity of PFAS in the environment, the cost of treating all areas with potential PFAS contamination is not feasible. Not all PFAS needs to be addressed, as it is not typically volatile and in many cases is unlikely to travel. Therefore a risk-based approach should be taken. Remediation activities should prioritise sites that are likely to have high levels of PFAS concentration or that are at high-risk of leaching or otherwise coming into contact with people or other sensitive receptors.

To do this, the industry needs clear government strategy and guidance. To be able to take an evidence-informed risk-based approach, robust data on PFAS contamination and concentration levels is needed, as discussed in response to Question 2.

Efforts to prevent PFAS contamination and avoid future contaminated sites should also increase. Contaminated Land Officers are already seeing relatively modern legacy PFAS issues from the last 10 years, such as housing developments built on former landfills.

Any attempts to prevent PFAS contamination would need to try and avoid 'regrettable substitution', which is a significant challenge undermining the effectiveness of current chemical regulation. This is where a restricted PFAS is replaced by a chemically similar analogue which may subsequently be found to pose comparable risks. This highlights the potential limitations of a substance-by-substance regulatory approach and strengthens the case for considering PFAS as a class, or in large, well-defined groups, for more proactive and comprehensive risk management.

11. Is there any regulatory divergence across the UK in terms of PFAS? If so, what are the implications, and is there a need for a more joined-up approach?

There is significant regulatory divergence on PFAS across the UK. It is important that the different regulatory bodies communicate, work together and address PFAS across the nations.

There is no statutory planning requirement to consult the Environment Agency on land contamination in England. This means the Environment Agency can choose which types of site to respond to under planning and whether to investigate some sites further, leading to some local teams having different response criteria for similar sites but in different settings. If land contamination was made a statutory planning consultation requirement, this would increase consistency across the country and reduce uncertainty.

A more harmonised UK-wide framework, potentially including common minimum standards for key PFAS in environmental media and coordinated research and monitoring programmes, is essential for effective and equitable management of these persistent pollutants.