Infrastructure and Environment

PFAS Islander Meeting Minutes

01st May 2025
18:00hrs

Government of Jersey

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1. Welcome and Introductions

Chair: Kelly Whitehead (Group Director of Regulation at Government of Jersey)
Guest Speaker: Jake Hurst Associate Technical Director of Arcadis UK)

1.1 Introduction by Kelly Whitehead

- Kelly welcomed attendees and outlined the purpose of the meeting.
- The focus of the evening was to present the findings of the Arcadis hydrogeological study on PFAS contamination.
- It was clarified that political questions would be addressed at the Ministerial meeting in June.
- Attendees were invited to submit questions and comments during the session.
- The updated Q&A document was highlighted, with printed copies available in the room and the full version accessible online.
- Kelly explained that venue availability had necessitated changes to the meeting location, but that public meetings would return to St. Brelade's Parish Hall from June.
- Feedback on meeting venues and the format of public sessions was invited via feedback forms provided on the night.
- An update on the Water Quality and Safety (WQS) programme was shared:
    - Report 3 had been launched for public consultation, with a final version expected in July.
    - A separate public meeting had taken place the previous day to focus on environmental matters.
    - Arcadis would soon present their findings to the PFAS Scientific Advisory Panel to inform Report 4.
    - Ministers were not in attendance to allow a dedicated focus on technical matters during this session.

1.2 Meeting Format and Housekeeping

- Kelly outlined the structure of the meeting:
    - A technical presentation would be delivered by Jake Hurst of Arcadis.
    - This would be followed by a Q&A session with the audience.
- Attendees were encouraged to direct technical questions to Jake during the evening.
- Political or broader policy-related questions were to be saved for the Ministerial meeting in June.
- Feedback was welcomed on both the Q&A document and overall communication approach.

2. Presentation by Jake Hurst

2.1 Background and Project Objectives

- Jake introduced the PFAS hydrogeological study.
- The study was commissioned by the Government of Jersey to investigate long-standing environmental and public health concerns.
- Key objectives of the study included:
    - Understanding the behaviour of PFAS (per and polyfluoroalkyl substances) in the environment, particularly in the vicinity of Jersey Airport.
    - Identifying how PFAS migrates through groundwater and surface water systems.
    - Assessing the potential risks to human health and the natural environment.

    - Supporting the development of safe and sustainable long-term water supply strategies.
    - Building public trust through transparent and open communication.
    - Providing a scientific evidence base to inform future remediation and policy decisions.

2.2 Scope of Phase 2 Study

- Phase 2 built on the initial work of Phase 1, which compiled and visualised historical PFAS data to identify key knowledge gaps.
- Between July 2023 and May 2024, Arcadis carried out four quarterly monitoring campaigns.
- Over 230 samples were collected from:
    - Approximately 30 groundwater boreholes
    - 27 surface water sites
- PFAS-specific sampling protocols were used to avoid contamination and ensure data reliability.
- Passive samplers were deployed to measure average contamination levels over time.
- The study focused on two primary catchments:
    - St. Ouen's Bay
    - Pont Marquet
- Three new boreholes were installed to improve spatial coverage and data quality.
- Fieldwork was carried out in collaboration with Jersey's Water and Air team.
- Arcadis maintained independent oversight and undertook all data-led analysis.

2.3 Monitoring and Results

- Monitoring revealed persistent and significant PFAS contamination in key locations.
- The highest concentrations were found beneath the airport's former Fire Training Ground (FTG):
    - Levels reached up to 1,000 times higher than EU drinking water standards.
- PFAS "fingerprints" indicated multiple sources of contamination:
    - Both PFOS-based and mixed-foam types were detected, pointing to varied historical use across the airport site.
- Surface water pathways were identified as critical conduits for PFAS migration:
    - Creepy Valley stream
    - South SW outfall
- These pathways were found to influence contamination of nearby drinking water catchments.
- Rainfall and airport de-icing activities were shown to trigger spikes in PFAS levels.
- Passive samplers confirmed significant variability in contamination, especially following such events.

2.4 Conceptual Site Model

- Arcadis developed a detailed conceptual model of the subsurface environment to analyse PFAS transport mechanisms.
- Key features of the model included:
    - Approximately 30 metres of unsaturated fractured shale bedrock beneath the fire training ground, acting as a long-term PFAS reservoir.

    - Groundwater generally flows westward, with some redirection potentially caused by historic pumping at Simon's Sandpit.
    - The model indicated that the sand and shale aquifers are hydraulically connected.
- Groundwater levels are typically higher than surface water levels in the northern areas:
    - This allows for potential discharge of contaminated groundwater into surface streams.
- In contrast, at Pont Marquet:
    - Surface water tends to flow above the groundwater table, limiting the potential for contamination exchange.
- The model played a critical role in identifying how and where PFAS is most likely to move through the environment and present risks.

2.5 Risk Assessment

- The risk assessment involved updating the conceptual site model and applying a tiered approach to PFAS data.
- PFAS concentrations were compared to UK and EU regulatory standards.
- Widespread exceedances were observed, particularly for PFOS.
    - Many of the most affected wells are not currently used for public water supply.
- Key findings included:
    - PFAS could take between 20 - 60 years to migrate from the fire training ground to the Jersey Water wellfield.
    - Travel time to the marine environment could extend up to 100 years, depending on the specific PFAS compound.
- These long travel times highlight the persistent nature of PFAS and the need for sustained long-term management strategies.
- Surface water pathways, such as the Pont Marquet stream, were identified as more responsive to remediation efforts.
- The assessment also considered:
    - Historical use of the site, including construction of a containment cell under the fire training ground.
    - The impact of rainfall and site infrastructure on PFAS mobilisation and spread.

2.6 Remediation Options and Recommendations

- Arcadis carried out a high-level appraisal of potential remediation strategies.
- The approach focused on reducing PFAS mass flux in a cost-effective and sustainable way.
- Priority interventions included:
    - Targeted soil excavation and capping at the fire training ground.
    - In situ flushing of contaminated bedrock.
    - Enhanced groundwater pumping and treatment using:
        - Activated carbon
        - Ion exchange technologies
- For the wider PFAS plume, additional options were considered:
    - Colloidal activated carbon injection.
    - Infilling Simon's Sandpit to redirect groundwater flow away from vulnerable areas.
- Drinking water treatment was identified as a top priority:

    - Emphasis placed on addressing regulatory changes and the need for immediate action.
- In the Pont Marquet catchment, a phased approach was recommended:
    - Start with source control, such as pipe inspections and cleaning.
    - Follow with possible passive stormwater treatment technologies.

3. Recommendations

3.1 Support Government Decision-Making

- The study's findings are intended to directly inform decision-making by the Government of Jersey.
- Arcadis recommended the establishment of a structured and transparent framework to:
    - Evaluate potential remediation options.
    - Select the most appropriate and effective interventions for implementation.

3.2 Establish a Coordinated Implementation Team

- A dedicated implementation team should be formed to manage the next phase of remediation work.
- A clear schedule and defined responsibilities should be established.
- The team should include representatives from key stakeholders, including:
    - Government of Jersey
    - Ports of Jersey
    - Jersey Water

3.3 Targeted Assessment of Remediation Options

- Shortlisted remediation options should be subject to further detailed assessment.
- This should include:
    - Cost-benefit analysis
    - Feasibility studies
- The aim is to refine the overall remediation strategy and ensure that selected interventions are both effective and practical.

3.4 Address Identified Data Gaps

- The study identified several data gaps, particularly regarding:
    - Groundwater dynamics
    - Sources of PFAS contamination
- These gaps should be prioritised for further investigation.
- Addressing them will help strengthen the evidence base and support informed decision-making.

3.5 Develop a Comprehensive Remediation Strategy

- A long-term, integrated remediation strategy should be developed to guide future actions.
- The strategy should balance the following priorities:
    - Environmental protection
    - Public health
    - Technical feasibility
    - Cost-effectiveness

- It should also take into account:
    - The evolving regulatory landscape
    - Public expectations for timely and transparent action

3.6 Continue Monitoring and Trend Analysis

- Continued environmental monitoring is essential to:
    - Track PFAS trends over time
    - Validate the predictions made by the conceptual model
    - Assess the effectiveness of any implemented remediation measures
- Monitoring should cover both:
    - Groundwater
    - Surface water

3.7 Investigate Drinking Water Treatment Options

- Drinking water treatment should remain a top priority, regardless of the chosen remediation approach.
- Key areas for evaluation include:
    - Technologies for PFAS removal
    - Blending strategies to reduce PFAS concentrations
    - Alternative supply options to ensure a safe and secure public water supply

3.8 Align Simon Sandpit Plans with Remediation Goals

- Future plans for Simon Sandpit should be reviewed in the context of PFAS remediation.
- Consideration should be given to aligning any proposed developments with the broader remediation strategy.
- This is important because the site may influence:
    - Groundwater flow
    - PFAS transport pathways

3.9 Incorporate PFAS Waste and Soil Reuse Guidance

- The report contains specific guidance on PFAS waste management, including:
    - Waste acceptance criteria
    - Options for soil reuse
- These considerations should be integrated into the planning and execution of any:
    - Remediation activities
    - Construction projects involving contaminated materials

4. Summary of Government Response

- Kelly thanked Jake for his presentation and summarised the Government's initial response.
- She noted that the Arcadis report had been available for public review for only ten days.
- A Steering Group has been established to guide next steps, involving key stakeholders such as:
    - Private landowners
    - Ports of Jersey
    - Jersey Water
- Government officers are engaging directly with property owners within the wider plume area.
- The Arcadis findings will directly inform Report 4 of the PFAS Scientific Advisory Panel.
- Additional environmental testing is currently underway.

- The findings will contribute to discussions at upcoming meetings, including the next public session scheduled for 12th June.

5. Questions and Discussion

5.1 Historical Land Use and Borehole Concerns

- A resident expressed concern about historical landfill activity in the area and its potential effect on local boreholes.
- Jake confirmed that all known landfill sites in the study area had been reviewed.
- No changes to PFAS "fingerprints" were detected in connection with these historic sites.

5.2 Surface Water and Recreational Areas

- Attendees raised concerns about children playing in streams near Creepy Valley, where PFAS contamination may be present.
- Jake confirmed that testing in this area had detected elevated PFAS levels.
- Kelly noted that the team is in the process of identifying relevant landowners and providing individual advice and guidance.

5.3 Signage, Public Health and Intergenerational Impact

- Attendees raised concerns about the absence of public signage warning of PFAS exposure risks, particularly for vulnerable groups such as children.
- The potential long-term and intergenerational impacts of exposure were highlighted.
- Kelly confirmed that both public health messaging and signage were under active review in response to recent feedback.

5.4 Arcadis Report Scope and Past Incidents

- Attendees asked whether the study had examined PFAS use related to historic plane crashes.
- Jake confirmed that known crash sites and use of firefighting foam by civil fire services had been assessed.
- While elevated PFAS levels were found in soils at some of these locations, no significant PFAS contamination was detected in nearby groundwater.

5.5 Agricultural Land and Local Produce

- Concerns were raised about potential risks to livestock and agricultural produce in areas affected by PFAS contamination.
- Attendees questioned the implications for food safety and local farming practices.
- Kelly acknowledged these concerns and confirmed that:
    - Further engagement with affected landowners is ongoing.
    - Individual advice and support will continue to be provided as more information becomes available.

5.6 Water Supply and Long-term Planning

- Attendees questioned why boreholes previously used for firefighting activities were still in operation.

- Concerns were expressed about the reliance on short-term solutions for Jersey's water supply.
- Jake responded that contamination levels at the Jersey Water wellfields appeared to be stable or reducing over time.
- Kelly emphasised the importance of prioritising mains water treatment to ensure long-term resilience and security of supply.

5.7 Testing Scope and Communication

- Attendees asked whether PFAS testing was being conducted outside the identified plume area.
- Calls were made for greater transparency around the scope of testing and data availability.
- Jake and Kelly confirmed that:
    - Baseline testing was carried out in the 1990s and early 2000s, covering a wider geographic area.
    - The current programme is building on that earlier data to improve understanding and monitoring coverage.

5.8 Infrastructure and Future Use

- A resident recommended that future plans for Simon's Sandpit be aligned with PFAS remediation goals.
- Jake confirmed that Simon's Sandpit plays a role in influencing local groundwater flow.
- He noted that infilling the site was among the options considered in Arcadis's remediation appraisal.

5.9 Broader Geographic Scope and Public Health Testing

- Concerns were raised that areas such as St. John's may be overlooked in the current PFAS investigations.
- One resident reported private testing results indicating high PFAS levels outside the primary study area.
- Kelly explained that:
    - The current Arcadis commission is focused on a defined geographical area for hydrogeological assessment.
    - The PFAS Scientific Advisory Panel is undertaking broader public health and environmental investigations across the island.

5.10 Drinking Water Sources and Dilution

- Attendees asked about the extent to which borehole water is currently contributing to the island's public water supply.
- Kelly confirmed that:
    - Jersey Water is no longer drawing water from the affected boreholes.
    - Trends in recent years already show signs of dilution in PFAS concentrations within the broader supply network.

5.11 Historical Trends and Plume Dynamics

- An attendee asked whether the PFAS contamination plume is showing signs of shrinking over time.
- Jake responded that:
    - PFAS levels at the Jersey Water wellfield appear to be decreasing.

- However, broader trends across the plume area vary by location.
- Without intervention, PFAS contamination could persist in some areas until 2050–2080.

5.12 Sustainability, Resources and Future Supply

- A representative from Jersey Water outlined the island's current limitations in:
  - Water storage capacity
  - Water treatment infrastructure
- Attendees raised concerns about the long-term viability of:
  - Desalination as a sustainable water source
  - Continued reliance on boreholes for supply, given contamination risks

5.13 Foam and Algae Observations

- Attendees queried whether foam observed in surface water was being tested for PFAS contamination.
- Jake explained that:
  - Arcadis was not conducting in-house testing of foam samples.
  - External laboratories were used for analysis.
  - Relevant data from these tests is included in the appendices of the Arcadis report.

5.14 Testing Locations and Baseline Data

- A former environmental tester recalled conducting PFAS sampling outside the airport area in the 1990s, with no significant contamination detected at that time.
- Kelly thanked them for their contribution and confirmed that:
  - Establishing and reviewing historical baseline levels remains an important part of the ongoing investigation.
  - Additional work will continue to refine the understanding of background PFAS levels across the island.

5.15 Access to Laboratory Data and Follow-up

- Attendees requested access to the detailed testing data and methodologies used in the Arcadis study.
- Jake confirmed that:
  - All relevant data is published in the appendices of the Arcadis report.
  - Additional presentations will be delivered to the PFAS Scientific Advisory Panel to support transparency and further explanation of the findings.

6. Closing Remarks and Next Steps

- Kelly closed the meeting by thanking Jake for his presentation and all attendees for their participation.
- Attendees were encouraged to:
  - Join the Water Quality and Safety Programme mailing list
  - Send any further queries or feedback to the Regulation Enquiries email address (RegulationEnquiries@gov.je)
- Kelly confirmed that:
  - Arcadis will present again to the PFAS Scientific Advisory Panel on 29th May

- Further updates and materials will be shared ahead of the next public meeting scheduled for June

Meeting closed at approximately 19:30