

Recommendation	Sampling program and further investigation	Actions	Notes	Timeline for completion	Outcomes and results
1	Shallow boreholes and wells close to Jubilee Hill, north (and south) of the airport that are used for drinking water are identified and sampled (including south of airport).	<ol style="list-style-type: none"> 1. Identify boreholes/wells close to drainage and extending down the Pont Marquet catchment to sample. COMPLETE. (JR, TdF) 2. Sample and analyse results (TdF, JR). All now mapped out around the airport to give visual representation. 3. 5th Dec. some requests for the public being received and these are being referred to JW for sampling (EH, EP and JW) 4. ALS now offer a suite of PFAS analysis of 16 separate PFAS determinants. Cost is £300 per sample (exc shipping). Meeting agreed to sample 10 of the highest PFOS and PFOA private drinking water boreholes to assess where we are with respect to the sum of all PFAS and the current/proposed limit. To be done once EP sampler is back [REDACTED] 5. JW have sampled surface water and reservoirs for the x16 determinants- MB to send through the results to TdF <p>New sampling strategy received from Arcadis</p>	<ol style="list-style-type: none"> 1. Until the results south of the airport are confirmed the phrase 'that all boreholes/wells are within limits should be avoided'. There could be higher levels in this area. 2. Use borehole list developed by EP 3. Funding still required to cover costs to date circa £15,000 (total costs £20k?) 		
2	An investigation is undertaken to determine the sources of these higher levels of PFOS and PFOA, especially those emanating from the drainage of the airport. This is a view to potential remediation. As a result the formal regulatory position should at this stage be reserved.	[REDACTED]	[REDACTED]		[REDACTED]
3	More detailed testing of rainwater for PFAS is undertaken.	<p>Sample rainwater using advice from Jersey Met (glass beakers at Met sites). Ship with samples from South Airport. Scheduled 04/09/19 (TdF).</p> <p>Two samples of rainfall were taken with both showing small traces of PFOS and below detection traces of PFOA, 0.000145 & 0.00033ug/l resp</p>	<ol style="list-style-type: none"> 1. This will inform whether background cross-island levels are possibly partly due to diffusion into rain. 2. Strict control of contamination. 3. NOW COMPLETE 		To be sampled 04/09/19 (rain permitting)
4	Further sampling and investigation of the efficacy of various household treatment systems is undertaken so that Environmental Health can advise the public. This should include the potential impact of waste streams from such systems.	<ol style="list-style-type: none"> 1. Sample all available RO units before and after treatment. Possible extra samples [REDACTED]. Ongoing as and when. (TdF). 2. Five households with RO sampled. Results show all units have below detection of PFOA and PFOS. Agreed that this is sufficient 2. Talks with the water treatment companies will be important to garner public reaction to the report and trends in treatment. Waterways have had a numbers of calls after PFOS report. RO units now have a carbon filter to take out PFOS. Cylinders are also available. One whole house carbon treatment being fitted. It is worth talking to them. TdF to arrange meeting JW, CM (EH) and TdF. 15 Jan. 9am @ HDF CM, MB, [REDACTED] JR 			19-07-19 TdF phoned JFTU [REDACTED] There has been some public reaction to the report with enquiries of what does my current treatment treat and some (less than 5) calls for RO Units to be fitted. Quoted cost is £200-300 per unit. Four more RO units (total six) tested in current sampling above

<p>5</p>	<p>A system is developed to enable private households and businesses to test their water for pesticides and PFAS and their derivatives.</p>	<ol style="list-style-type: none"> 1. Discuss with █████ around public being able to take samples and receives results for PFAS and pesticide analysis through GoJ Official Analyst. 2. Immediate meeting █████. COMPLETE 3. Ensure that EP/EH are able to access water test results brought in by the public to identify hotspots/trends etc. (tick box on form). FIRM UP NEXT MEETING 4. █████ to be a member of the PFAS technical group. Check invite. (TdF) 5. Gap analysis of pesticide imports vs. determinants that are screened. Solutions need to be found for those pesticides that are not covered by the cheaper scanning suite offered (TdF). 6. Communicate to the public that JW can offer this service (AdeB, HS) 7. Recent meeting agreed. Tick box for testing pesticides (scan only) and PFAS to be included on Official Analyst sheet. Also include information sharing agreement. These will be passed to JW who will go out and sample and results when come back to Official Analyst. 	<p>22/07 Meeting with █████ █████/AS/AM/AdeB/TdF. Post report, a number of enquiries for full chemistry and micro but little for PFAS and pesticides. Most people opt for full chemistry and micro. New front sheet for the request for water analysis being developed █████. This includes a paragraph that testing does not presently cover PFAS or pesticides. Minister wants a system of testing to be put in place (that the public have the option and facility to do these tests).</p>		<ol style="list-style-type: none"> 1. Outcome of meeting with █████. Coms need to advise public of where they can test for PFAS and pesticides. Do this on web site and new leaflet. Difficult to judge long term uptake and hence required investment. PFAS relatively straight forward to do a test of over/under a prescribed limit. Probably too costly to do an actual level test. Short term provide a package and ship service on a monthly? timetable. If demand increases then look at on island testing. 2. Provide recommendations to the public (leaflet and web site etc) of how to test and cost (again through a package and ship service on a monthly basis). 3. Provide the public with what testing and the results of what we do now are on web site. 4. As well as the simple nitrate test (£10 cash at SoJOA dept.) provide a tick box for the public to share data with Gov. departments. 5. Link this in with the Kisters database to store the data. 6. Future talk on wording of reports that have impacted on public expectation of pollution in boreholes (for example small number of E.coli etc). 7. █████ invited to officer PFAS group (to be extended to once every month?) 8. general screening at States Analyst for PFOs etc. More detailed analyses including PFOS quantitative test with Jersey Water. Need to update guidance/website etc.
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	The Water Management Plan / other studies - remediation				
6	<p>Further work is undertaken to lower nitrate and pesticide levels both in surface and groundwater. These areas were identified in the 'Challenges for the water environment of Jersey' and the 'Water Management Plan' which was agreed by the States in Dec. 2016. Certain elements of the implementation of the Plan have progressed. These are mainly through voluntary initiatives of the agricultural and dairy sectors through the Action for Cleaner Water Group. However, the easy wins have been made. The Water Management Orders and new Water Code brought in under the Water Pollution (Jersey) Law 2000 will shortly be enacted and these elements and the Plan now require adequate funding, if nitrates and pesticide pollution is to be properly addressed. Further work remains to be undertaken in terms of updating the Pesticides (Jersey) Law, 1991.</p>	<ol style="list-style-type: none"> 1. Deliverables are the objectives of the Government Water Management Plan 2017-2021 2. Need to keep the agricultural industry at the table for further improvements 3. New post of Water and Environmental Officer. JD ready and funding now needs sourcing through ToM <p>P:\01 [REDACTED] [REDACTED]</p>	<p>Action needed to finalise and issue the appropriate provisions of the Water Quality Order and the Water Management Order. (By September)</p> <p>Further work needs to be done on the Code of Practice (by November)</p>		
7	<p>In the absence of a specific compliance parameter in the Water (Jersey) Law 1972 for PFAS, the wide variety of limits internationally and the proposals by the EU to adopt new parameters within the forthcoming Drinking Water Directive, the Government of Jersey should clarify its position in respect of acceptable PFAS concentrations in drinking water and consider the introduction of scientifically derived parameter compliance limits for PFAS within the forthcoming planned amendment to the Water (Jersey) Law 1972</p>	<ol style="list-style-type: none"> 1. Investigate a standard that is in line with EU and UK limits (given that these will likely reduce over time) (AdeB to talk to SP) 2. [REDACTED] can possibly input. MB to contact [REDACTED] to assess the current position of the EU. 	<ol style="list-style-type: none"> 1. This action came from the Chief Minister as it guides the level of Gov. intervention. 		
8	<p>A hydrogeological study to determine the extent of the PFAS pollution in St Ouen's Bay, the likely direction of travel of the pollution plume and prognosis for the future is undertaken.</p>	<ol style="list-style-type: none"> 1. Understand present extent and likely future migration/behaviour of the main St Ouen's Bay plume. 2. This might also need to include the plumes forecast response to greater groundwater abstraction by JW, development at Simon Sand etc. 3. The study and modelling will involve outside expertise and be potentially costly (AS to talk with political group). 4. Shared funding approach given differing needs 5. Discussions and visit by [REDACTED] and [REDACTED] on 13 Dec. To present work undertaken in Jersey and possible approaches for Jersey <p>This is a large and expensive piece of work - how do we take it forward, tender for this and secure funding?</p>	<ol style="list-style-type: none"> 1. Need to make contact with technical experts - past expert from Airport (19-07-19 contact details received), Arcadia etc. 2. Need to secure budget and establish who should pay. 		

9	Based on the output from the hydrogeological study, a study to investigate and implement options for the remediation of the PFAS pollution in St Ouen's Bay is undertaken.	<ol style="list-style-type: none"> Options appraisal of various treatment pump/treat options. JW pump and treat water for supply = clean up of aquifer (wider links here to above AS to talk with political group and HS). The visit from Arcadis (13 Dec) will inform the work for the St Ouen's plume (already some work) and the Pont Marquet catchment (no information apart from the current sampling). The work around St Ouen and Pont Marquet has large island implications for secure water supply and the meting agreed that it needs to be progressed. Sequence of events to be a) Arcadis visit, b) Arcadis to produce a proposed methodology for phase 1 (the hydrological study), c) Produce final PFAS report (could be a summary of the 18 recommendations) d) present finding to CoM for funding 	<ol style="list-style-type: none"> Links in with JW 25 year resource plan Link with Island Plan Some experience might be gained from Guernsey. Consider wider benefits when undertaking cost/benefit analysis. 		
10	That a hydrogeological study to confirm the initial results and determine the extent of the PFAS pollution in the Pont Marquet catchment (including the effect on boreholes and wells), the likely direction of travel of the pollution plume and prognosis for the future is undertaken.	This is a large and expensive piece of work - how do we take it forward, tender for this and secure funding?			
11	Based on the output from the hydrogeological study, an investigation of the options for the remediation of the PFAS pollution in the Pont Marquet catchment is undertaken.	as above	<ol style="list-style-type: none"> St Ouen well fields and Pont Marquet is 7% of island supply 		
12	To permanently offset the inherent risk to the pollution of groundwater and to safeguard public health, the island-wide distribution of both mains drains and mains water is recommended. Noting that this will have implications for water resources in the Island.	<ol style="list-style-type: none"> New model needs to be developed. Discussions needed with Political group and treasury/GHE operations on possible funding/loan mechanism (AS). This needs to be chased with AS and a meeting fixed up. 	<ol style="list-style-type: none"> Mains water is pumped and foul drainage is usually gravity. Therefore they cannot always go in the same trench. 		
13	That any on-island use of shorter-chained PFAS compounds is identified and a precautionary approach for early withdrawal of those products is undertaken.	<ol style="list-style-type: none"> Discussion and action plan with Ports. Recommendation contained in Ports letter above. Need to follow up on letter to Ports (TdF, JR) Arcadis will inform on this but likely precautionary approach needs to be taken with Ports, given the current contamination of Pont Marquet. 	<ol style="list-style-type: none"> Precautionary approach 19-07-19 Letter sent to Ports to ask what they use for emergency and practise 		
	Health impacts	Key deliverables		Timeline for completion	Outcomes and results
14	With their own and families health as the main concern, islanders with private water supplies should ensure they are tested regularly, and pursue measures recommended by their water treatment company to ensure their water is as safe as possible. Environmental Health will continue to produce and update information leaflets and webpages about water quality in private supplies. Individuals with any health concerns should consult their general practitioner.	<ol style="list-style-type: none"> Update health leaflets, web sites and advice (AdeB, CM) Household leaflet now completed. Small work left for the pregnant mothers leaflet (CM). 		September	

15	Government does not need at this point to intervene in the water supply from a public health standpoint as tests show that levels of PFAS are generally well within expected regulatory levels. This message will need to be communicated to residents at the same time of the publication of this report, and an ongoing engagement be designed on all issues relating to water quality.	1. Depends on the results of sampling for all 16 PFAS (total PFAS and compliance with current standards)	1. Until the results south of the airport are confirmed the phrase 'that all boreholes/wells are within limits should be avoided'. There could be higher levels in this area.		
	Public engagement	Key deliverables		Timeline for completion	Outcomes and results
16	Improve awareness of the need to register boreholes and ensure that those with private water supplies are aware of the possibility of pollution, and the importance of regular testing and management of their source (leaflets are in the process of being produced which will support this).	as above			
17	Ensure that gov.je is a reliable source of information on pollution and testing methods, and direct those seeking information to the gov.je using social media and traditional media where necessary. This will need to be supplemented by activity for those who do not use digital communication channels.	as above. Inc. other communications messages for those not on digital (AM)			
18	Subject to Data Protection and other regulations, create a database of emails of registered borehole users, to be held by Environmental Health, so that users can be contacted quickly and directly in the event of issues being found.	1. The total list of all borehole/well users is held by Environmental Protection. These are already used to inform of pollution events etc. and are available to all.	1. A requirement of registration under the Water Resources (Jersey) Law 2007		