



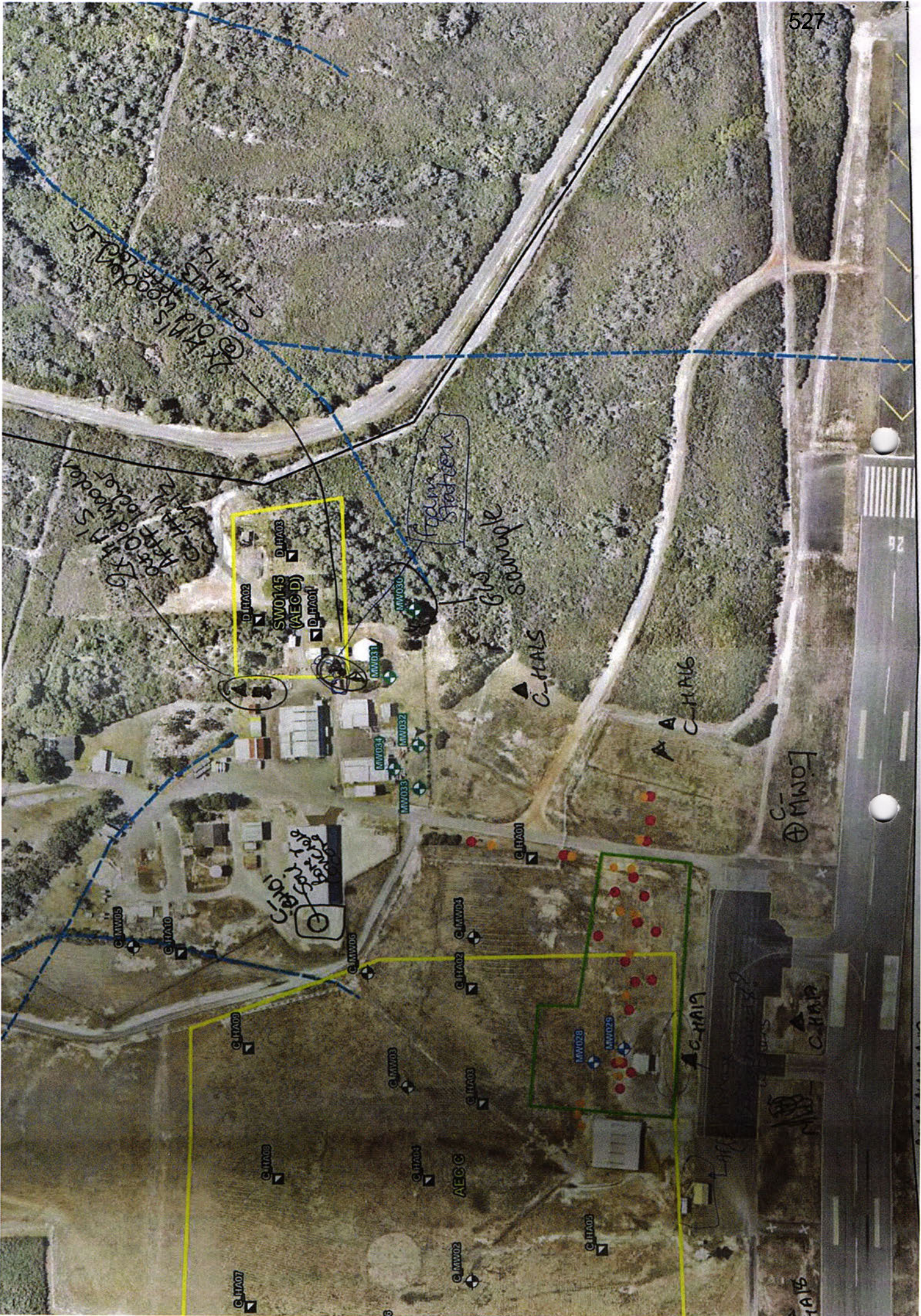
s for additional 12 soil bores and 4 groundwater wells

LEGEND

- Jarvis Bay Range Facility
- Areas of Environmental Concern - IRPE
- Existing Groundwater Well (To Be Sampled)

N

Handwritten note: A Soil Bore...



Stedman, Andrew (Health)

From: Krsteski, Radomir (Health)
Sent: Monday, 26 June 2017 1:14 PM
To: [REDACTED]
Cc: Stedman, Andrew (Health)
Subject: RE: RESULTS & EDD for ALS Workorder : CA1606699 | Your Reference: Jervis Bay [SEC=UNCLASSIFIED]

Hi [REDACTED]

more than happy to clarify, Lake Windermere sample is the surface water at Lake Windermere, Raw water sample is the raw water from Lake Windermere at the treatment plant and processed water is the output drinking water at the treatment plant after processing. Subsequent samples were taken on 19/12/16 of all of the bore samples but not of three above mentioned samples, Lake Windermere was excluded, our main concern at the time was with the positive bore water sample at Kullindi.

Let me know if you need anything else,

Cheers
 Rad

**Radomir Krsteski**

A/g Manager | Environmental Health
 Health Protection Service | Population Health | ACT Health
 25 Mulley Street Holder ACT | Locked Bag 5005 Weston Creek ACT 2611
 T 02 62050956 | M Mobile [REDACTED] | E radomir.krsteski@act.gov.au | Website |

From: [REDACTED]@infrastructure.gov.au]
Sent: Monday, 26 June 2017 9:49 AM
To: Krsteski, Radomir (Health)
Cc: [REDACTED]
Subject: FW: RESULTS & EDD for ALS Workorder : CA1606699 | Your Reference: Jervis Bay [SEC=UNCLASSIFIED]

Good Morning Rad

I'm just tidying up some loose ends regarding PFAS testing in the JBT. Could you please assist by identifying the locations of each sample for 3, Raw Water, 4, Processed Water, and 5, Lake Windermere?

Also, I believe that subsequent samples were taken at a later date and tests found no further traces. Can you confirm that this is correct and advise the date subsequent samples were taken?

Regards

[REDACTED]

From: [REDACTED]
Sent: Monday, 19 December 2016 8:36 AM
To: [REDACTED]@infrastructure.gov.au>
Subject: FW: RESULTS & EDD for ALS Workorder : CA1606699 | Your Reference: Jervis Bay [SEC=UNCLASSIFIED]

[REDACTED]

Please review & discuss next steps.

Thanks

From: Krsteski, Radomir (Health) [mailto:Radomir.Krsteski@act.gov.au]

Sent: Friday, 16 December 2016 6:26 PM

To: [REDACTED] [REDACTED] [REDACTED]@infrastructure.gov.au>

Subject: RESULTS & EDD for ALS Workorder : CA1606699 | Your Reference: Jervis Bay [SEC=UNCLASSIFIED]

Hi [REDACTED]r,

Attached are the latest PFAS results for Jervis Bay samples we took on the 29/11/2016. This time around we did find some PFAS in the following sites:

- Raw Water pre-treatment JBT at 2.99µg/L
- Kullindi Homestead BBQ tap potable water at 0.04µg/L.

To provide you with information about Kullindi homestead, the water is bore sourced, to supply the heritage listed homestead providing accommodation for holiday goers. PFAS was detected in Kullindi homestead BBQ tap drinking water at 0.04µg/L (sampled 29/11/2016). The bore water has a small treatment setup with the following setup: first filter of 10microns; second Filter 0.5 microns; UV radiation; and then to taps. The water services a total five separate units within the main building, set around a common courtyard that includes two all weather gas fired BBQs, for a maximum of 20 guests at one time not including the owner/manager. The sample was from a tap at one of the BBQs. The results is well below enHealth interim PFAS health reference values of 0.5ug. The nature of the site being bore water may influence the potential for fluctuations that may coincide with weather patterns as PFAS may intermittently migrates to the bore reservoir or as you suggested an initial plume. This may explain why previous (May 2016) results found nothing. We will organise sampling of all bore water sites and increase our sampling rate to determine whether it is an emerging or receding plume.

Just some additional information to this, while we found no PFAS from Lake Windemere surface water we did find it in the Lake's raw water extraction point (at 2.99ug/L) which varies and is generally a lot lower than the surface. Lake Windemere it is rain fed, but in saying that it would still get some ground water through aquifers at its lower depths and stratification would reduce mixing. The Lake's water treatment process of: pre Ozone generator and flocculation; sand filtration; ozone treatment & ozone contact tank; carbon filtration (removes ozone); chlorination at 1.5mg/L and; fluoridation, did successfully remove the PFAS from the water as evidenced by end point testing of the treated water sample taken from the plant. Lake Windemere it is rain fed, but in saying that it would still get some ground water through aquifers at its lower depths. The previous results (May 2016) found no PFAS in the Lake's raw water extraction sample, which could potentially reinforce the assumption that weather and namely large rainfall can influence PFAS levels in this area.

Let me know if you need any more information,

Cheers
Rad

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Stedman, Andrew (Health)

From: [REDACTED] <[REDACTED]@defence.gov.au> on behalf of PFASIM Jervis Bay
 <pfasim.jervisbay@defence.gov.au>
Sent: Thursday, 29 June 2017 3:19 PM
To: [REDACTED]; [REDACTED]@infrastructure.gov.au; Clapham, David
Cc: PFASIM Jervis Bay; [REDACTED]@infrastructure.gov.au; Krsteski, Radomir (Health); Chester, Heath; Stedman, Andrew (Health)
Subject: FW: PFAS use in Jervis Bay Territory - JBT [SEC=UNCLASSIFIED]
Attachments: Shoalhaven - PFAS use in Jervis Bay Territory JBT.PDF

UNCLASSIFIED

Dear [REDACTED] and David,

Please find below and attached for your records advice provided by Shoalhaven District NSW RFS on the use and storage of 3m Lightwater AFFF at their 3 Jervis Bay Territory Station sites.

Regards,

[REDACTED]
 [REDACTED]
 (Contractor to Defence)
 Defence Project Manager - Environmental Investigations
 PFAS Investigation and Management Branch
 Department of Defence

T: [REDACTED]
 E: [REDACTED]@defence.gov.au
 A: BP8-1, 8 Brindabella Circuit, Brindabella Business Park
 PO Box 7925, Canberra BC 2610

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From: [REDACTED] On Behalf Of PFASIM Jervis Bay
Sent: Monday, 26 June 2017 12:28 PM
To: [REDACTED]; PFASIM Jervis Bay
Subject: RE: PFAS use in Jervis Bay Territory - JBT [SEC=UNCLASSIFIED]

UNCLASSIFIED

Good Afternoon Paul,

Thank you for your advice on my questions on historical use and storage of 3M Lightwater AFFF.

I appreciate your time.

Kind Regards,
 [REDACTED]

[REDACTED]
 (Contractor to Defence)
 Defence Project Manager - Environmental Investigations
 PFAS Investigation and Management Branch
 Department of Defence

T: [REDACTED]
 E: [REDACTED]@defence.gov.au
 A: BP8-1, 8 Brindabella Circuit, Brindabella Business Park
 PO Box 7925, Canberra BC 2610

IMPORTANT: This email remains the property of the Department of Defence and is subject to the jurisdiction of section 70 of the Crimes Act 1914. If you have received this email in error, you are requested to contact the sender and delete the email.

From: [REDACTED] [REDACTED]@rfs.nsw.gov.au]
Sent: Monday, 26 June 2017 12:13 PM
To: PFASIM Jervis Bay
Subject: RE: PFAS use in Jervis Bay Territory - JBT [SEC=UNCLASSIFIED]

[REDACTED],

3M Lightwater AFFF, has not been stored at any of the Jervis Bay Territory Rural Fire Stations. The only foam to be stored at these locations is BFFF which is an "A" class foam without the associated problems of AFFF.

Since the late 90's, a local policy has existed restricting the use of all foams within the JBT and is still in place today. Even though "A" class foam is stowed on stations and trucks, its use is strictly governed by the fire conditions, location and environmental factors. The last time "A" class foam was used was during the Hylands major fire in Dec 2001 to protect houses after the fire jumped from Sussex Inlet to Christians Minde.

Storage of "A" class firefighting foams has at all times been within the station on an impervious concrete floor.

Should you require further information please contact me.

Regards,



[REDACTED] | Operational Services Coordinator | Shoalhaven District
NSW RURAL FIRE SERVICE
 Shoalhaven Fire Control Centre
 92 Albatross Rd Nowra NSW 2541 | P.O Box 372 Nowra NSW 2541
 [REDACTED] 02 4421 7576 M [REDACTED] E [REDACTED]@rfs.nsw.gov.au
www.rfs.nsw.gov.au | www.facebook.com/nswrfs | www.twitter.com/nswrfs
 PREPARE. ACT. SURVIVE.

From: [REDACTED] [REDACTED]@defence.gov.au] On Behalf Of PFASIM Jervis Bay
Sent: Thursday, 22 June 2017 4:46 PM
To: [REDACTED] [REDACTED]@rfs.nsw.gov.au>

Cc: PFASIM Jervis Bay <pfasim.jervisbay@defence.gov.au>
 Subject: RE: PFAS use in Jervis Bay Territory - JBT [SEC=UNCLASSIFIED]

UNCLASSIFIED

Dear [REDACTED],

Thank you for your letter outlining historical training activities associated with the three RFS stations located on Jervis Bay Territory.

Although the foam was not expelled through fire fighting applicators in the vicinity of these three stations could you please confirm at the very least that 3M Lightwater AFFF was likely stored at all three locations at some point in time in the past?

Kind Regards,

[REDACTED]
 (Contractor to Defence)
 Defence Project Manager - Environmental Investigations
 PFAS Investigation and Management Branch
 Department of Defence

T: [REDACTED]
 E: [REDACTED]@defence.gov.au
 A: BP8-1, 8 Brindabella Circuit, Brindabella Business Park
 PO Box 7925, Canberra BC 2610

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From: [REDACTED]@rfs.nsw.gov.au]
Sent: Thursday, 22 June 2017 1:35 PM
To: [REDACTED]
Subject: PFAS use in Jervis Bay Territory - JBT

[REDACTED]
 Please find attached the letter as requested.

Should you require further information please contact me.

Regards,



Inspector [REDACTED] | Operational Services Coordinator | Shoalhaven District
 NSW RURAL FIRE SERVICE
 Shoalhaven Fire Control Centre
 92 Albatross Rd Nowra NSW 2541 | P.O Box 372 Nowra NSW 2541
 F 02 4421 7576 M [REDACTED] E [REDACTED]@rfs.nsw.gov.au
www.rfs.nsw.gov.au | www.facebook.com/nswrfs | www.twitter.com/nswrfs

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NSW RURAL FIRE SERVICE



██████████
PFAS Branch - Department of Defence
As Addressed

Your reference
Our reference

23/06/14

Dear ██████████

PFAS use by Rural Fire Service in Jervis Bay Territory

Following our phone conversation on the 21st June 2017 regarding the use of PFAS containing Fire Fighting Foams, to the best of my knowledge, I am able to confirm the fire Brigades operating under the Jervis Bay Territory Rural Fire Service did not use PFAS containing foams (AFFF) at or near their stations.

All training with "B" class foams was undertaken at the NSW Rural Fire Service Training Centre at 92 Albatross Rd South Nowra, or as combined emergency services drills at the Navy School of Survivability & Ship Safety training grounds, Wreck Bay Rd Jervis Bay Territory.

The NSW Rural Fire Service manages the operational requirements for the Jervis Bay Territory Rural Fire Service and has removed any old stock from the stations which are located at:

- Wreck Bay Rural Fire Brigade
Wreck Bay Rd
Wreck Bay Village JBT Lat: -35.166533 Lon: 150.690772
- Jervis Bay Rural Fire Brigade
College Rd
Jervis Bay Village JBT Lat: -35.129762 Lon: 150.703335
- Christians Minde Rural Fire Brigade
Via Elmoos Rd
Christians Minde JBT Lat: -35.156638 Lon: 150.606610

Should you require further information please contact me.

Regards,

Inspector ██████████
Operations Coordinator
Shoalhaven Fire Control Centre

Postal address

NSW Rural Fire Service
Shoalhaven District
PO Box 372
NOWRA NSW 2541

Street address

NSW Rural Fire Service
Shoalhaven District
92 Albatross Road
NOWRA NSW 2541

T (02) 4424 4424
F (02) 4421 7576
E shoalhaven@rfs.nsw.gov.au
www.rfs.nsw.gov.au



Investigation Background

In March 2017, Defence engaged GHD Pty Ltd, an independent environmental consultant, to conduct a detailed environmental investigation into the presence of per- and poly-fluoroalkyl substances (PFAS) on, and in the vicinity of, the Jervis Bay Range Facility (JBRF).

Due to its close proximity to the JBRF property, HMAS Creswell will fall within the investigation area of the detailed environmental investigation.

Defence has a history of using legacy aqueous film forming foam (AFFF) for emergency fire fighting situations and training. In 2004, Defence commenced phasing out its use of legacy AFFF containing perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) as active ingredients. Perfluorohexane Sulfonate (PFHxS) was also commonly found in legacy AFFF as an impurity in the manufacturing process. The AFFF now used by Defence is a more environmentally safe product.

Feedback from March Community Information Session

This community update has been developed to address some of the questions raised during the community information session held in March 2017. Defence will continue to monitor community engagements and feedback to assist in answering community queries.

About the Investigations

Why is Defence conducting investigations for PFAS on and around Jervis Bay Territory?

The investigation is part of Defence's review of a number of its sites around Australia that used fire-fighting foams containing PFAS.

PFAS are emerging contaminants of concern because they are persistent in the environment – this means that they do not easily break down in the environment.

There are three PFAS chemicals of concern to Defence.

These are PFOS, PFOA and PFHxS. These chemicals are the focus of the environmental investigations into PFAS on and adjacent to Defence sites.

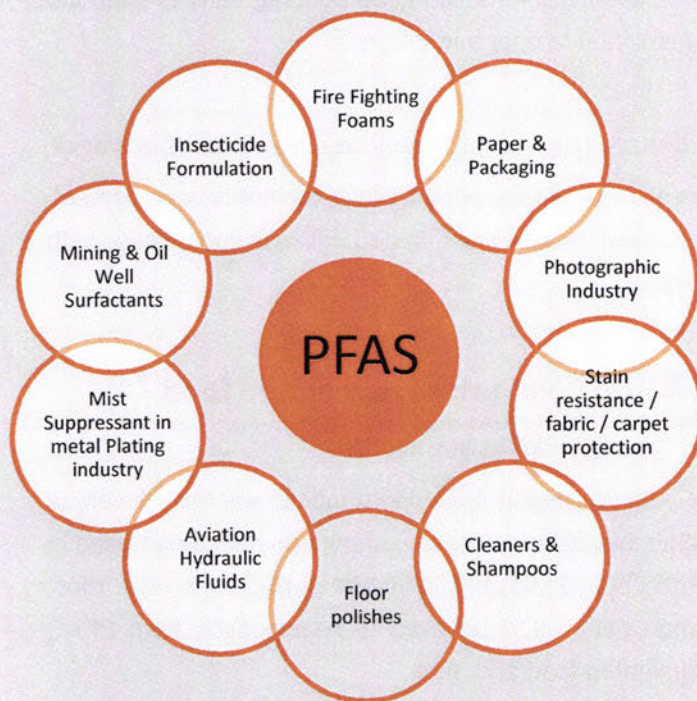


Figure 1: Common sources of PFAS

What sampling will be done as part of the investigation?

The investigation involves the collection of sediment, surface water, groundwater and soil samples. The samples are sent to a laboratory for analysis of PFAS compounds, the data from which will be compared to relevant Commonwealth, NSW, and/or ACT EPA endorsed investigation levels.

How are risks being managed for the investigation?

GHD will collect samples of water and biota (animals and plants) and submit the analysed data to Defence and ACT/Commonwealth regulatory agencies. At the local level Defence will liaise with the Wreck Bay Aboriginal Community Council (WBACC) Board and Jervis Bay Territory Administration should there be a need to inform community about exposure risks.





What consultation is planned with the community?

Consultations with the community will be conducted to understand how people use the local land and water, to assist in determining where sampling should be conducted. Information sessions will also be held regularly to keep the community up to date and informed.

Will there be any employment to come from this work?

There may be some opportunities for minor employment. Defence will discuss these opportunities in consultation with the WBACC.

PFAS and health risks, water and food

What are the risks to our health?

Most people living in developed nations will have levels of PFAS in their body as these compounds have been used in common household and industrial applications. The most common pathway is believed to be ingestion from PFAS contaminated food and drink.

According to the Environmental Health Standing Committee (enHealth) Guidance Statements on PFAS, released in June 2016, there is currently no consistent evidence that exposure to these PFAS causes adverse human health effects. However, because PFAS compounds persist in humans and the environment, enHealth recommends that human exposure is minimised as a precaution.

Fact sheets and further information on PFAS and health are available on the Department of Health website (see *Useful Links*).

How long does PFAS remain in people?

The time it takes for PFAS to be excreted from the body is the same for adults and children. In humans, studies suggest that the half-life of PFAS could range from two to nine years.

What are acceptable background levels for drinking water that contains PFAS?

There are no levels defined for PFAS in the Australian Drinking Water Guidelines (2011). However, on 3 April 2017, the Commonwealth Department of Health released health based guidance values for use in investigation sites across Australia. The value for drinking water is 0.07 µg/L for PFOS/PFHxS and 0.56 µg/L for PFOA.

The health based guidance values are protective of human health and are a precautionary measure for use when conducting site investigations. The health based guidance values assist in providing advice to affected communities on how to minimise exposure to PFAS.

Can food sourced from the area be eaten?

Currently, there are no advisories in place to warn against eating locally sourced food. The Commonwealth Department of Health has stated that exposure to PFAS can occur from food, water (ground and surface water) and various consumer products. Dietary exposure to PFAS from the general food supply is likely to be low as the majority of samples in studies reported in Australia did not detect these chemicals in testing.

NSW Department of Health is advising that if you live in a PFAS affected area there are a number of actions that may be taken to minimise exposure to PFAS. These include not using groundwater (from bores) or surface water (from creeks, rivers, lakes for example) for drinking or cooking, avoiding swallowing groundwater or surface water and avoiding the consumption of home grown produce or minimising consumption of seafood.

The outcome of the Defence investigation at Jervis Bay Territory, Defence establishments and Booderee Aboriginal Lands will provide comprehensive advice on the presence of PFAS in water, soil and locally grown produce which will be communicated to the community as information becomes available.





Will community members require blood tests, particularly those previously involved in handling AFFF?

Individual blood testing for PFAS is not currently helpful to manage any current medical problems or to predict future health problems. All Australians are expected to have some amount of PFAS in their blood due to the wide range of things it has been used for. A broad range of levels would be expected in all communities due to background exposure. There is no level of PFAS that is considered 'normal' or 'abnormal'.

The Australian Government, led by the Department of Health, has established a Voluntary Blood Testing Program for people that work or live, or have worked or lived, within the investigation areas at Williamtown and Oakey. This includes people currently living elsewhere who previously lived or worked at these places.

The Voluntary Blood Testing Program is being conducted in conjunction with an epidemiological study and these activities are focused on the Oakey and Williamtown communities because the extent of contamination and the exposure pathways are well understood. The extent of contamination at other sites, including JBRF, is still being determined. These activities at Williamtown and Oakey will

contribute to our understanding of the potential health risks associated with PFAS and inform decisions on the potential for similar activities at other sites in the future.

Past testing and results

What environmental testing has occurred at the Jervis Bay Defence sites in the past?

Previous contamination assessment activities conducted at Jervis Bay Territory that relate to Wreck Bay lands:

- Previous investigations by Coffey (1996) and PPK (2001) identified hydrocarbon contamination within several areas of JBRF with the contamination migrating up to 30m over the boundary into Wreck Bay lands.
- A Remedial Action Plan was prepared by Parsons Brinckerhoff (PB) in March 2004 to support the remediation of hydrocarbon contamination migrating from JBRF into the Mary Creek catchment on Wreck Bay land.
- The contamination was assessed as posing a low to moderate risk to human health and the environment particularly if left undisturbed.
- The remediation and validation was undertaken of the source area (drum disposal area) with a NSW Site Auditor engaged to determine if works met the objectives of the Remediation Action Plan.

A validation Report (PB, 2006) indicated that remediation was successful in reducing hydrocarbon contamination to below investigation levels at the source area. The report recommended that an aftercare monitoring plan be implemented to monitor the natural reduction of any residual contamination in the Mary Creek catchment.

- A validation Report (PB, 2006) indicated that remediation was successful in reducing hydrocarbon contamination to below investigation levels at the source area. The report recommended that an aftercare monitoring plan be implemented to monitor the natural reduction of any residual contamination in the Mary Creek catchment.

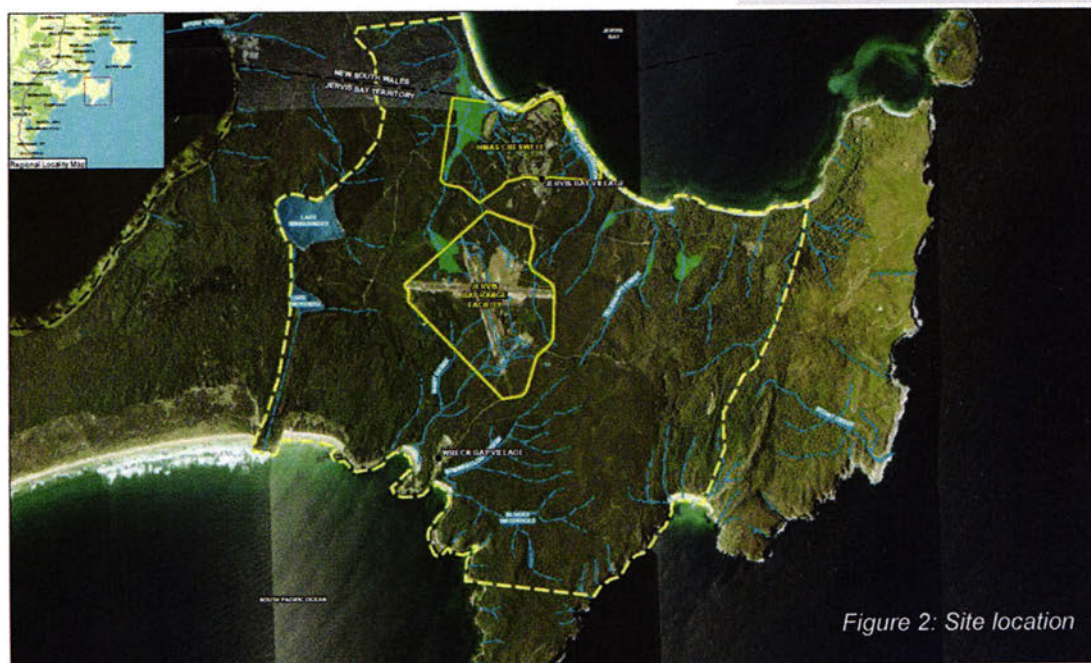


Figure 2: Site location





- Under the Jervis Bay Territory Agreement, ACT Environment and ACT Health undertake some water quality monitoring for Wreck Bay lands including hydrocarbons.
- It is likely that given the time since remediation (approx 10 years), natural reduction of the hydrocarbons has successfully occurred such that residual hydrocarbon contamination no longer poses a risk to human health or the environment. This will be assessed as part of the PFAS investigation.

Meeting local residents to discuss water and land use

Over the past couple of weeks the GHD community engagement team has been meeting with residents to discuss how they use locally sourced food and water.

If you would like to meet with the engagement team to discuss how you use locally sourced food and water please contact us to arrange a meeting at a convenient time that suits you.

The information collected will help guide the environmental investigation, particularly the detailed sampling program when the offsite sampling begins.

Useful Links

The Australian Government Department of Health has established a PFAS webpage:

<http://www.health.gov.au/internet/main/publishing.nsf/content/ohp-pfas.htm>

Department of Health PFAS hotline: 1800 941 180

Health Based Guidance Values:

<http://www.health.gov.au/internet/main/publishing.nsf/content/ohp-pfas-hbgv.htm>



Figure 3: GHD's environmental scientists carrying out environmental investigations at Jervis Bay Range Facility.

Keeping the community informed

Defence is committed to regularly updating the community throughout the investigation. As well as community information sessions, updates are provided through the project website, direct mail and information sheets as new information becomes available.

Contact the Project Team

Phone: 1800 987 618

Web: <http://www.defence.gov.au/id/PFOSPFOA/>

Email: JervisBay@ghd.com

Post: Defence JBTA Environmental Investigations
GHD Stakeholder Engagement Team
Level 15
133 Castlereagh Street
Sydney NSW 2000

Media enquiries should be directed to Defence Media Operations on (02) 6127 1999 or media@defence.gov.au





Australian Government
Department of Defence
 Estate and Infrastructure Group

PFAS Environmental Investigation – Jervis Bay Range Facility
PROJECT CONTROL GROUP MEETING # 4

Administrative Details	
Date	Tuesday 20 June 2017
Time	14:00
Venue	Teleconference
Dial-in Details	Toll ----- [REDACTED] [REDACTED] Toll-free ----- [REDACTED] [REDACTED] Participant PIN: [REDACTED]
Chair	[REDACTED], Defence Project Director
Minutes	Taken by [REDACTED] [REDACTED]

ATTENDEES	
Defence	
[REDACTED] ([REDACTED])	Project Director, Environmental Investigations
[REDACTED] ([REDACTED])	Project Manager
[REDACTED] ([REDACTED])	Project Manager
Lead Contractor (LC), GHD	
[REDACTED] ([REDACTED])	Service Line Leader - Contamination Assessment & Remediation
[REDACTED] ([REDACTED])	Principal Environmental Consultant
[REDACTED] ([REDACTED])	Principal - Stakeholder Engagement
[REDACTED] ([REDACTED])	Project Manager
[REDACTED] ([REDACTED])	Principal - Stakeholder Engagement
Site Auditor (SA), AECOM	
[REDACTED] ([REDACTED])	Technical Director-Environment Defence appointed peer review
[REDACTED] ([REDACTED])	Site auditor assistant
Agencies	
[REDACTED] ([REDACTED])	Jervis Bay Territory Administration
Mr Heath Chester (HC)	ACT Construction, Environment and Workplace Protection
[REDACTED] ([REDACTED])	NSW EPA
Mr Radomir Krsteski (RK)	ACT Health
[REDACTED] ([REDACTED])	NSW Health
Meeting Minutes	
Agenda Item	Summary

Welcome and Conduct of PCG Meetings	<p>(█) Defence PFAS -Welcomed attendees to the JBRF PFAS Investigation meeting.</p>
Investigation Progress Detailed Site Investigation	<p>(█) GHD presented an overview of site investigation works completed to date.</p> <ol style="list-style-type: none"> a. Fieldwork for the on-site component of the investigation is now complete with the exception of minor follow up sampling at some on-site locations. b. Three (3) factual memorandums containing (a) the analytical results of samples, and (b) sample location plans, have now been issued to agencies. c. One (1) further factual memorandum will shortly be issued containing the last of the on-site results which have only recently been received by GHD. d. █ – requested consideration around surface water run off from Defence land to the police station / area around Chambers St in Jervis Bay village. e. GHD is in the process of generating factually based figures that spatially represent the results (i.e. analytical results annotated on the figures). This is expected better highlight the outcomes of the on-site investigation. One set of figures will contain soil and sediment results, and another will be generated for surface water and shallow groundwater. f. Interpretation of the results in the context of the site setting has not commented on the basis that the beneficial uses to be protected within down gradient receiving environments have not yet been confirmed. This is currently underway as part of the off-site water use and land use surveys.
SAQP and Conceptual Site Model	<ol style="list-style-type: none"> 1. (█) GHD – sampling and analysis plan (SAQP) (REV 1) consultation has been completed by the PCG. No comments received from WBACC. 2. GHD is conducting water use surveys and a summary report of the findings will be prepared and issued to Defence, Site Auditor and PCG. GHD will consider improvements to conceptual site model from water use surveys to feed into the SAQP REV2. 3. GHD have prepared a comments register and the revised SAQP REV2 will be issued on completion of the water use surveys. 4. █ queried whether the Western Lease Land will be incorporated into the sampling and analysis plan. █ advised that at this time the investigation will focus in an inwards out methodology. Once more is known about the potential PFAS migration from JBRF towards the lakes and beyond a plan can be considered for a focus on sampling at the Western Lease Lands if feasible. █ indicated that GHD are proposing five additional boreholes to assess pathways / conceptual side model in the direction of the Western Lease Land; as well as testing the Christian Mindes bore sampled by ACT Gov. 5. GHD and Defence are liaising with the Rural Fire Service regarding the Christian Mindes fire station and positive PFAS concentration recorded during ACT sampling of a bore in the area. 6. TM requested consideration around surface water runoff from Defence land to the police station / area around Chambers St in Jervis Bay village. █ to provide a response.

Future Stages - Detailed Site Investigation	<ol style="list-style-type: none"> 1. GHD currently concentrating on off-site stakeholder consultation to confirm the beneficial uses of land within down gradient receiving environments. This information is required to inform SAQP Version 2, which will detail the off-site soil, sediment, surface water, groundwater and biota investigation plan. 2. This is to be followed by completion of the offsite investigations in accordance with an approved SAQP Version 2.
Future Stages - Human Health and Ecological Risk Assessment (HHERA)	<ol style="list-style-type: none"> 1. Based on the preliminary conceptual site mode and the results of the investigation to date, it is anticipated by GHD that a HHERA will be required to achieve the objectives of the investigation. 2. Integral to completion of the HHERA will be the off-site results, including importantly for biota. 3. The biota SAQP (to be included as part of SAQP Version 2) will be informed by the outcomes of the off-site stakeholder consultation currently underway.
Site Auditor Update	<ol style="list-style-type: none"> 1. The site auditor conducted a site visit on the 26 and 27 April 2017 to ground truth and observe the GHD sampling being undertaken in the source areas. 2. GHD has incorporated the comments given by the auditor regarding some additional investigation areas within the onsite works that have been conducted 3. Site auditor commented that they are awaiting the revised SAQP Rev 2 including biota SAQP for review.
Stakeholder & Community Engagement	<ol style="list-style-type: none"> 1. The key stakeholder issue to overcome for the project continues to be site access to Wreck Bay land to undertake the detailed site investigation works. WBACC are continuing to make arrangements to obtain an independent expert review of the SAQP prior to granting access to the land for sampling. 2. The project current priority and focus in the meantime is to undertake the water use and land survey through one-on-one engagement with the Wreck Bay community. 3. Defence has provided in principal agreement for community employment opportunities for Wreck Bay community members as part of the investigation project. These are: <ul style="list-style-type: none"> • Cultural Adviser – to provide advice to the sampling team during the field works in relation to the avoidance of actions that may result in disturbance of areas of cultural significance • Field hand - to assist the site investigation team undertaking the field sampling activities • Liaison Officer – to provide the sampling team with a local WBACC interface and point of contact for daily liaison
Meetings and Briefs	<ol style="list-style-type: none"> 1. GHD () detailed that GHD is attempting to build relationships and conduct expanded water and land use survey, which includes understanding the type, locations and frequency of consumption of traditional locally sourced foods.
Fact sheet	<ol style="list-style-type: none"> 1. TM requested that fact sheet be issued to the community containing responses to the questions that were raised at the community forum. 2. The project team will provide this to the community and to the PCG with this has been finalised.
Community Enquiries	<ol style="list-style-type: none"> 1. No enquiries on the 1800#

Risks and Issues	1. () Identified that the key risk to the project continues to be effective engagement with community and gaining trust. Project team to step up community engagement and trust building over the course of the coming weeks in conducting the water and land use survey.
Other Business	Nil
Meeting Close	15:00

Action Items			
Item #	Description	Owner	Due date
1	GHD to prepare two factual figures of the concentration gradients	()	31/07/17
2	Factual memo 4 to be issued	()	23/06/17
3	Prepare and issue community fact sheet	()	07/07/17

Moroney, Rebecca (Health)

From: Kelly, Paul (Health)
Sent: Monday, 10 July 2017 9:39 AM
To: Heckenberg, Mark; Power, David; Chester, Heath; Clapham, David
Cc: Rutledge, Geoffrey; Middlemiss, David; Jones, Greg; Krsteski, Radomir (Health); Barr, Conrad (Health); Pengilley, Andrew (Health); McNeill, Laura (Health)
Subject: RE: Department of Defence contamination - "PFAS & PFOA" - Jervis Bay Territory [SEC=UNCLASSIFIED]

Thanks Mark,

Rad, Conrad, Andrew, for your info. Laura please TRIM this email train, I suspect it will become relevant to us at some point.

Paul

Dr Paul Kelly

ACT Chief Health Officer & Deputy Director-General |

Population Health | ACT Health Directorate

PH 02 6205 2108 | E paul.kelly@act.gov.au

 Paul Kelly - ACT CHO (@PKelly_ACTCHO) on Twitter

<http://www.health.act.gov.au/healthy-living/population-health>



From: Heckenberg, Mark
Sent: Monday, 10 July 2017 7:25 AM
To: Power, David; Chester, Heath; Clapham, David
Cc: Rutledge, Geoffrey; Middlemiss, David; Jones, Greg; Kelly, Paul (Health)
Subject: FW: Department of Defence contamination - "PFAS & PFOA" - Jervis Bay Territory [SEC=UNCLASSIFIED]

FYI

Mark Heckenberg | Manager, Contaminated Sites | Environmental Quality

Phone: 02 6207 2151 | Email: mark.heckenberg@act.gov.au

Construction, Environment and Workplace Protection | Access Canberra | ACT Government

GPO Box 158 Canberra ACT 2601 | <http://www.act.gov.au/accesscbr>

From: Heckenberg, Mark
Sent: Friday, 7 July 2017 2:53 PM
To: [REDACTED]@environment.nsw.gov.au>
Cc: [REDACTED]@epa.nsw.gov.au>
Subject: RE: Department of Defence contamination - "PFAS & PFOA" - Jervis Bay Territory [SEC=UNCLASSIFIED]

H [REDACTED],

Thanks for your email.

Based on legal advice the ACT Government has received whilst ACT Legislation applies in the JBT the Commonwealth are not bound by it. Having said that the ACT EPA has recommended/required that Defence engage an ACT approved contaminated land auditor to review all assessment and remedial works associated with this issue. As I understand Defence has engaged an auditor for this purpose, although they have not notified the ACT EPA, as it is not considered a statutory audit under our legislation.

The ACT EPA does not have the expertise to undertake this review so would therefore recommend that the Wreck Bay Community privately engaged their own auditor if that are not confident with the independence of Defence's auditor.

I would be happy for you to provide Mr Hansen with my details if he would like to discuss the matter further.

Regards Mark

Mark Heckenberg | Manager, Contaminated Sites | Environmental Quality

Phone: 02 6207 2151 | Email: mark.heckenberg@act.gov.au

Construction, Environment and Workplace Protection | Access Canberra | ACT Government

GPO Box 158 Canberra ACT 2601 | <http://www.act.gov.au/accesscbr>

From: [REDACTED] [REDACTED]@environment.nsw.gov.au]

Sent: Friday, 7 July 2017 2:09 PM

To: Heckenberg, Mark <Mark.Heckenberg@act.gov.au>

Cc: [REDACTED] [REDACTED]@epa.nsw.gov.au>

Subject: FW: Department of Defence contamination - "PFAS & PFOA" - Jervis Bay Territory

Hi Mark

I've been approached by [REDACTED] [REDACTED] [REDACTED] of the Wreck Bay Aboriginal Community Council (email below). He's looking for independent review of the SAQP for Cresswell. I'm reluctant to get involved directly given this is an ACT issue, not NSW. Any commercial consultant I would normally recommend in this case is working for Defence at one site or another, so I'm struggling to recommend anyone who can claim true independence.

Given ACT Govt is regulating this, are you able to assist [REDACTED]? We could help with additional review if you requested it.

Regards

[REDACTED]

[REDACTED] [REDACTED]
Senior Scientist - Chemicals
Contaminants & Risk Team, EPS Branch, Science Division
Office of Environment & Heritage
T 02 9995 6461

From: [REDACTED] [REDACTED]@wbacc.gov.au]

Sent: Monday, 3 July 2017 2:46 PM

To: [REDACTED] [REDACTED]@environment.nsw.gov.au>

Subject: Department of Defence contamination - "PFAS & PFOA" - Jervis Bay Territory

Dear [REDACTED] [REDACTED],

Associate Professor [REDACTED] [REDACTED] from the Centre for Sustainable Ecosystem Solutions, Faculty of Science, Medicine and Health and who is a member of the Joint Board of Management of the Booderee National Park at Jervis Bay, has advised me that you were recommended by a colleague of his; namely, [REDACTED] [REDACTED] from the School of Chemistry at UOW, who advised him that although she is by no means an expert here, she is aware of the problems with these foams (PFAS & PFOA) and that they form a major component of current research conferences. She recommended to Associate Professor [REDACTED] that I contact an expert in environmental chemistry; namely yourself, Doctor.

Wreck Bay Aboriginal Community Council is the landowner of the Booderee National Park and also Wreck Bay Village (within the Territory as well). On behalf of Council I am seeking to possibly engage you as a consultant relating to contamination by the Department of Defence; similar to the contamination at RAAF Williamtown, NSW and also RAAF Oakey, QLD.

Council would be looking at engaging or employing a consultant who is an expert in environmental chemistry who can take carriage of the matter regarding testing which Defence proposes to do shortly on the Council's land at Booderee National Park and environs and the village at Wreck Bay; subject to the Council's consent to doing such testing.

If you were available as Council's consultant, I would then be in a position to provide to you documentation relating to how it is proposed that the testing will take place i.e. the Site Investigation and Sampling, Analysis and Quality Plan ('SAQP') – in draft form at present; with a view to you attending upon the Council when this testing regime is taking place (and beforehand if deemed necessary) and then completed; together with you providing your views thereafter regarding the results of the said testing.

The timeframe for this is:-

1. Anticipated that testing will take place in September – October this year; and
2. The results of the testing being made available to Council in approximately January – February next year.

If you were engaged (and, indeed, if you were available to be Council's consultant) Council would request you peruse the said 'SAQP' and either approve, or amend or disapprove the proposed testing regime and also attend, at this stage, at least, on the areas in the Park that were to be tested.

There is a history of contamination of Council land by Defence with the latest before this occurring in mid-1990s relating to hydrocarbons (aircraft fuel etc.). The previous contamination is well documented in reports that I have and I will provide to you if so requested.

All relevant documents in Council's possession would be made available if you accepted this task and I would be in a position to discuss your remuneration for such task as well if you were available and considered accepting the matter on behalf of Council as its environmental chemist consultant.

If you are not in a position to be Council's consultant, could you perhaps recommend other environmental chemists who I may then contact.

I thank you very much for taking the time to read the contents of this email and I look forward to your views at your earliest convenience. As well as this email address I may be contacted on Ph:- 02-4442-1029.

Kind Regards,

[REDACTED]
[REDACTED]
Wreck Bay Aboriginal Community Council.
3/7/2017

This email is intended for the addressee(s) named and may contain confidential and/or privileged information.

If you are not the intended recipient, please notify the sender and then delete it immediately.

Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the NSW Office of Environment and Heritage.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL



Memorandum

11 July 2017

To Department of Defence

Copy to File

From [REDACTED] Tel [REDACTED]

Subject Factual data - on site investigations – Issue 5 Job no. 212617102

Dear [REDACTED]

Factual information – Issue 5

Please find following and attached the analytical results for:

1. Concrete sample retrieved on 3 May 2017 from a stockpile of concrete material at AEC A
2. Water samples collected on 28 June 2017 from (a) the JBTA water treatment facility (to the southeast of JBRF) and (b) an underground storage tank located at AEC A

The information relates to investigation locations referenced on the attached Figures 7B and 7N. GHD note that not all the investigation location listed on the attached figures have analytical results presented within this memo as the investigation is ongoing. The data summarised herein relates to sampling conducted at the locations listed in Table 1 only.

Table 1 Summary of sample locations

Area of Environmental Concern (AEC)	Sample id
Jervis Bay Range Facility (JBRF)	
AEC A – Royal Australian Navy School of Survivability and Ship Safety (RAN SSSS)	AEC A_concrete_SP (concrete stockpile) A_S440_SW01 (underground tank S440)
Potential receptor	
Potable water – JBTA water treatment facility	AST_SW01 to AST_SW03 & Raw_SW04

No interpretation of the data has been made at this time, and the factual information should not be reviewed in isolation. The factual information present will be evaluated in the context of the whole data set upon completion of all field investigations.

Table 2 provides a summary of total and leachable PFAS concentrations in concrete, for sample AEC A_concrete_SP.



Memorandum

Table 2 Summary of total and leachable PFAS in concrete (sample AEC A_concrete_SP)

Analyte	Concrete concentration (mg/kg)	Leachate concentration (µg/L)
N-Ethyl perfluorooctane sulfonamidoacetic acid	<0.0002	<0.002
Perfluorodecanesulfonic acid (PFDS)	<0.0002	<0.002
Perfluoroheptane sulfonic acid	<0.0002	0.008
10:2 Fluorotelomer sulfonic acid	<0.0005	<0.005
4:2 Fluorotelomer sulfonic acid	<0.0005	<0.005
N-Methyl perfluorooctane sulfonamidoacetic acid	<0.0002	<0.002
PFHxS and PFOS (Sum of Total) - Lab Calc	0.0071	0.385
Perfluorobutane sulfonic acid	<0.0002	0.038
Perfluorohexane sulfonic acid (PFHxS)	0.0021	0.138
Perfluoropentanoic acid	<0.0002	0.013
8:2 Fluorotelomer sulfonic acid	<0.0005	<0.005
N-Ethyl perfluorooctane sulfonamide	<0.0005	<0.005
N-Ethyl perfluorooctane sulfonamidoethanol	<0.0005	<0.005
N-Methyl perfluorooctane sulfonamide	<0.0005	<0.005
N-Methyl perfluorooctane sulfonamidoethanol	<0.0005	<0.005
6:2 Fluorotelomer Sulfonate (6:2 FTS)	<0.0005	<0.005
Perfluorooctanoic acid (PFOA)	<0.0002	0.008
Perfluoropentane sulfonic acid	<0.0002	0.013
Perfluorobutanoic acid	<0.001	<0.01
Perfluorodecanoic acid	<0.0002	<0.002
Perfluorododecanoic acid	<0.0002	<0.002
Perfluoroheptanoic acid	<0.0002	0.007
Perfluorohexanoic acid (PFHxA)	<0.0002	0.019
Perfluorononanoic acid	<0.0002	0.002



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Analyte	Concrete concentration (mg/kg)	Leachate concentration (µg/L)
Perfluorooctane sulfonic acid (PFOS)	0.005	0.247
Perfluorooctane sulfonamide (FOSA)	<0.0002	<0.002
Perfluorotetradecanoic acid	<0.0005	<0.005
Perfluorotridecanoic acid	<0.0002	<0.002
Perfluoroundecanoic acid	<0.0002	<0.002
PFAS (Sum of Total)	0.0071	0.493
PFAS (Sum of Total)(WA DER List)	0.0071	0.236

Table 3 provides a summary of the concentrations of PFAS detected water sample A_S440_SW01 collected from underground tank at AEC_A. The results of other parameters tested (including metals, hydrocarbons, pesticides, volatile organic compounds) are provided in Table C attached.

Table 3 Summary of PFAS concentrations in water from tank S440 (sample AEC_A)

Analyte	Water concentration (µg/L)
N-Ethyl perfluorooctane sulfonamidoacetic acid	<0.02
Perfluorodecanesulfonic acid (PFDS)	<0.02
Perfluoroheptane sulfonic acid	0.858
10:2 Fluorotelomer sulfonic acid	<0.02
4:2 Fluorotelomer sulfonic acid	<0.02
N-Methyl perfluorooctane sulfonamidoacetic acid	<0.02
PFHxS and PFOS (Sum of Total) - Lab Calc	37
Perfluorobutane sulfonic acid	0.332
Perfluorohexane sulfonic acid (PFHxS)	6.68
Perfluoropentanoic acid	0.15
8:2 Fluorotelomer sulfonic acid	<0.02
N-Ethyl perfluorooctane sulfonamide	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol	<0.05
N-Methyl perfluorooctane sulfonamide	<0.05



Memorandum

Analyte	Water concentration (µg/L)
N-Methyl perfluorooctane sulfonamidoethanol	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FTS)	0.038
Perfluorooctanoic acid (PFOA)	0.622
Perfluoropentane sulfonic acid	0.382
Perfluorobutanoic acid	<0.02
Perfluorodecanoic acid	<0.02
Perfluorododecanoic acid	<0.02
Perfluoroheptanoic acid	0.178
Perfluorohexanoic acid (PFHxA)	1.38
Perfluorononanoic acid	<0.02
Perfluorooctane sulfonic acid (PFOS)	30.3
Perfluorooctane sulfonamide (FOSA)	0.03
Perfluorotetradecanoic acid	<0.05
Perfluorotridecanoic acid	<0.02
Perfluoroundecanoic acid	<0.02
PFAS (Sum of Total)	41
PFAS (Sum of Total)(WA DER List)	39.7

Table 4 provides a summary of the concentrations of PFAS detected in water samples collected from the raw water inlet (Raw_SW04) as well as three post treatment above ground storage tanks (AST_SW01 to AST_SW03) at the JBTA water treatment facility, which is located to the southeast of JBRF. The results of other parameters tested (including metals, hydrocarbons, pesticides, volatile organic compounds) are provided in Table C attached.

Table 4 Summary of the PFAS concentrations in water from JBTA water treatment facility

Analyte (µg/L)	AST_SW01	AST_SW02	AST_SW03	Raw_SW04
N-Ethyl perfluorooctane sulfonamidoacetic acid	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorodecanesulfonic acid (PFDS)	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoroheptane sulfonic acid	<0.0005	<0.0005	<0.0005	<0.0005



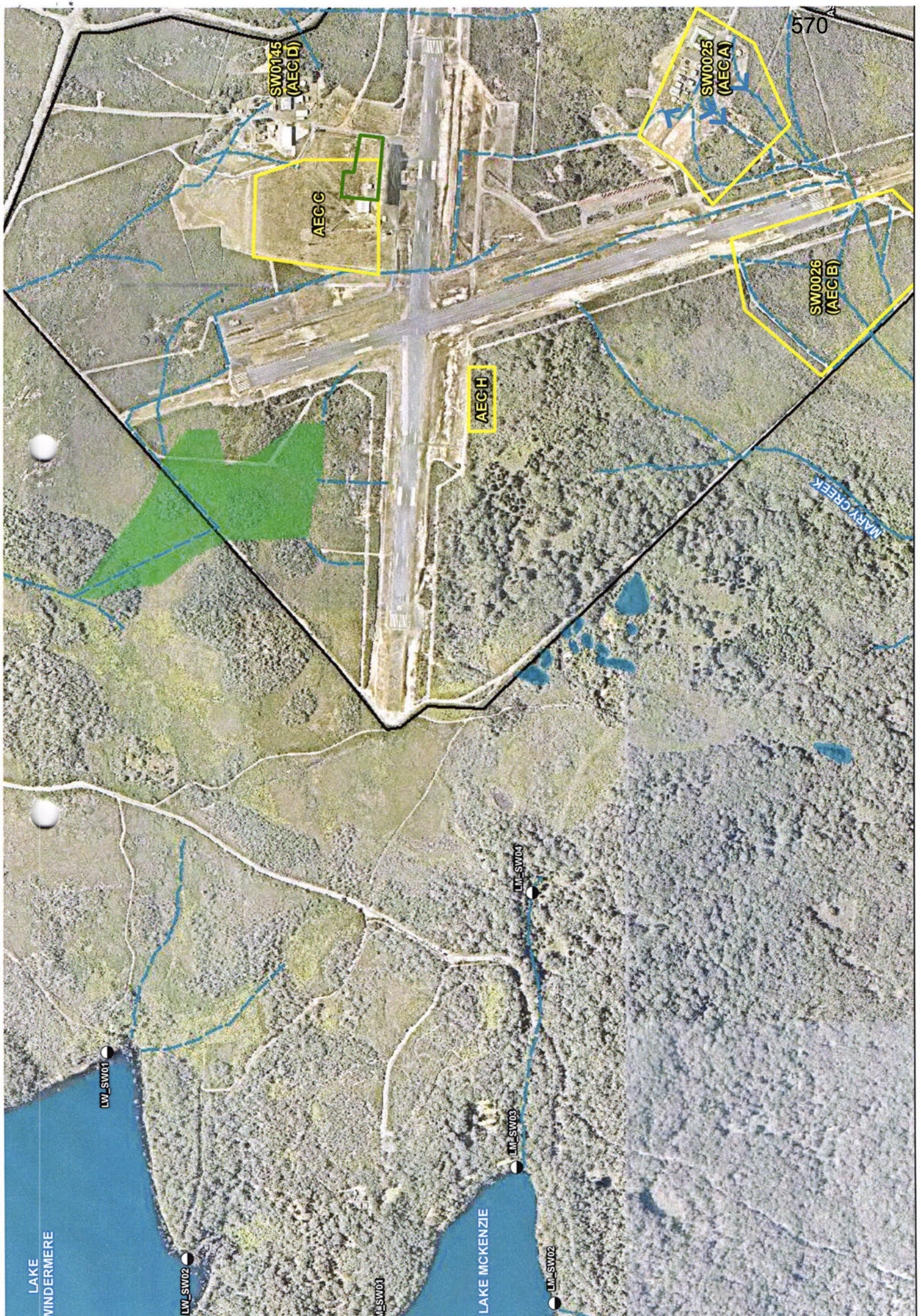
Memorandum

Analyte (µg/L)	AST_SW01	AST_SW02	AST_SW03	Raw_SW04
10:2 Fluorotelomer sulfonic acid	<0.001	<0.001	<0.001	<0.001
4:2 Fluorotelomer sulfonic acid	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid	<0.0005	<0.0005	<0.0005	<0.0005
PFHxS and PFOS (Sum of Total) - Lab Calc	<0.0003	<0.0003	<0.0003	<0.0003
Perfluorobutane sulfonic acid	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorohexane sulfonic acid (PFHxS)	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoropentanoic acid	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamide	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol	<0.001	<0.001	<0.001	<0.001
6:2 Fluorotelomer Sulfonate (6:2 FTS)	<0.001	<0.001	<0.001	<0.001
Perfluorooctanoic acid (PFOA)	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoropentane sulfonic acid	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorobutanoic acid	<0.002	<0.002	<0.002	<0.002
Perfluorodecanoic acid	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorododecanoic acid	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoroheptanoic acid	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorohexanoic acid (PFHxA)	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononanoic acid	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorooctane sulfonic acid (PFOS)	<0.0003	<0.0003	<0.0003	<0.0003
Perfluorooctane sulfonamide (FOSA)	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotetradecanoic acid	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotridecanoic acid	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoroundecanoic acid	<0.0005	<0.0005	<0.0005	<0.0005

Location_Code	Sample_Depth_Range	Sampled_Date_Time	pH (Final)	Moisture	N-Ethyl perfluorooctane sulfonate	Perfluorodecanesulfonic acid (PF)	Perfluorheptane sulfonic acid	10:2 Fluorotelomer sulfonic acid	4:2 Fluorotelomer sulfonic acid	N-Methyl perfluorooctane sulfon	PFHxS and PFOs (Sum of Total) - 1	Perfluorobutane sulfonic acid	Perfluorohexane sulfonic acid (PF	Perfluoropentanoic acid	8:2 Fluorotelomer sulfonic acid	N-Ethyl perfluorooctane sulfonate	N-Methyl perfluorooctane sulfon	N-Methyl perfluorooctane sulfon	6:2 Fluorotelomer sulfonate (6:2	Perfluorooctanoic acid (PFOA)	Perfluoropentane sulfonic acid	Perfluorobutanoic acid	
LE	AEC A_concrete_SP	3/05/2017	9.6	4.1	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0002	0.0071	<0.0002	0.0021	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.001
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			9.6	4.1	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0002	0.0071	<0.0002	0.0021	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.001
			9.6	4.1	ND	ND	ND	ND	ND	ND	0.0071	ND	0.0021	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			9.6	4.1	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0002	0.0071	<0.0002	0.0021	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.001
			9.6	4.1	ND	ND	ND	ND	ND	ND	0.0071	ND	0.0021	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			9.6	4.1	0.0001	0.0001	0.0001	0.00025	0.00025	0.0001	0.0071	0.0001	0.0021	0.0001	0.00025	0.00025	0.00025	0.00025	0.00025	0.0001	0.0001	0.0001	0.0005

Sample Code	Field ID	Location Code	Sample Depth	Range	Sampled Date	Time
711256002	AEC A Concrete	STOCKPILE	AEC A concrete_SP		3/05/2017	
Statistical Summary						
Number of Detects						
Minimum Concentration						
Maximum Concentration						
Minimum Detect						
Maximum Detect						
Average Concentration						
Median Concentration						
Standard Deviation						
N-Ethyl perfluorooctane	µg/L	0.002	0.002	0.008	<0.002	0.008
Perfluorodecane sulfonic	µg/L	0.002	0.002	0.008	<0.002	0.008
Perfluorheptane sulfon	µg/L	0.002	0.002	0.005	<0.005	0.005
10:2 Fluorotelomer sulfon	µg/L	0.005	0.005	0.005	<0.005	0.005
4:2 Fluorotelomer sulfon	µg/L	0.005	0.002	0.005	<0.005	0.005
N-Methyl perfluorooctan	µg/L	0.002	0.002	0.002	<0.002	0.002
PFHxS and FPOs (Sum of	µg/L	0.002	0.002	0.385	0.385	0.385
Perfluorbutane sulfonic	µg/L	0.002	0.002	0.038	0.038	0.038
Perfluorhexane sulfonic	µg/L	0.002	0.002	0.138	0.138	0.138
Perfluorpentanoic acid	µg/L	0.002	0.002	0.013	<0.005	0.013
8:2 Fluorotelomer sulfon	µg/L	0.005	0.005	0.005	<0.005	0.005
N-Ethyl perfluorooctane	µg/L	0.005	0.005	0.005	<0.005	0.005
N-Ethyl perfluorooctan	µg/L	0.005	0.005	0.005	<0.005	0.005
N-Methyl perfluorooctan	µg/L	0.005	0.005	0.005	<0.005	0.005
N-Methyl perfluorooctan	µg/L	0.005	0.005	0.005	<0.005	0.005
6:2 Fluor	µg/L	0.005	0.002	0.008	<0.005	0.008
Perfluorooctanoic acid (f	µg/L	0.002	0.002	0.013	0.013	0.013
Perfluorpentane sulfon	µg/L	0.002	0.002	0.013	0.013	0.013
Perfluorbutanoic acid	µg/L	0.01	0.002	0.01	<0.002	0.01
Perfluordecanoic acid	µg/L	0.002	0.002	0.002	<0.002	0.002
Perfluorododecanoic aci	µg/L	0.002	0.002	0.007	<0.002	0.007
Perfluorheptanoic acid	µg/L	0.002	0.002	0.019	0.019	0.019
Perfluorhexanoic acid (i	µg/L	0.002	0.002	0.002	0.002	0.002
Perfluorononanoic acid	µg/L	0.002	0.002	0.247	0.247	0.247
Perfluorooctane sulfonic	µg/L	0.002	0.002	0.247	0.247	0.247
Perfluorooctane sulfonai	µg/L	0.002	0.002	0.002	<0.002	0.002
Perfluorotetradecanoic a	µg/L	0.005	0.005	0.005	<0.005	0.005
Perfluortridecanoic aci	µg/L	0.002	0.002	0.002	<0.002	0.002
Perfluoroundecanoic aci	µg/L	0.002	0.002	0.002	<0.002	0.002
PFAS (Sum of Total)	µg/L	0.002	0.002	0.493	0.493	0.493
PFAS (Sum of Total)(WA	µg/L	0.002	0.002	0.493	0.493	0.493





Stedman, Andrew (Health)

From: [REDACTED].sendthisfile.com
Sent: Monday, 17 July 2017 1:49 PM
To: Stedman, Andrew (Health)
Subject: GHD file(s) . . .



Sender: [REDACTED]@ghd.com
Recipient: heath.chester@act.gov.au David.Clapham@act.gov.au Andrew.Stedman@act.gov.au radomir.krsteski@act.gov.au
pfasim.jervisbay@defence.gov.au
Upload Date: 2017-07-16 22:48:23.0

Subject: GHD file(s) . . .
Message: Dear PCG

Please find attached Rev 2 of Factual Memo 3.

Only minor edits have been made to the report issued to the PCG on 6 June 2017 – clarifications around concrete and soils, and removal of some of the statistical columns on the appendices table.

Use the following links to download your file(s).

<https://ghd.sendthisfile.com/3WxfwvhichwnXLZCUn80aRn1>

Note: These files will expire in 14 days from the time this email was generated.