

From: [REDACTED] [REDACTED] [REDACTED]@defence.gov.au] **On Behalf Of** PFASIM Jervis Bay
Sent: Thursday, 9 March 2017 2:15 PM
To: [REDACTED]; Chester, Heath; Stedman, Andrew (Health)
Cc: Krsteski, Radomir (Health); PFASIM Jervis Bay; [REDACTED]; [REDACTED]
Subject: RFI - Defence PFAS JBT - sampling information for GHD [SEC=UNCLASSIFIED]

UNCLASSIFIED

Good Afternoon Folks,

Thank you for your attendance today at the initial PCG for the Defence PFAS investigation of Jervis Bay Range Facility, HMAS Creswell and off facility sites.

As discussed, in order for GHD (lead consultant for the investigation) to carry out the most effective Sampling Analysis and Quality Plan (SAQP) we wish to obtain as much supporting reporting as possible.

It became apparent that JBTA, ACT Health and ACT EPA 'may' hold sampling reporting for JBT that could assist GHD's investigation.

As such, please receive this request for this information for this reporting. Reports can be emailed to:

pfasim.jervisbay@defence.gov.au

[REDACTED]@ghd.com

[REDACTED]@ghd.com

If files are large and thus unable to be emailed, then please email [REDACTED]@ghd.com and [REDACTED] will arrange FTP.

Noting the SAQP is due at the end of next week, we appreciate anything that can be done to expedite this request.

Kind Regards,

[REDACTED]

[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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Stedman, Andrew (Health)

From: [REDACTED]@ghd.com>
Sent: Friday, 10 March 2017 9:14 AM
To: Stedman, Andrew (Health); [REDACTED]; pfasim.jervisbay@defence.gov.au
Cc: [REDACTED]@defence.gov.au; Krsteski, Radomir (Health); [REDACTED]@infrastructure.gov.au
Subject: RE: RFI - Defence PFAS JBT - sampling information for GHD -ACT Health results [SEC=UNCLASSIFIED]

Hi Andrew

Thank you for this information.

Kind Regards

Helen

[REDACTED]
Contamination Assessment and Remediation

Please note I am available in the office on Tuesdays, Wednesdays, Thursdays and Fridays

GHD

[REDACTED] | M: [REDACTED] E: [REDACTED]@ghd.com
 Level 15 133 Castlereagh St Sydney NSW 2000 Australia | <http://www.ghd.com>

WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

From: Stedman, Andrew (Health) [mailto:Andrew.Stedman@act.gov.au]
Sent: Thursday, 9 March 2017 4:04 PM
To: [REDACTED]@ghd.com>; [REDACTED]@ghd.com>; pfasim.jervisbay@defence.gov.au
Cc: [REDACTED]@defence.gov.au; Krsteski, Radomir (Health) <Radomir.Krsteski@act.gov.au>; [REDACTED]@infrastructure.gov.au
Subject: RFI - Defence PFAS JBT - sampling information for GHD -ACT Health results [SEC=UNCLASSIFIED]

Hello,

Please see attached sampling conducted by ACT Health on 22 March 2016, 28 November 2016 and 19 December 2016 for PFAS.

Please note the detections of PFAS in the Raw water inlet in the JBT water plan (raw water drawn from Lake Windermere) and detection in Kullindi homestead BBQ area on 28 November 2016 (this detection was not repeated in a follow up sample on 19 December 2016).

Please feel free to contact me if you require further information.

Kind regards



Andrew Stedman | Environment Team Leader
 Health Protection Service | health.act.gov.au
 Phone (02) 6205 4404 | Mobile [REDACTED]

From: [REDACTED]@defence.gov.au] **On Behalf Of** PFASIM Jervis Bay
Sent: Thursday, 9 March 2017 2:15 PM

To: [REDACTED]; Chester, Heath; Stedman, Andrew (Health)
Cc: Krsteski, Radomir (Health); PFASIM Jervis Bay; [REDACTED]; [REDACTED]; [REDACTED]
Subject: RFI - Defence PFAS JBT - sampling information for GHD [SEC=UNCLASSIFIED]

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CERTIFICATE OF ANALYSIS

Work Order	: CA1607173	Page	: 1 of 4
Client	: ACT Health	Laboratory	: ALS Water Resources Group
Contact	: Mr Andrew Stedman	Contact	: Client Services
Address	: 25 Mulley Street Holder ACT 2611	Address	: 16B Lithgow Street Fyshwick ACT Australia 2609
Telephone	: (02) 6205 1700	Telephone	: +61 2 6202 5404
Project	: Jervis Bay	Date Samples Received	: 20-Dec-2016 12:35
Order number	: ---	Date Analysis Commenced	: 04-Jan-2017
C-O-C number	: ---	Issue Date	: 04-Jan-2017 13:31
Sampler	: Andrew Stedman		
Site	: ---		
Quote number	: ---		
No. of samples received	: 4		
No. of samples analysed	: 4		



Accreditation No. 992
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
	Sample Admission Officer	ALS Environmental, Fyshwick, ACT



Page : 2 of 4
Work Order : CA1607173
Client : ACT Health
Project : Jervis Bay

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- For samples collected by ALS WRG, sampling was carried out in accordance with Procedure EN67
- EP231-X Performed at ALS Sydney

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Kullindi BBQ (Bore)	Christian Mindie (Bore)	Bay of Plenty (Bore)	RBTU Laundry (Bore)	---
Client sampling date / time				19-Dec-2016 13:00	19-Dec-2016 13:15	19-Dec-2016 13:35	19-Dec-2016 13:40	---	
Compound	CAS Number	LOR	Unit	CA1607173-001	CA1607173-002	CA1607173-003	CA1607173-004	-----	
				Result	Result	Result	Result	---	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.5	µg/L	<0.50	<0.50	<0.50	<0.50	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.5	µg/L	<0.50	<0.50	<0.50	<0.50	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----	



Page : 4 of 4
 Work Order : CA1607173
 Client : ACT Health
 Project : Jervis Bay

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Kullindi BBQ (Bore)	Christian Mindie (Bore)	Bay of Plenty (Bore)	RBTU Laundry (Bore)	----
Client sampling date / time				19-Dec-2016 13:00	19-Dec-2016 13:15	19-Dec-2016 13:35	19-Dec-2016 13:40	----	
Compound	CAS Number	LOR	Unit	CA1607173-001	CA1607173-002	CA1607173-003	CA1607173-004	-----	
				Result	Result	Result	Result	---	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	2448-09-7	0.5	µg/L	<0.50	<0.50	<0.50	<0.50	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.5	µg/L	<0.50	<0.50	<0.50	<0.50	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.1	µg/L	<0.10	<0.10	<0.10	<0.10	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.1	µg/L	<0.10	<0.10	<0.10	<0.10	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----	
Sum of PFAS (Swedish Water Quality Guideline plus 8:2-FTS)	----	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----	

CERTIFICATE OF ANALYSIS

Work Order	: CA1607173	Page	: 1 of 4
Client	: ACT Health	Laboratory	: ALS Water Resources Group
Contact	: Mr Andrew Stedman	Contact	: Client Services
Address	: 25 Mulley Street Holder ACT 2611	Address	: 16B Lithgow Street Fyshwick ACT Australia 2609
Telephone	: (02) 6205 1700	Telephone	: +61 2 6202 5404
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Order number	: —	Date Analysis Commenced	: 04-Jan-2017
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Sampler	: Andrew Stedman		
Site	: —		
Quote number	: —		
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*Signatories**Position**Accreditation Category*

Sample Admission Officer

ALS Environmental, Fyshwick, ACT



Page : 2 of 4
Work Order : CA1607173
Client : ACT Health
Project : Jervis Bay

General Comments

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- For samples collected by ALS WRG, sampling was carried out in accordance with Procedure EN67
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Analytical Results

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Page : 4 of 4
 Work Order : CA1607173
 Client : ACT Health
 Project : Jarvis Bay

Analytical Results

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Client sampling date / time				19-Dec-2016 13:00	19-Dec-2016 13:15	19-Dec-2016 13:35	19-Dec-2016 13:40	---	
Compound	CAS Number	LOR	Unit	CA1607173-001	CA1607173-002	CA1607173-003	CA1607173-004	-----	
				Result	Result	Result	Result	---	
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10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	---	
EP231P: PFAS Sums									
Sum of PFAS	---	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	---	
Sum of PFAS (Swedish Water Quality Guideline plus 8:2-FTS)	---	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	---	

CERTIFICATE OF ANALYSIS

Work Order	: CA1606699	Page	: 1 of 4
Client	: ACT Health	Laboratory	: ALS Water Resources Group
Contact	: Mr Andrew Stedman	Contact	: Client Services
Address	: 25 Mulley Street Holder ACT 2611	Address	: 16B Lithgow Street Fyshwick ACT Australia 2609
Telephone	: (02) 6205 1700	Telephone	: +61 2 6202 5404
Project	: Jervis Bay	Date Samples Received	: 29-Nov-2016 12:25
Order number	: —	Date Analysis Commenced	: 05-Dec-2016
C-O-C number	: —	Issue Date	: 05-Dec-2016 10:21
Sampler	: Andrew Stedman		
Site	: —		
Quote number	: —		
No. of samples received	: 5		
No. of samples analysed	: 5		



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	Sample Admission Officer	ALS Environmental, Fyshwick, ACT



Page : 2 of 4
Work Order : CA1606699
Client : ACT Health
Project : Jervis Bay

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
∅ = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- For samples collected by ALS WRG, sampling was carried out in accordance with Procedure EN67
- EP231-X Performed at ALS Sydney

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	1	2	3	4	5
					Bay of Plenty	Kullindi BBQ	Raw Water JBT	Processed Water JBT	Lake Windermere
Client sampling date / time					28-Nov-2016 13:30	28-Nov-2016 14:00	28-Nov-2016 14:10	28-Nov-2016 14:20	28-Nov-2016 14:30
Compound	CAS Number	LOR	Unit	CA1606699-001	CA1606699-002	CA1606699-003	CA1606699-004	CA1606699-005	
				Result	Result	Result	Result	Result	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.08	<0.02	<0.02	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.09	<0.02	<0.02	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	2.12	<0.02	<0.02	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.03	<0.02	<0.02	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.04	0.59	<0.01	<0.01	
Perfluorodecane sulfonic acid (PFDS)	67906-42-7	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.07	<0.02	<0.02	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.01	<0.01	<0.01	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.5	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.5	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	



Page : 4 of 4
 Work Order : CA1606699
 Client : ACT Health
 Project : Jervis Bay

Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				1	2	3	4	5
				Bay of Plenty	Kullindi BBQ	Raw Water JBT	Processed Water JBT	Lake Windermere
Client sampling date / time				28-Nov-2016 13:30	28-Nov-2016 14:00	28-Nov-2016 14:10	28-Nov-2016 14:20	28-Nov-2016 14:30
Compound	CAS Number	LOR	Unit	CA1606699-001	CA1606699-002	CA1606699-003	CA1606699-004	CA1606699-005
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	2448-09-7	0.5	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.5	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.1	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.1	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums								
Sum of PFAS	----	0.01	µg/L	<0.01	0.04	2.99	<0.01	<0.01
Sum of PFAS (Swedish Water Quality Guideline plus 8:2-FTS)	----	0.01	µg/L	<0.01	0.04	2.87	<0.01	<0.01

Stedman, Andrew (Health)

From: [REDACTED]@infrastructure.gov.au>
Sent: Tuesday, 14 March 2017 10:28 AM
To: PFASIM Jervis Bay; Chester, Heath; Stedman, Andrew (Health)
Cc: Krsteski, Radomir (Health); [REDACTED]; [REDACTED]; [REDACTED]; [REDACTED]
Subject: RE: RFI - Defence PFAS JBT - sampling information for GHD [SEC=UNCLASSIFIED]
Attachments: JBTRResults_FEB_2016.xlsx; map - school of many Ss and Wreck Bay sites.jpg

Good morning [REDACTED]

At the initial PCG I undertook to confirm the Department's willingness to share historical information related to testing of environmental, recreational and potable water undertaken on behalf of the Department by ACT health and ACT EPA, for all tests including PFAS. I am pleased to advise that [REDACTED], Local Government, Mainland Territories and RDA Branch, has agreed to the data sharing request below. I have included ACT EPA data that we retrieved recently.

As discussed, we are happy for GHD to liaise directly with ACT health and ACT EPA and vice-versa. Please contact me if you require further information.

Regards

[REDACTED]

[REDACTED]
 Jervis Bay Territory Administration
 Local Government, Mainland Territories & RDA Branch
 Local Government and Territories Division
 Department of Infrastructure & Regional Development
02 6274 7874
 62 Northbourne Avenue | GPO Box 594 | Canberra ACT 2601
 [REDACTED]@infrastructure.gov.au

From: [REDACTED]@defence.gov.au] **On Behalf Of** PFASIM Jervis Bay
Sent: Thursday, 9 March 2017 2:15 PM
To: [REDACTED]@infrastructure.gov.au>; 'Chester, Heath' <Heath.Chester@act.gov.au>; 'Stedman, Andrew (Health)' <Andrew.Stedman@act.gov.au>
Cc: 'Krsteski, Radomir (Health)' <Radomir.Krsteski@act.gov.au>; PFASIM Jervis Bay <pfasim.jervisbay@defence.gov.au>; [REDACTED]@ghd.com>; [REDACTED]@ghd.com>; [REDACTED]@defence.gov.au>
Subject: RFI - Defence PFAS JBT - sampling information for GHD [SEC=UNCLASSIFIED]

UNCLASSIFIED

Good Afternoon Folks,

Thank you for your attendance today at the initial PCG for the Defence PFAS investigation of Jervis Bay Range Facility, HMAS Creswell and off facility sites.

As discussed, in order for GHD (lead consultant for the investigation) to carry out the most effective Sampling Analysis and Quality Plan (SAQP) we wish to obtain as much supporting reporting as possible.

It became apparent that JBTA, ACT Health and ACT EPA 'may' hold sampling reporting for JBT that could assist GHD's investigation.

As such, please receive this request for this information for this reporting. Reports can be emailed to:

pfasim.jervisbay@defence.gov.au

██████████@ghd.com

██████████@ghd.com

If files are large and thus unable to be emailed, then please email ██████████@ghd.com and ██████████ will arrange FTP.

Noting the SAQP is due at the end of next week, we appreciate anything that can be done to expedite this request.

Kind Regards,

██████████

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

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

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General layout of monitoring sites (School of many S's & Wreck Bay)

EFFLUENT OUTPUT MONITORING

HMAS Creswell Sewage Treatment Plant Final Effluent

The sample was collected at the treated effluent holding tank.

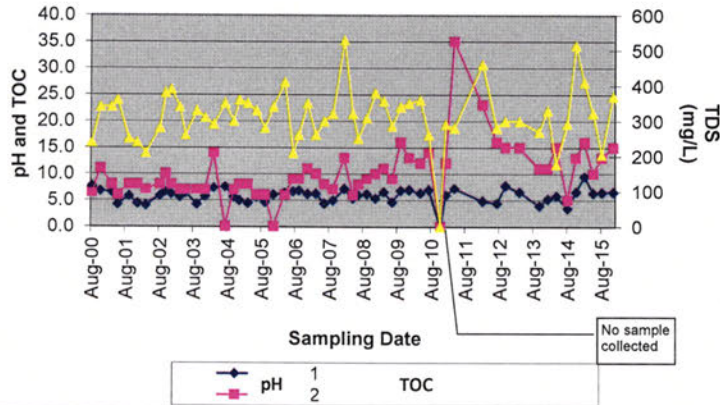
Results were not satisfactory for pH (Low), phosphorus (elevated) and Ammonia as N (elevated)

Effluent was sampled from tertiary treated wastewater

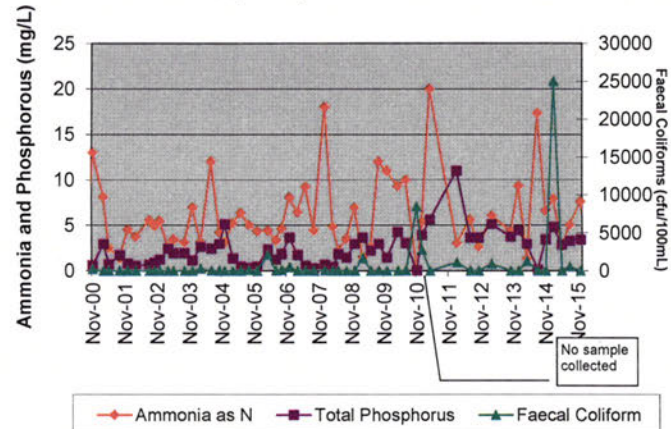
No action as treated effluent is fed to ERD for temporary storage prior to golf course irrigation The storage of effluent assists in the depletion of nutrient levels.

PARAMETERS	LIMITS	#####	07/11/2000	20/03/2001	28/05/2001	29/09/2001	19/12/2001	25/03/2002	01/08/2002	29/10/2002	18/12/2002	05/03/2003	09/05/2003	23/06/2003	16/12/2003
pH	6.5-8.5	7.7	6.8	6.6	4.2	5.8	4.4	4.1	5.9	6.7	6.2	5.7	6.4	4.3	5.8
SS	10 mg/L	11	20	4.7	3.4	<0.5	11	3.5	8.1	9.4					
TDS	500 mg/L	240	340	340	360	250	240	210	280	380	390	340	260	330	310
TOC	30 mg/L	6.4	11	8	6	8	8	7	8	10	8	7	7	7	7
Total Oil & Grease	Visibly free (10mg/L)	<0.5	<0.5	<1	<1	<1	<1	<1	<1				<1	<1	<1
BOD	10 mg/L	<1	<1	<1	1.1	<1	<1	8.3	<1	7.4	<1	5.6	<1.0	14	<2
Ammonia as N	As per Table	0.07	13	8.1	2.5	1.3	4.5	3.7	5.5	4.9	5.5	2.6	3.4	3.1	6.9
T. Oxid Nit (as N)	50 mg/L														
Total Phosphorus	0.5 mg/L	0.02	0.57	2.9	0.67	1.7	0.74	0.5	0.6	0.83	1.2	2.4	1.9	1.9	1.1
Faecal Coliform	1000cfu/100ml	<2	200	2	0	<2	6	<2	<2	<2	<2	<2	<2	<2	<2

STW pH, TOC and TDS Trends



STW Ammonia, Phosphorus and Faecal Coliform Trends



EFFLUENT OUTPUT MONITORING

HMAS Creswell Sewage Treatment Plant Final Effluent

The sample was collected at the treated effluent holding tank.

Results were not satisfactory for pH (Low), phosphorus (elevated) and Ammonia as N (elevated)

Effluent was sampled from tertiary treated wastewater

No action as treated effluent is fed to ERD for temporary storage prior to golf course irrigation The storage of effluent assists in the depletion of nutrient levels.

25/03/2004	13/07/2004	12/10/2004	08/12/2004	16/03/2005	23/06/2005	20/09/2005	13/12/2005	04/04/2006	11/07/2006	26/09/2006	12/12/2006	06/03/2007	04/06/2007	04/09/2007	06/01/2008	01/04/2008	24/06/2008	23/09/2008	09/12/2008
7.4	7.6	5.7	5.0	4.5	5.7	4.7	6.1	6.4	6.7	6.9	6.2	6.3	4.4	5.0	7.2	5.4	6.0	6.2	5.4
38	6	5	2	4	2	5	7	2	<2	5	7	6	5	4	8	3	3	3	4
290	350	300	360	350	330	280	340	410	210	260	350	260	300	320	530	320	250	308	380
14	<2	7	8	8	6	6	<10	6	9	9	11	10	8	7	13	6	8	9	10
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	1	<1	<1	<1	<2
17	6	3	<2	<2	<2	3	3	<2	5	2	<2	<2	<2	<2	2	<2	<2	<2	<2
3.1	12	4.2	3.1	5.2	6.3	5	4.3	4.4	3.3	4.6	8	6.4	9.2	4.4	18	4.8	2.2	3.5	6.9
12	14	15	20	20	12	13	11	19	5.6	9.7	18	8.9	9.8	11	3.9	13	9	13	19
2.6	2.4	2.9	5.1	1.3	0.43	0.31	0.42	2.3	1.2	1.8	3.6	1.7	0.51	0.21	0.61	0.4	1.8	1.4	2.9
270	26	6	4	<2	<2	110	0	2100	62	80	480	7	<2	<2	50	<2	<2	<2	4

EFFLUENT OUTPUT MONITORING

353 EFFLL

HMAS Creswell Sewage Treatment Plant Final Effluent

The sample was collected at the treated effluent holding tank.

Results were not satisfactory for pH (Low), phosphorus (elevated) and Ammonia as N (elevated)

Effluent was sampled from tertiary treated wastewater

No action as treated effluent is fed to ERD for temporary storage prior to golf course irrigation The storage of effluent assists in the depletion of nutrient levels.

HMAS C

The sample

Results we

Effluent w

No action

25/03/2009	22/06/2009	15/08/2009	15/12/2009	21/04/2010	27/07/2010	02/11/2010	11/01/2011	12/04/2011	24/02/2012	17/07/2012	18/10/2012	01/03/2013	23/10/2013	21/01/2014	15/04/2014	20/08/2014	19/11/2014	12/02/2015	20/05/2015	15/08/2015	02/12/2015	24/02/2016
6.6	4.7	6.9	7.0	6.4	7.0	-	6.0	7.3	4.9	4.5	7.8	6.6	4.0	5.3	5.9	3.5	6.66	9.6	6.4	6.55	6.6	6.1
8	8	10	11	3	4	-	8	79	54	32	8	19	3	15	15	4	12	18	3	9	5	5
357	286	340	350	360	260	-	290	280	460	280	300	300	270	330	177	292	515	410	322	205	370	327
11	9	16	13	12	14	-	12	35	23	16	15	15	11	11	15	5	13	16	10	13	15	14
<2	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
6	<2	4	9	<2	<2	-	3	<2	5	<2	<2	6	<2	<2	3	<2	3	10	<2	4	2	2
1.4	2.6	12	11	9.3	10	-	5.3	20	3	5.6	2.6	6	4.3	9.3	1.3	17.3	6.6	7.9	2.6	5	7.6	4.9
11	12	13	6.3	17	6.6	-	14	5.2	25	15	10	14	17	23	7.29	5.18	18.9	23.3	11.9	9.35	16.7	19
3.6	2.2	2.9	1.4	4.2	3	-	3.9	5.6	11	3.6	3.6	5.1	3.7	4.4	2.9	0.09	3.41	4.78	2.82	3.27	3.41	4.13
1700	<2	64	4	<2	26	8500	2800	10	1100	<2	<2	920	<1	<2	1300	4	4	25000	<2	520	2	360

EFFLUENT OUTPUT MONITORING

Reswell Sewage Treatment Plant Final Effluent

Sample was collected at the treated effluent holding tank.

Results were not satisfactory for pH (Low), phosphorus (elevated) and Ammonia as N (elevated)

as sampled from tertiary treated wastewater

as treated effluent is fed to ERD for temporary storage prior to golf course irrigation. The storage of effluent assists in the depletion of nutrient levels.

Effluent Storage Dam (ERD)

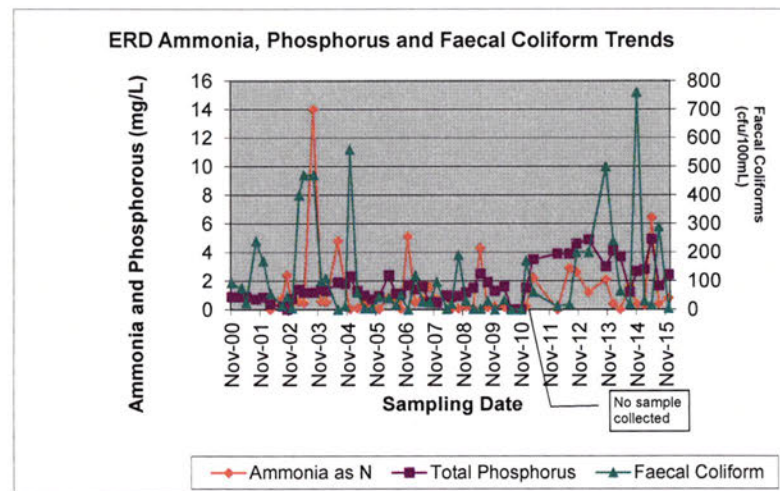
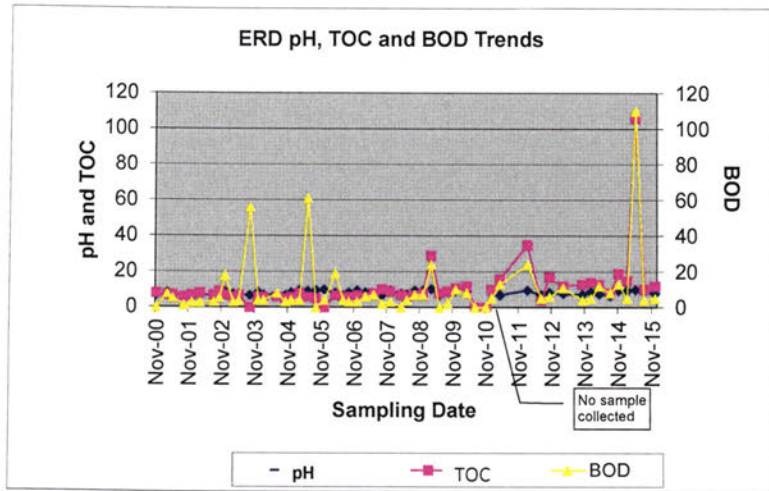
The sample was collected in the effluent storage dam adjacent to the intake for the irrigation system.

The results were not satisfactory for Ph (elevated), phosphorus (elevated) and Ammonia as N (elevated).

No action required as waste water is irrigated to golf course and there is no evidence of nutrient impacts on receiving waters.

Maintain general monitoring for nutrients down gradient of receiving waters.

PARAMETERS	LIMITS	#####	07/11/2000	20/03/2001	28/05/2001	28/09/2001	19/12/2001	25/03/2002	01/08/2002	29/10/2002	19/12/2002	05/03/2003	09/05/2003	23/09/2003	18/12/2003
pH	6.5-8.5		6.9	8.1	7.1	6.1	6.8	7.4	6.8	7.3	9	7.6	7.4	7	8.6
TOC	30 mg/L		7.9	7	7	6	7	8	7	9	7	6	7	<5	6
BOD	10 mg/L		<1.0	7.7	5.3	1.2	2.7	2.7	2.9	5.3	18	3	3.9	56	4
Ammonia as N	As per table							0.02	0.8	2.4	0.48	0.58	0.48	14	0.57
Total Phosphorus	0.5 mg/L		0.88	0.89	0.89	0.72	0.86	0.38	0.24	0.02	0.77	1.4	1.2	1.2	1.4
Faecal Coliform	1000cfu/100mL		94	76	24	240	170	56	14	46	5	400	470	470	100



Effluent Storage Dam (ERD)

The sample was collected in the effluent storage dam adjacent to the intake for the irrigation systems.

The results were not satisfactory for Ph (elevated), phosphorus (elevated) and Ammonia as N (elevated).

No action required as waste water is irrigated to golf course and there is no evidence of nutrient impacts on receiving waters.

Maintain general monitoring for nutrients down gradient of receiving waters.

24/02/2004	13/07/2004	12/10/2004	08/12/2004	16/03/2005	23/06/2005	20/09/2005	18/12/2005	04/04/2006	11/07/2006	28/09/2006	12/12/2006	06/03/2007	04/06/2007	04/09/2007	04/12/2007	01/04/2008	24/06/2008	23/09/2008	09/12/2008
7.1	7.2	6.9	8.4	9.8	9.2	9.8	10.1	8.2	6.8	8.5	9.7	8.5	7.2	6.8	9.4	7.6	7.3	9.5	9.7
6	6	5	6	8	6	5	<10	7	6	6	7	6	8	10	9	7	6	7	8
4	8	3	4	4	61	<2	4	19	4	3	3	6	7	2	3	<2	4	7	7
0.53	4.8	1.7	0.04	0.08	0.41	0.16	0.02	0.82	0.5	0.04	5.1	0.51	0.69	1.6	0.68	0.97	0.04	0.06	0.2
1.3	1.9	1.8	2.3	1.3	0.98	0.73	0.94	2.4	1.1	1.1	1.7	1.4	1.6	0.53	0.49	0.99	0.87	0.94	1.2
110	<2	12	560	60	4	4	44	40	16	50	<2	120	28	26	96	2	20	190	30

Effluent Storage Dam (ERD)

The sample was collected in the effluent storage dam adjacent to the intake for the irrigation systems.

The results were not satisfactory for Ph (elevated), phosphorus (elevated) and Ammonia as N (elevated).

No action required as waste water is irrigated to golf course and there is no evidence of nutrient impacts on receiving waters.

Maintain general monitoring for nutrients down gradient of receiving waters.

357 Effluent :
The sample
The results
No action
Maintain g

24/03/2009	23/06/2009	15/09/2009	16/12/2009	21/04/2010	27/07/2010	02/11/2010	11/01/2011	12/04/2011	24/02/2012	17/07/2012	16/10/2012	01/03/2013	23/10/2013	21/01/2014	15/04/2014	20/08/2014	19/11/2014	18/02/2015	20/05/2015	25/08/2015	02/12/2015	24/02/2016
10.4	7.2	9	9.5	9.1	-	-	9	7.1	9.7	7.2	8.4	7.9	7.4	8.9	7.73	6.76	9.67	9.58	10	9.45	7.87	9.1
29	8	9	11	12	-	-	10	16	35	4	17	12	13	14	13	8	19	15	106	10	12	14
24	<2	2	10	8	-	-	5	13	24	5	6	11	4	5	12	8	13	5	110	4	5	7
0.03	4.3	0.15	0.22	0.17	-	-	0.22	2.2	<0.1	2.9	2.6	1.2	2.1	0.4	<0.1	1.6	0.4	0.3	6.42	0.4	0.8	0.3
1.5	2.5	1.9	1.3	1.6	-	-	1.5	3.5	3.9	3.9	4.6	4.9	3	4.1	3.7	1.22	2.67	2.8	4.93	1.66	2.43	2.71
2	2	30	<2	34	-	-	170	60	12	18	200	200	500	240	64	20	760	30	16	288	4	104

Storage Dam (ERD)

3 was collected in the effluent storage dam adjacent to the intake for the irrigation systems.

were not satisfactory for Ph (elevated), phosphorus (elevated) and Ammonia as N (elevated).

1 required as waste water is irrigated to golf course and there is no evidence of nutrient impacts on receiving waters.
eneral monitoring for nutrients down gradient of receiving waters.

ENVIRONMENTAL MONITORING

Flat Rock Creek.

The sample was collected under the cross over bridge behind the golf course.

Results were not satisfactory for pH (Low) and the TDS result was high but sample was taken during high tide.

No action required. No evidence of nutrient contamination from golf course irrigation.

PARAMETERS	LIMITS	#####	07/11/2000	20/03/2001	28/05/2001	26/08/2001	19/12/2001	26/03/2002	01/08/2002	29/10/2002	19/12/2002	05/03/2003	09/05/2003	23/08/2003	16/12/2003
pH	6.5-8.5	6.2	6.1	6.5	6.8	6.0	7.0	6.5	6.0	7.2	7.6	7.2	6.2	6.5	6.8
TDS	500 mg/L	2800	3200	16000	22000	2200	150	8600	6900	19000	1600	1800	2300	13000	3500
TOC	30 mg/L	6.9	9.7	6	5	13	5	10	7	5	5	4	15	<5	8
BOD	10 mg/L	<1.0	<1.0	<1	<1	<1	1.7	3.2	<1	<1.0	<1.0	1	<1	1	<2
Ammonia as N	As per table	0.07	0.01	0.06	0.02	0.01	0.04	<0.01	0.02	0.02	0.04	0.02	0.02	0.02	0.03
Total Phosphorus	0.5 mg/L	0.02	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01	<0.01	0.02	0.02	<0.01

Spring-water.

The sample was collected from the spring down gradient of effluent dam. The results were not satisfactory for pH although it appears this is due to naturally low pH of waters in the area.

No action required. No evidence of contamination from ERD or golf course irrigation.

PARAMETERS	LIMITS	#####	24/02/2004	13/07/2004	08/12/2004	18/03/2005	23/06/2005	20/09/2005	13/12/2005	04/04/2006	11/07/2006	26/09/2006	12/12/2006	06/03/2007	04/06/2007
pH	6.5-8.5	5.6	5.6	5.6	5.7	5.6	5.5	5.1	5.2	5.7	5.0	5.2	5.4	5.7	5.1
TDS	500 mg/L	170	170	200	180	210	290	260	320	220	240	200	260	190	330
TOC	30 mg/L	<2	<2	<2	<2	<2	<2	2	<10	<2	<2	2	2	<2	3
BOD	10 mg/L	<2	<2	<2	<2	N/R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ammonia as N	As per table	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	0.02	0.01	0.03	0.07
Total Phosphorus	0.5 mg/L	0.04	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	0.01	<0.01	<0.01
Faecal Coliform	100cfu/100mL	1	0	0	4	0	0	<2	0	<2	<1	<0.01	<1	<2	<2

ENVIRONMENTAL MONITORING

Flat Rock Creek.

The sample was collected under the cross over bridge behind the golf course.

Results were not satisfactory for pH (Low) and the TDS result was high but sample was taken during high tide.

No action required. No evidence of nutrient contamination from golf course irrigation.

24/02/2004	13/07/2004	12/10/2004	08/12/2004	16/03/2005	23/06/2005	20/09/2005	13/12/2005	04/04/2006	11/07/2006	28/09/2006	12/12/2006	06/03/2007	04/06/2007	04/09/2007	01/04/2008	24/07/2008	23/09/2008	08/12/2008	25/03/2009
6.7	6.3	6.2	6.5	6.6	7.1	7.2	8.0	6.7	6.1	6.8	7.1	6.8	6.7	6.4	6.8	6.5	7.1	7.4	7.7
9200	3300	1700	12000	11000	24000	21000	37000	27000	2400	11000	20000	14000	16000	11000	17000	5700	31073	32566	37424
10	8	10	11	9	5	5	3	5	12	8	5	13	6	9	10	7	4	3	3
<2	<2	<2	<2	<2	3	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	10	<2	12
0.01	0.03	0.06	0.02	0.04	0.07	<0.01	<0.01	0.03	0.04	0.04	0.04	0.07	0.15	0.02	0.11	0.06	0.37	0.24	22
0.01	<0.01	0.02	0.02	<0.01	0.02	<0.01	0.02	0.02	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.15	0.02	0.04

Spring-water.

The sample was collected from the spring down gradient of effluent dam. The results were not satisfactory for pH although it appears this is due to naturally low pH of waters in the area.

04/09/2007	04/12/2007	01/04/2008	24/03/2008	23/09/2008	09/12/2008	25/03/2009	23/06/2009	19/09/2009	19/12/2009	21/04/2010	27/07/2010	02/11/2010	11/01/2011	12/04/2011	24/02/2012	17/07/2012	16/10/2012	01/03/2013	23/10/2013
5.1	5.4	5.3	5.3	5.5	5.4	-	-	-	-	-	5.4	4.9	4.9	4.9	5.0	5.0	5.2	5.7	5.3
230	280	190	200	180	252	-	-	-	-	-	380	350	270	310	380	300	290	180	280
3	3	2	2	2	2	-	-	-	-	-	3	3	3	3	2	3	2	3	4
N/A	N/A	<2	N/A	N/A	N/A	-	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
0.02	0.03	0.11	0.04	0.06	<0.01	-	-	-	-	-	0.04	0.05	0.1	0.05	<0.1	<0.1	<0.1	<0.1	<0.1
0.13	0.02	0.02	<0.01	<0.01	<0.01	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
<1	2	4	<2	<1	<2	-	-	-	-	-	<1	<1	3	<1	<1	<2	<1	<1	<2

Mary Creek (Upper)

A sample was collected with a slow base flow note that there was no pH reading.

No evidence of hydrocarbon contamination. No action required.

13/07/2004	12/10/2004	08/12/2004	18/03/2005	23/08/2005	20/09/2005	12/12/2005	04/04/2006	11/07/2006	28/09/2006	12/12/2006	08/03/2007	04/08/2007	04/09/2007	04/12/2007	01/04/2008	24/06/2008	23/09/2008	09/12/2008	23/08/2009
-	-	-	-	4.9	4.8	-	-	5.3	-	-	5.0	5.1	-	5.8	6.3	5.8	6.2	-	5.5
-	-	-	-	230	240	-	-	180	-	-	270	240	-	300	160	150	150	-	236
-	-	-	-	16	6	-	-	10	-	-	10	4	-	9	8	10	8	-	14
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	<25	<25	-	-	<25	-	-	<25	<25	-	<25	<25	<25	<25	-	<25
-	-	-	-	<225	<225	-	-	<225	-	-	<225	405	-	<225	<225	<225	<225	-	<225
-	-	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	-	<1.0
-	-	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	-	<1.0
-	-	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	-	<1.0
-	-	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	-	<2.0
-	-	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	-	<1.0

Mary Creek (Lower)

A sample was collected with a good base flow going across the road.

Low pH readings which has been the histocal results due to low pH in the area. There is evidence of hydrocarbon contamination with C10-C36. Monitor hydrocarbon on next inspection round.

13/07/2004	12/10/2004	08/12/2004	18/03/2005	23/08/2005	20/09/2005	12/12/2005	04/04/2006	11/07/2006	28/09/2006	12/12/2006	08/03/2007	04/08/2007	04/09/2007	04/12/2007	01/04/2008	24/06/2008	23/09/2008	09/12/2008	23/08/2009
4.5	4.5	-	4.5	4.6	4.4	-	-	4.5	4.6	-	4.4	-	4.5	-	4.5	4.5	4.6	-	4.5
200	160	-	180	190	180	-	-	180	240	-	170	-	220	-	180	160.0	168.0	-	166.4
8	8	-	8	6	7	-	-	11	8	-	10	-	10	-	10	9.0	7.0	-	13.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<25	<25	-	<25	<25	<25	-	-	<25	<25	-	<25	-	<25	-	<25	<25	<25	-	<25
<225	<225	-	<265	<225	<225	-	-	<225	265	-	<225	-	<225	-	<225	<225	<225	-	<225
<1.0	<1.0	-	<1.0	<1.0	<1.0	-	-	<1.0	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	<1.0	-	<1.0
<1.0	<1.0	-	<1.0	<1.0	<1.0	-	-	<1.0	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	<1.0	-	<1.0
<1.0	<1.0	-	<1.0	<1.0	<1.0	-	-	<1.0	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	<1.0	-	<1.0
<2.0	<2.0	-	<2.0	<2.0	<2.0	-	-	<2.0	<2.0	-	<2.0	-	<2.0	-	<2.0	<2.0	<2.0	-	<2.0
-	<1.0	-	<1.0	<1.0	<1.0	-	-	<1.0	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	<1.0	-	<1.0

Mary Creek (Upper)

A sample was collected with a slow base flow note that there was no pH reading.

No evidence of hydrocarbon contamination. No action required.

15/09/2009	15/12/2009	21/04/2010	27/07/2010	02/11/2010	11/01/2011	12/04/2011	19/07/2011	24/02/2012	17/07/2012	18/10/2012	01/03/2013	23/10/2013	21/01/2014	15/04/2014	20/08/2014	18/11/2014	18/02/2015	20/05/2015	25/08/2015	02/12/2015	24/02/2016
-	-	-	6.8	-	6.8	7.1	6.5	6.6	6.6	6.4	6.0	6.0	5.8	6.1	6.08	-	-	-	-	-	-
-	-	-	200	-	190	210	250	280	230	240	180	250	360	143	168	-	263	284	-	283	268
-	-	-	10	-	21	9	5	8	5	7	34	5	7	32	10	-	8	7	-	16	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	<25	-	<25	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	-	<20	<20	-	<20	<20
-	-	-	<225	-	<225	<225	<225	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	-	<50	<50
-	-	-	<1.0	-	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	-	<1	<1
-	-	-	<1.0	-	<1.0	<1.0	<1.0	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2
-	-	-	<1.0	-	<1.0	<1.0	<1.0	<5	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2
-	-	-	<2.0	-	<2.0	<2.1	<2.1	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2
-	-	-	<1.0	-	<1.0	<1.1	<1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5

Mary Creek (Lower)

A sample was collected with a good base flow going across the road.

Low pH readings which has been the histocal results due to low pH in the area. There is evidence of hydrocarbon contamination with C10-C36. Monitor hydrocarbon on next inspection round.

15/09/2009	15/12/2009	21/04/2010	27/07/2010	02/11/2010	11/01/2011	12/04/2011	19/07/2011	24/02/2012	17/07/2012	18/10/2012	01/03/2013	23/10/2013	21/01/2014	15/04/2014	20/08/2014	18/11/2014	18/02/2015	20/05/2015	25/08/2015	02/12/2015	24/02/2016
-	-	-	4.2	4.2	4.4	4.4	5.4	4.6	4.6	4.6	4.4	4.5	4.5	4.5	4.43	-	4.5	4.5	-	4.6	4.5
-	-	-	230	220	200	190	200	210.0	170.0	160.0	160.0	200.0	220.0	97.0	102	-	194	228.0	-	229.0	168.0
-	-	-	12	12	22	12	10	13.0	8.0	8.0	34.0	9.0	11.0	25.0	12	-	12.0	12.0	-	26.0	13.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	<25	<25	<25	<25	<25	<20	<20	<20	<20	<20	<20	<20	<20	-	<20	<20	-	<20	<20
-	-	-	<225	<225	<225	<225	<225	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	-	<50	3590.0
-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	-	<1	<1
-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2
-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2
-	-	-	<2.0	<2.0	<2.0	<2.1	<2.1	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2
-	-	-	<1.0	<1.0	<1.0	<1.1	<1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5

LEASE GROUNDWATER MONITORING

Bay of Plenty – Bore water

Sample point is a feed line off-take from bore pump.

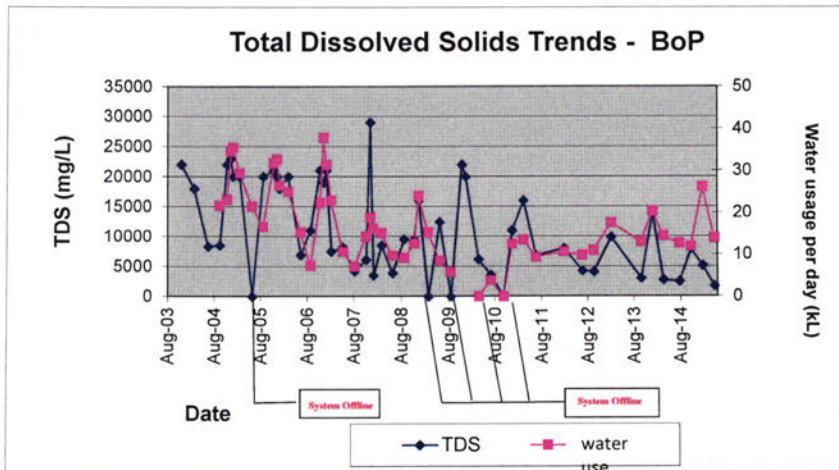
Results indicate evidence of saltwater intrusion as the TDS result was high but sample was taken during high tide..

Recommend reduction in groundwater dependency.

PARAMETERS	LIMITS	#####	25/01/2004	13/07/2004	12/10/2004	08/12/2004	08/01/2005	25/01/2005	16/03/2005	23/06/2005	20/09/2005	13/12/2005	08/01/2006	31/01/2006	04/04/2006
pH	6.5-8.5	7.7	7.5	7.7	7.5	7.5	7.7	7.4	7.6	-	7.8	7.8	7.7	7.8	7.7
TDS	500 mg/L	22000	18000	8300	8500	22000	23000	20000	20000	-	20000	21000	20000	18000	20000
TOC	30 mg/L	4	3	4	5	3	3	4	4	-	4	4	4	5	4
BOD	19 mg/L	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	<2
Ammonia as N	As per table	0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
T. Oxid Nit (as N)	50 mg/L			1.8	1.8	1.8	1.7	1.8	2.1	-	1.7	1.8	1.8	1.8	2.2
Total Phosphorus	0.5 mg/L	0.19	0.14	-	0.13	0.17	0.18	0.06	0.16	-	0.16	0.16	0.16	0.14	0.16
Faecal Strep.	10cfu/100mL	<2	<2	0	<2	0	0	0	0	-	<2	0	0	<2	<2

METER READINGS	At install		13/07/2004	12/10/2004	08/12/2004	08/01/2005	25/01/2005	16/03/2005	23/06/2005	20/09/2005	13/12/2005	08/01/2006	31/01/2006	04/04/2006
Current Reading	0		176	2142	3454	4527	5130	6598	8723	10200	12870	13652	14127	15878
Usage per period			176	1966	1312	1073	603	1468	2125	1477	2670	782	475	1751
kL per day				21.6	23.0	34.6	35.5	29.4	21.5	16.6	31.8	32.6	26.4	25.0
Tide Level			Low	Mid/Low	Mid/Low	Mid/Low	High	Mid	Mid/High	High	Mid	Mid	Mid	Mid/Low

<http://tides.willyweather.com.au/>



LEASE GROUNDWATER MONITORING

Bay of Plenty – Bore water

Sample point is a feed line off-take from bore pump.

Results indicate evidence of saltwater intrusion as the TDS result was high but sample was taken during high tide..

Recommend reduction in groundwater dependency.

11/07/2006	26/09/2006	12/12/2006	09/01/2007	31/01/2007	06/03/2007	04/08/2007	04/09/2007	04/12/2007	08/01/2008	10/01/2008	01/04/2008	24/06/2008	23/09/2008	09/12/2008	15/01/2009	25/03/2009	23/06/2009	16/09/2009	15/12/2009
7.6	7.8	7.8	7.9	7.6	7.9	7.7	7.8	7.8	7.8	7.8	7.7	7.9	7.9	7.9	7.7	-	7.8	-	7.7
6900	11000	21000	19000	21000	7500	8200	4200	6100	29000	3500	8500	3900	9516	9468	16066	-	12408	-	22000
<2	4	4	3	4	4	5	5	5	4	4	5	5	5	4	4	-	4	-	5
<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	-	<2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6	1.8	1.3	1.8	1.4	2.0	2.0	1.2	2.0	1.8	1.3	1.8	1.1	1.2	1.1	1.1	-	1.7	-	1.4
0.06	0.13	0.16	0.16	0.15	0.12	0.12	0.11	0.12	0.14	0.11	0.13	0.12	0.13	0.13	0.05	-	0.14	-	0.16
<1	<1	<2	<1	<1	<1	<2	<1	<1	<1	<2	<1	<1	<1	<1	<1	-	<2	-	<1

11/07/2006	26/09/2006	12/12/2006	09/01/2007	31/01/2007	06/03/2007	04/08/2007	04/09/2007	04/12/2007	08/01/2008	10/01/2008	01/04/2008	24/06/2008	23/09/2008	09/12/2008	15/01/2009	25/03/2009	23/06/2009	16/09/2009	15/12/2009
17368	17936	19653	20711	21401	22178	23136	23793	25081	25742	26098	27034	27849	28683	29654	30540	31591	32357	32845	Meter
1490	568	1717	1058	690	777	958	657	1288	661	356	936	815	834	971	886	1051	766	488	Broken
15.2	7.4	22.3	37.8	31.4	22.9	10.6	7.1	14.2	18.9	16.2	15.1	9.7	9.2	12.6	23.9	15.2	8.5	5.8	
Mid/Low	Mid/High	Mid/High	Low	High	Low/Mid	Low/Mid	Low/Mid	Low/Mid	Low/Mid	Low	Low	Low/Mid	Low/Mid	Mid	Mid	High/Mid	High/Mid	Mid	Mid/High

LEASE GROUNDWATER MONITORING

Bay of Plenty – Bore water

Sample point is a feed line off-take from bore pump.

Results indicate evidence of saltwater intrusion as the TDS result was high but sample was taken during high tide..

Recommend reduction in groundwater dependency.

14/01/2010	21/04/2010	27/07/2010	02/11/2010	11/01/2011	12/04/2011	19/07/2011	24/02/2012	17/07/2012	18/10/2012	01/03/2013	23/10/2013	21/01/2014	15/04/2014	20/08/2014	18/11/2014	18/02/2015	20/05/2015	25/08/2015	02/12/2015	24/02/2016		
7.7	7.9	7.5	-	7.7	7.9	7.8	7.8	8.0	7.8	7.7	7.8	7.7	7.9	8.05	7.92	7.90	7.6	-	7.9	8.0		
20000	6200	3600	-	11000	16000	6800	8000	4300	4100	9900	3000	14000	2760	2510	7910	5120	1750	-	294	5940		
4	5	2	-	2	6	4	6	7	8	7	7	8	5	5	6	5	3	-	2	4		
<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1.9	2.0	0.7	-	2	1.8	1	1.6	1.4	1.8	4.7	1.7	2.1	2.68	1.38	2.08	2.15	0.66	-	0.1	0.91		
0.14	0.12	0.08	-	0.14	0.15	0.09	0.14	0.11	0.11	0.16	0.12	0.16	0.11	0.1	0.13	0.12	0.03	-	0.1	0.11		
<1	<1	<1	-	<1	<1	<1	<1	<2	52	<1	<1	<1	<2	<2	<2	<2	<2	-	<2	<2		
14/01/2010	21/04/2010	27/07/2010	02/11/2010	11/01/2011	12/04/2011	19/07/2011	24/02/2012	17/07/2012	18/10/2012	01/03/2013	23/10/2013	21/01/2014	15/04/2014	20/08/2014	18/11/2014	18/02/2015	20/05/2015	25/08/2015	02/12/2015	24/02/2016		
Meter	389	768	-	2873	4094	5013	7357	8768	9764	12148	15220	17047	18253	19854	20926	23327	24592	-	27139	29100		
Broken	New	379	-	2105	1221	919	2344	1411	996	2384	3072	1827	1206	1601	1072	2401	1265	-	2547	1961		
Meter	Meter	3.9	-	12.5	13.4	9.4	10.7	9.8	10.9	17.5	13.0	20.3	14.4	12.6	11.9	26.1	13.9	-	13.0	23.3		
Mid/High	Low	High	Low	Mid/High	Low	Low/Mid	Mid/High	Mid	Mid/High	High	Mid/High	Mid/High	High/Mid	Low	Low	High	High	-	Low/Med	High		

RTBU – Bore water

Sample point is a feed line from bore pump to storage tank

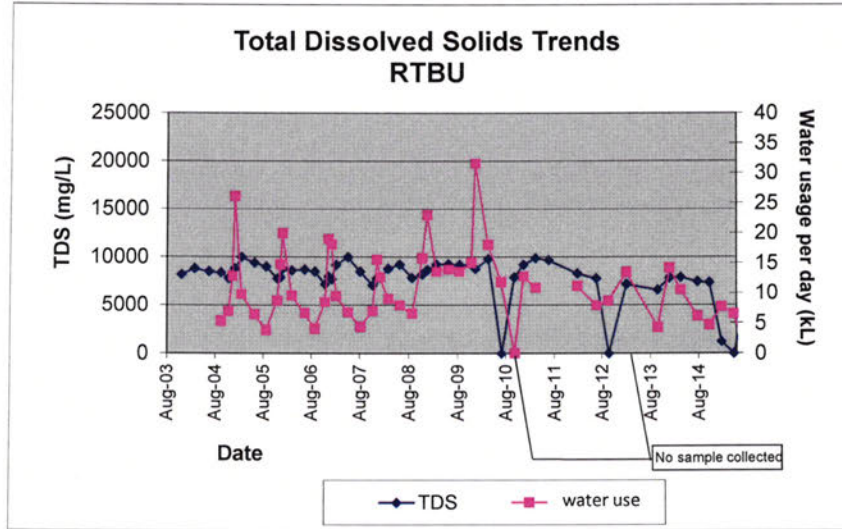
Results indicate evidence of saltwater intrusion as the TDS result was high but sample was taken during high tide..

Recommend reduction in groundwater dependency.

PARAMETERS	LIMITS	#####	25/03/2004	13/07/2004	12/10/2004	08/12/2004	08/01/2005	25/01/2005	16/03/2005	23/06/2005	28/09/2005	13/12/2005	08/01/2006	24/01/2006	04/04/2006
pH	6.5-8.5		8.0	7.5	7.6	7.5	7.5	7.9	7.4	7.6	7.6	7.8	7.8	7.9	7.6
TDS	500 mg/L		7400	8200	8800	8500	8400	7800	8000	8800	10000	9400	7800	7900	8800
TOC	30 mg/L		4	3	3	3	3	3	4	3	3	3	<10	4	3
BOD	10 mg/L		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Ammonia as N	A6 per table		<0.01	0.05	-	-	-	-	-	-	-	-	-	-	-
T. Oxid Nit (as N)	50 mg/L				0.45	0.49	0.47	0.51	0.55	0.49	0.45	0.55	0.56	0.61	0.55
Total Phosphorus	0.5 mg/L		0.22	0.16	-	0.15	0.24	0.12	0.12	0.21	0.6	0.13	0.34	0.09	0.09
Faecal Strep.	10cfu/100mL		<2	0	<2	<2	0	0	0	0	<2	0	0	<2	<2

METER READINGS	At install		13/07/2004	12/10/2004	08/12/2004	08/01/2005	25/01/2005	16/03/2005	23/06/2005	28/09/2005	13/12/2005	08/01/2006	24/01/2006	04/04/2006
Current Reading	0		78	560	953	1350	1793	2281	2912	3250	3980	4333	4691	5359
Usage per period			78	482	393	397	443	488	631	338	730	353	358	668
kL per day				5.3	6.9	12.8	26.1	9.8	6.4	3.8	8.7	14.7	19.9	9.5
Tide Level			Low	Mid/Low	Mid/Low	Mid/Low	High	Mid	Mid/High	High	Mid	Mid	Mid	Mid/Low

<http://tides.willyweather.com.au/>



RTBU – Bore water

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Recommend reduction in groundwater dependency.

11/07/2006	28/09/2006	12/12/2006	08/01/2007	31/01/2007	06/03/2007	04/06/2007	04/09/2007	04/12/2007	08/01/2008	30/01/2008	01/04/2008	24/06/2008	23/09/2008	09/12/2008	15/01/2009	25/03/2009	23/06/2009	15/08/2009	15/12/2009
7.6	7.7	7.7	7.9	7.7	7.8	7.5	7.5	7.6	7.7	7.6	7.5	7.7	7.7	7.8	7.6	7.6	7.8	7.7	7.7
8600	8700	8500	7200	8000	7700	9200	10000	8500	7100	7800	7900	8800	9224	7860	8224	8681	9248	9300	9200
3	3	3	3	4	4	3	3	3	4	3	4	3	4	4	4	4	3	4	4
<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.49	0.49	1	0.95	0.88	0.82	0.57	0.51	1.0	1.0	0.99	1.0	1	0.95	0.93	0.99	0.03	1.1	1.1	1.1
0.13	0.09	0.19	0.18	0.14	0.13	0.15	0.14	0.21	0.11	0.14	0.14	0.21	0.35	0.1	0.11	0.13	0.21	0.13	0.38
<1	<1	<1	<1	<1	<1	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1

11/07/2006	28/09/2006	12/12/2006	08/01/2007	31/01/2007	06/03/2007	04/06/2007	04/09/2007	04/12/2007	08/01/2008	30/01/2008	01/04/2008	24/06/2008	23/09/2008	09/12/2008	15/01/2009	25/03/2009	23/06/2009	15/08/2009	15/12/2009
6003	6316	6970	7501	7899	8221	8826	9225	9855	10399	10677	11236	11902	12497	13714	14564	15503	16759	17897	19264
644	313	654	531	398	322	605	399	630	544	278	559	666	595	1217	850	939	1256	1138	1367
6.6	4.1	8.5	19.0	18.1	9.5	6.7	4.3	6.9	15.5	12.6	9.0	7.9	6.5	15.8	23.0	13.6	14.0	13.5	15.0
Mid/Low	Mid/High	Mid/High	Low	High	Low/Mid	Low/Mid	Low/Mid	Low/Mid	Low/Mid	Low	Low	Low/Mid	Low/Mid	Mid	Mid	High/Mid	High/Mid	Mid	Mid/High

RTBU – Bore water

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14/01/2010	21/04/2010	27/07/2010	02/11/2010	11/01/2011	12/04/2011	19/07/2011	24/02/2012	17/07/2012	18/10/2012	01/03/2013	23/10/2013	21/01/2014	14/04/2014	20/08/2014	18/11/2014	18/02/2015	20/05/2015	25/08/2015	02/12/2015	24/02/2016		
7.7	7.8	7.5	-	7.6	7.9	7.6	7.4	7.7	7.6	-	7.6	7.5	7.7	7.77	7.78	7.74	7.7	-	7.8	7.9		
9200	8800	9800	-	7900	9200	9900	9700	8300	7800	-	7200	6600	7850	7900	7460	7370	1240	-	5540	6360		
4	4	4	-	7	8	6	10	6	8	-	7	7	6	5	4	3	6	-	6	5		
<2	<2	<2	-	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<2	-	<2	<2		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1.1	0.9	0.73	-	1.2	1.1	1	0.37	2.4	2.2	-	3.5	1.5	1.11	2.01	1.83	2.54	2.34	-	4.38	1.65		
0.11	0.16	0.17	-	0.11	0.16	0.18	3.9	0.17	0.11	-	0.16	0.41	2.17	0.61	0.22	0.46	0.16	-	0.28	0.22		
<1	<2	<1	-	<1	<1	<1	<1	<1	<1	-	<1	<1	2	<2	<2	<2	<2	-	4	<2		

14/01/2010	21/04/2010	27/07/2010	02/11/2010	11/01/2011	12/04/2011	19/07/2011	24/02/2012	17/07/2012	18/10/2012	01/03/2013	23/10/2013	21/01/2014	14/04/2014	20/08/2014	18/11/2014	18/02/2015	20/05/2015	25/08/2015	02/12/2015	24/02/2016		
20211	21959	23107	-	25248	26239	No	29792	30925	31714	33542	34551	35825	36703	37479	37899	38606	39196	-	39919	40431		
947	1748	1148	-	2141	991	Reading	3553	1133	789	1828	1009	1274	878	776	420	707	590	-	723	512		
31.6	18.0	11.8	-	12.7	10.9		11.2	7.9	8.7	13.4	4.3	14.2	10.6	6.1	4.7	7.7	6.5	-	3.7	6.1		
Mid/High	Low	High	Low	Mid/High	Low		Mid/High	Mid	Mid/High	High	Mid/High	Mid/High	High/Mid	Low	Low	High	High	-	Low/Med	High		

Stedman, Andrew (Health)

From: [REDACTED] [REDACTED] [REDACTED] [REDACTED]@defence.gov.au> on behalf of PFASIM Jervis Bay
<pfasim.jervisbay@defence.gov.au>
Sent: Wednesday, 15 March 2017 9:36 AM
To: Chester, Heath; Krsteski, Radomir (Health); 'Callaway, Michelle';
[REDACTED]@wbacc.gov.au'; [REDACTED];
[REDACTED]@infrastructure.gov.au'
Cc: PFASIM Jervis Bay; [REDACTED]@epa.nsw.gov.au'; Stedman, Andrew (Health);
[REDACTED]@infrastructure.gov.au'; [REDACTED]@epa.nsw.gov.au';
[REDACTED]@health.nsw.gov.au'; [REDACTED] n. [REDACTED]@ghd.com'
Subject: Invitation to Jervis Bay Range Facility - HMAS Creswell PFAS Community Information
Session 2 - Tuesday March 21, 2017 [SEC=UNCLASSIFIED]

UNCLASSIFIED

Good morning ladies and gentlemen,

You may be aware that Defence plans to conduct a Community Information Session for residents and business owners in the vicinity of Jervis Bay Range Facility and HMAS Creswell on Tuesday March 21, 2017.

This will be the second information session for the Jervis Bay Territory communities, and will be conducted as a "walk in" style session to allow community members to engage with and ask questions of Defence and agencies.

We invite you to participate or send suitable representatives to engage with the community, provide information about your agency and its role in the investigation, and answer community members' questions.

The details of the session are as follows:

Date: Tuesday March 21, 2017

Timings: 6.00pm – 6.30pm: Pre-event briefing for Defence and Agency representatives
6.30pm – 7.30pm: Community Information Session
7.30pm – 8.00pm: Post event debrief for Defence and Agency representatives

Location: Jervis Bay Village Primary School Hall
Dykes Ave, Jervis Bay

We would ask you to bring appropriate Agency collateral including signage, brochures or flyers. Defence will provide site-specific fact sheets and contact lists.

If additional information is required at any stage, please do not hesitate to contact me. Otherwise, we would appreciate an indication of your ability to attend, and provision of points of contact for coordination purposes, as soon as possible but no later than Friday March 24, 2017.

Yours sincerely,

[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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White, Sarah-Jane (Health)

From: [REDACTED]@infrastructure.gov.au>
Sent: Wednesday, 15 March 2017 5:17 PM
To: Clapham, David
Cc: [REDACTED]
Subject: RE: Invitation to Jervis Bay Range Facility - HMAS Creswell PFAS Community Information Session 2 - Tuesday March 21, 2017 [SEC=UNCLASSIFIED]

Hi David,

I confirm my earlier advice that the Department does not require ACT attendance at the Defence JBT 'walk-in' and as such, is not willing to cover attendance costs. As Defence has indicated a strong preference for ACT to participate, attendance can be covered by ACT or, as suggested earlier, by Defence.

Regards

From: Clapham, David [mailto:David.Clapham@act.gov.au]
Sent: Wednesday, 15 March 2017 1:42 PM
To: [REDACTED]@infrastructure.gov.au>
Subject: FW: Invitation to Jervis Bay Range Facility - HMAS Creswell PFAS Community Information Session 2 - Tuesday March 21, 2017 [SEC=UNCLASSIFIED]

Dear [REDACTED]

I hope you're well. Regarding this proposed event, I am testing internally who would attend (likely Dr Kelly ACT CHO, but TBA). Defence have strongly indicated that they would like an ACT representative to respond and I anticipate that Health/EPA will seek costs for travel/accommodation from the Department of Infrastructure for our participation. Can you advise DIRD's position on this?

Additionally, I can report that the ACT reps at last week's PCG felt the meeting was valuable and will provide the ACT with sufficient assurance on the process / activities going forward. I understand that the ACT's offer to share testing results has been gratefully accepted by Defence, so all seems to be working well.

Happy to discuss, many thanks

David

David Clapham | Senior Policy Officer - Intergovernmental Relations | **Policy & Cabinet Division**
 ☎ 02 6205 7261 | **Chief Minister, Treasury & Economic Development Directorate** | ACT Government
 Level 4, Canberra Nara Centre | GPO Box 158 Canberra ACT 2601 | www.act.gov.au



From: [REDACTED]@defence.gov.au] **On Behalf Of** PFASIM Jervis Bay
Sent: Wednesday, 15 March 2017 10:28 AM
To: Clapham, David
Subject: FW: Invitation to Jervis Bay Range Facility - HMAS Creswell PFAS Community Information Session 2 - Tuesday March 21, 2017 [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hi David,

Please see below an invite I have sent out to various agencies, including ACT Health and EPA for the next community information session to be held in Jervis Bay.

Member for Fenner, Hon Dr Andrew Leigh has been invited by the Minister's office.

I will call soon to discuss.

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

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From: [REDACTED] [REDACTED] On Behalf Of PFASIM Jervis Bay

Sent: Wednesday, 15 March 2017 9:36 AM

To: 'Chester, Heath'; 'Krsteski, Radomir (Health)'; [REDACTED]; [REDACTED]@wbacc.gov.au'; [REDACTED]; [REDACTED]; [REDACTED]@infrastructure.gov.au'

Cc: PFASIM Jervis Bay; [REDACTED]@epa.nsw.gov.au'; 'Stedman, Andrew (Health)'; [REDACTED]@infrastructure.gov.au'; [REDACTED]@epa.nsw.gov.au'; [REDACTED]@health.nsw.gov.au'; [REDACTED]@ghd.com'

Subject: Invitation to Jervis Bay Range Facility - HMAS Creswell PFAS Community Information Session 2 - Tuesday March 21, 2017 [SEC=UNCLASSIFIED]

UNCLASSIFIED

Good morning ladies and gentlemen,

You may be aware that Defence plans to conduct a Community Information Session for residents and business owners in the vicinity of Jervis Bay Range Facility and HMAS Creswell on Tuesday March 21, 2017.

This will be the second information session for the Jervis Bay Territory communities, and will be conducted as a "walk in" style session to allow community members to engage with and ask questions of Defence and agencies.

We invite you to participate or send suitable representatives to engage with the community, provide information about your agency and its role in the investigation, and answer community members' questions.

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Location: Jervis Bay Village Primary School Hall
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We would ask you to bring appropriate Agency collateral including signage, brochures or flyers. Defence will provide site-specific fact sheets and contact lists.

If additional information is required at any stage, please do not hesitate to contact me. Otherwise, we would appreciate an indication of your ability to attend, and provision of points of contact for coordination purposes, as soon as possible but no later than Friday March 24, 2017.

Yours sincerely,

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

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Stedman, Andrew (Health)

From: Stedman, Andrew (Health)
Sent: Thursday, 16 March 2017 10:02 AM
To: PFASIM Jervis Bay
Subject: RE: RFI - Defence PFAS JBT - sampling information for GHD -ACT Health results [SEC=UNCLASSIFIED]

No problem [REDACTED]



Andrew Stedman | Environment Team Leader
 Health Protection Service | health.act.gov.au
 Phone (02) 6205 4404 | Mobile [REDACTED]

From: [REDACTED] [REDACTED]@defence.gov.au] **On Behalf Of** PFASIM Jervis Bay
Sent: Thursday, 16 March 2017 9:02 AM
To: Stedman, Andrew (Health)
Subject: RE: RFI - Defence PFAS JBT - sampling information for GHD -ACT Health results [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hi Andrew,

Thank you for this location data, it was very helpful.

Regards,
 [REDACTED]

[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
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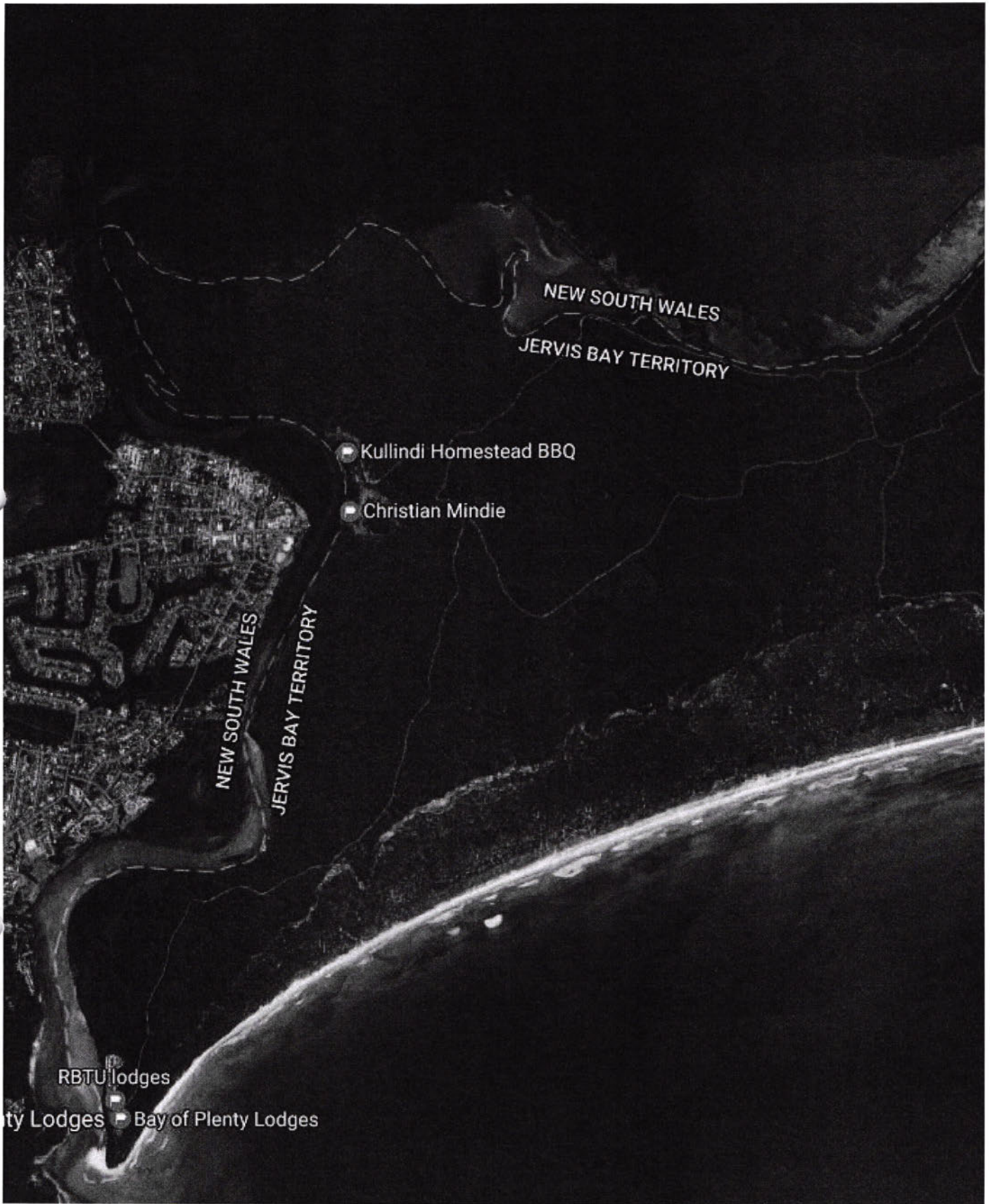
From: Stedman, Andrew (Health) [<mailto:Andrew.Stedman@act.gov.au>]
Sent: Thursday, 9 March 2017 4:55 PM
To: PFASIM Jervis Bay; [REDACTED]@ghd.com'; [REDACTED]@ghd.com'
Cc: Krsteski, Radomir (Health); [REDACTED]@infrastructure.gov.au'
Subject: RE: RFI - Defence PFAS JBT - sampling information for GHD -ACT Health results [SEC=UNCLASSIFIED]

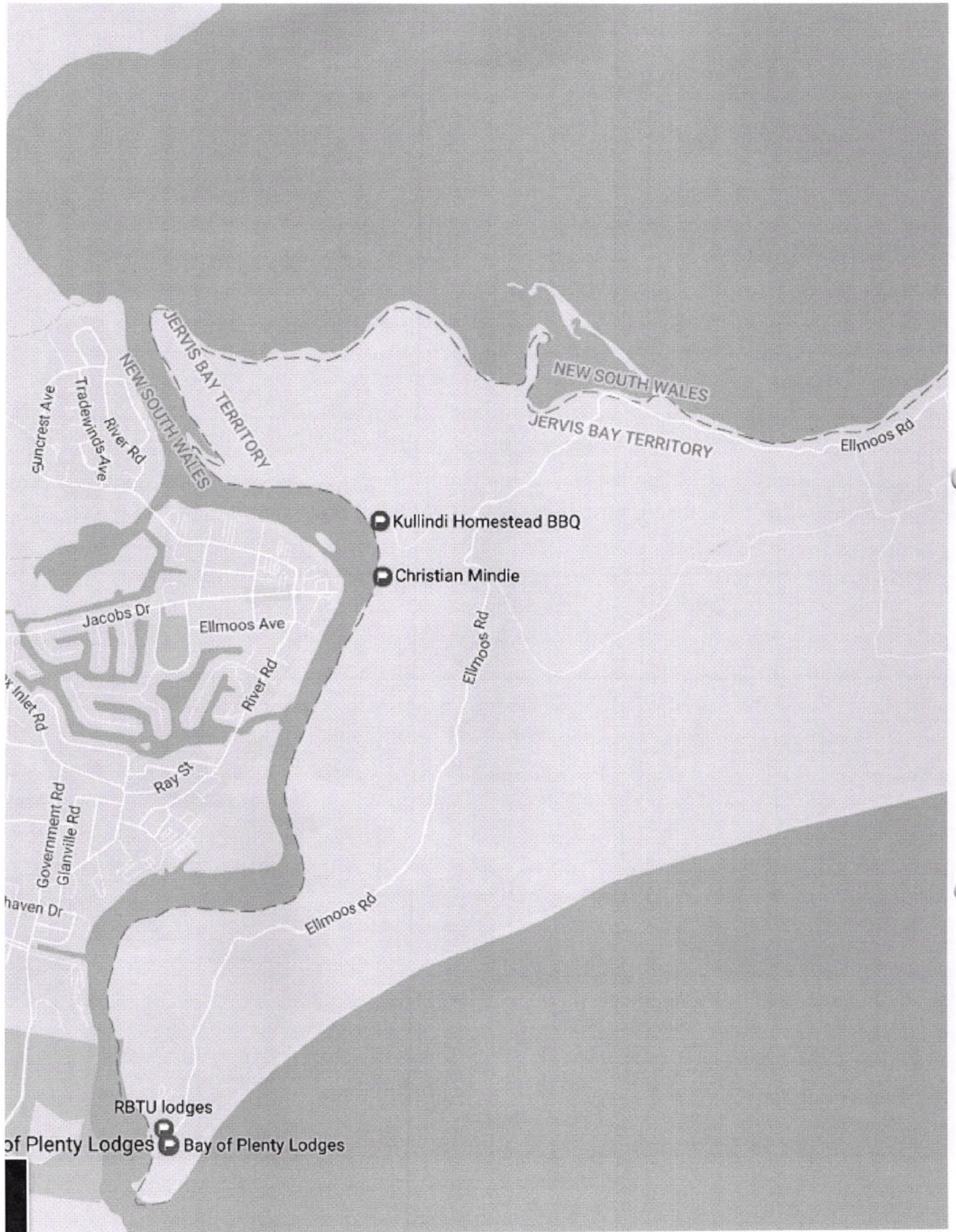
Hi [REDACTED]

Please see the locations of sampling GPS coordinates of sample sites put onto google maps. Please note on the map grabs the red pin is on the location of the JBT water treatment plant.

Kind Regards

Location	Water sampled	GPS coordinates
Kullindi BBQ	Bore water	-35.153589, 150.606301
Bay of Plenty Lodges	Bore water	-35.181367, 150.594771
Rail Tram and Bus Union Camp	Bore mixed with rain water	-35.179548, 150.594398
Lake Windermere	Raw water	-35.139211, 150.678804
JBT Water Treatment Plant	Raw water & water post treatment (potable)	-35.139211, 150.678804





Andrew Stedman | Environment Team Leader
Health Protection Service | health.act.gov.au
Phone (02) 6205 4404 | Mobile [REDACTED]

From: [REDACTED] [REDACTED]1@defence.gov.au] **On Behalf Of** PFASIM Jervis Bay
Sent: Thursday, 9 March 2017 4:15 PM
To: Stedman, Andrew (Health); [REDACTED]@ghd.com'; [REDACTED]@ghd.com'; PFASIM Jervis Bay
Cc: Krsteski, Radomir (Health); [REDACTED]@infrastructure.gov.au'
Subject: RE: RFI - Defence PFAS JBT - sampling information for GHD -ACT Health results [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hi Andrew,

Thank you so much for this data. Do you have a graphic or map that show's the physical location of these sample sites?

Regards,

[REDACTED]

[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
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From: Stedman, Andrew (Health) [mailto:Andrew.Stedman@act.gov.au]
Sent: Thursday, 9 March 2017 4:04 PM
To: [REDACTED]@ghd.com; [REDACTED]@ghd.com; PFASIM Jervis Bay
Cc: [REDACTED]; Krsteski, Radomir (Health); [REDACTED]@infrastructure.gov.au
Subject: RFI - Defence PFAS JBT - sampling information for GHD -ACT Health results [SEC=UNCLASSIFIED]

Hello,

Please see attached sampling conducted by ACT Health on 22 March 2016, 28 November 2016 and 19 December 2016 for PFAS.

Please note the detections of PFAS in the Raw water inlet in the JBT water plan (raw water drawn from Lake Windermere) and detection in Kullindi homestead BBQ area on 28 November 2016 (this detection was not repeated in a follow up sample on 19 December 2016).

Please feel free to contact me if you require further information.

Kind regards



Andrew Stedman | Environment Team Leader
 Health Protection Service | health.act.gov.au
 Phone (02) 6205 4404 | Mobile [REDACTED]

From: [REDACTED] [REDACTED]@defence.gov.au] **On Behalf Of** PFASIM Jervis Bay
Sent: Thursday, 9 March 2017 2:15 PM
To: [REDACTED]; Chester, Heath; Stedman, Andrew (Health)
Cc: Krsteski, Radomir (Health); PFASIM Jervis Bay; [REDACTED] [REDACTED] [REDACTED] 1
Subject: RFI - Defence PFAS JBT - sampling information for GHD [SEC=UNCLASSIFIED]

UNCLASSIFIED

Good Afternoon Folks,

Thank you for your attendance today at the initial PCG for the Defence PFAS investigation of Jervis Bay Range Facility, HMAS Creswell and off facility sites.

As discussed, in order for GHD (lead consultant for the investigation) to carry out the most effective Sampling Analysis and Quality Plan (SAQP) we wish to obtain as much supporting reporting as possible.

It became apparent that JBTA, ACT Health and ACT EPA 'may' hold sampling reporting for JBT that could assist GHD's investigation.

As such, please receive this request for this information for this reporting. Reports can be emailed to:

pfasim.jervisbay@defence.gov.au

[REDACTED]@ghd.com

[REDACTED]@ghd.com

If files are large and thus unable to be emailed, then please email [REDACTED]@ghd.com and [REDACTED] will arrange FTP.

Noting the SAQP is due at the end of next week, we appreciate anything that can be done to expedite this request.

Kind Regards,
Tatts

[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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White, Sarah-Jane (Health)

From: [REDACTED] [REDACTED]@defence.gov.au> on behalf of PFASIM Jervis Bay [REDACTED]@defence.gov.au>
Sent: Friday, 17 March 2017 10:56 AM
To: Clapham, David; PFASIM Jervis Bay; [REDACTED] [REDACTED] [REDACTED]
Cc: [REDACTED] [REDACTED]h; Krsteski, Radomir (Health); Pengilley, Andrew (Health); Kelly, Paul (Health); [REDACTED]; [REDACTED]@infrastructure.gov.au'
Subject: RE: Invitation to Jervis Bay Range Facility - HMAS Creswell PFAS Community Information Session 2 - Tuesday March 21, 2017 [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hi David,

Thank you for your advice on this occasion. The next community engagement session will likely be around the time the Detailed Site Investigation(DSI) report is finalised. I will seek to provide invites to that session with a better lead in timing.

Regards,

[REDACTED]

[REDACTED] [REDACTED]

(Contractor to Defence)

Defence Project Manager - Environmental Investigations

PFAS Investigation and Management Branch

Department of Defence

T: [REDACTED] [REDACTED] [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: Clapham, David [mailto:David.Clapham@act.gov.au]

Sent: Friday, 17 March 2017 10:22 AM

To: PFASIM Jervis Bay

Cc: [REDACTED] [REDACTED]; Krsteski, Radomir (Health); Pengilley, Andrew (Health); Kelly, Paul (Health); Burns, Sara

Subject: RE: Invitation to Jervis Bay Range Facility - HMAS Creswell PFAS Community Information Session 2 - Tuesday March 21, 2017 [SEC=UNCLASSIFIED]

Dear [REDACTED]

Thanks for the notification. Unfortunately, given the short timeframes to lock in the appropriate officers, the ACT will be not be able to attend the information session next Tuesday. I hope it goes well and look forward to hearing an update following the event.

Best

David

David Clapham | Senior Policy Officer - Intergovernmental Relations | Policy & Cabinet Division
 ☎ 02 6205 7261 | Chief Minister, Treasury & Economic Development Directorate | ACT Government
 Level 4, Canberra Nara Centre | GPO Box 158 Canberra ACT 2601 | www.act.gov.au



From: [REDACTED]@defence.gov.au] **On Behalf Of** PFASIM Jervis Bay
Sent: Wednesday, 15 March 2017 10:28 AM
To: Clapham, David
Subject: FW: Invitation to Jervis Bay Range Facility - HMAS Creswell PFAS Community Information Session 2 - Tuesday March 21, 2017 [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hi David,

Please see below an invite I have sent out to various agencies, including ACT Health and EPA for the next community information session to be held in Jervis Bay.

Member for Fenner, Hon Dr Andrew Leigh has been invited by the Minister's office.

I will call soon to discuss.

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] 1 **On Behalf Of** PFASIM Jervis Bay
Sent: Wednesday, 15 March 2017 9:36 AM
To: 'Chester, Heath'; 'Krsteski, Radomir (Health)'; 'Callaway, Michelle'; [REDACTED]@wbacc.gov.au'; [REDACTED]
 [REDACTED]@infrastructure.gov.au'
Cc: PFASIM Jervis Bay; [REDACTED]@epa.nsw.gov.au'; 'Stedman, Andrew (Health)';
 [REDACTED]@infrastructure.gov.au'; [REDACTED]@epa.nsw.gov.au'; [REDACTED]@health.nsw.gov.au';

[REDACTED]@ghd.com'

Subject: Invitation to Jervis Bay Range Facility - HMAS Creswell PFAS Community Information Session 2 - Tuesday March 21, 2017 [SEC=UNCLASSIFIED]

UNCLASSIFIED

Good morning ladies and gentlemen,

You may be aware that Defence plans to conduct a Community Information Session for residents and business owners in the vicinity of Jervis Bay Range Facility and HMAS Creswell on Tuesday March 21, 2017.

This will be the second information session for the Jervis Bay Territory communities, and will be conducted as a "walk in" style session to allow community members to engage with and ask questions of Defence and agencies.

We invite you to participate or send suitable representatives to engage with the community, provide information about your agency and its role in the investigation, and answer community members' questions.

The details of the session are as follows:

Date: Tuesday March 21, 2017

Timings: 6.00pm – 6.30pm: Pre-event briefing for Defence and Agency representatives

6.30pm – 7.30pm: Community Information Session

7.30pm – 8.00pm: Post event debrief for Defence and Agency representatives

Location: Jervis Bay Village Primary School Hall

Dykes Ave, Jervis Bay

We would ask you to bring appropriate Agency collateral including signage, brochures or flyers. Defence will provide site-specific fact sheets and contact lists.

If additional information is required at any stage, please do not hesitate to contact me. Otherwise, we would appreciate an indication of your ability to attend, and provision of points of contact for coordination purposes, as soon as possible but no later than Friday March 24, 2017.

Yours sincerely,

[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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Stedman, Andrew (Health)

From: Krsteski, Radomir (Health)
Sent: Friday, 17 March 2017 6:12 PM
To: Barr, Conrad (Health); Stedman, Andrew (Health)
Cc: Kelly, Paul (Health); Pengilley, Andrew (Health)
Subject: FW: Defence PFAS Jervis Bay Community Information Session - Latest versions of PPT, Fact Sheet and Factual Statements [SEC=UNCLASSIFIED]
Attachments: JBRF Factsheet - CLEARED 170316.pdf; JBRF Factual Statements - CLEARED 170316.pdf; JBRF presentation - CLEARED 170316.pptx

FYI

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 |

-----Original Message-----

From: [REDACTED]@defence.gov.au] On Behalf Of PFASIM Jervis Bay
Sent: Thursday, 16 March 2017 9:55 PM
To: [REDACTED]; [REDACTED] - [REDACTED]; Clapham, David [REDACTED].infrastructure.gov.au'; [REDACTED]@infrastructure.gov.au'; Krsteski, Radomir (Health); [REDACTED]; [REDACTED]; [REDACTED]; [REDACTED]@ghd.com'; [REDACTED]; [REDACTED]@ghd.com'; [REDACTED]
Cc: PFASIM Jervis Bay
Subject: Defence PFAS Jervis Bay Community Information Session - Latest versions of PPT, Fact Sheet and Factual Statements [SEC=UNCLASSIFIED]

UNCLASSIFIED

Folks,

Please find attached the latest and cleared versions of the Jervis Bay CIS PPT, factsheet and Factual Statements for your information.

Planning is progressing well for the information session for next Tuesday evening.

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

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Background

The Jervis Bay Range Facility (JBRF) has been used by Defence since 1949 as an airfield, range facility and the Royal Australian Navy (RAN) School of Survivability and Ship Safety. JBRF is located 30 km south east of Nowra NSW.

Located nearby is HMAS Creswell which is the location for the Navy's initial entry officer training and RAN leadership training. HMAS Creswell also provides support to fleet units operating in East Australian. Both JBRF and HMAS Creswell fall within the Jervis Bay Territory administered by the Commonwealth.

JBRF have a history of using legacy Aqueous Film Forming Foam (AFFF) for emergency fire fighting situations and for fire fighter training. In 2004 Defence commenced phasing out its use of legacy AFFF containing perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS) as active ingredients. The AFFF now used by Defence is a more environmentally safe product.

About per- and poly-fluoroalkyl substances (PFAS)

PFOS, PFOA and PFHxS belong to a group of chemicals known as per- and poly-fluoroalkyl substances (PFAS).

AFFF containing PFOS, PFOA and PFHxS as active ingredients were once used extensively worldwide and within Australia because of their effectiveness in fighting liquid fuel fires.

PFAS were also used across Australia and internationally in a range of common household products and specialty applications, including in the manufacture of non-stick cookware; fabric, furniture and carpet stain protection applications; food packaging and in some industrial processes. As a result, most people living in the developed world will have levels of PFAS in their body.

PFAS are emerging as a concern around the world because they are persistent in the environment.

The Environmental Health Standing Committee (enHealth) of the Australian Health Protection Principal Committee (AHPPC) has released guidance statements relating to human health.

According to enHealth, there is currently no consistent evidence that exposure to PFOS and PFOA causes adverse human health effects. However, because these substances persist in humans and the environment, enHealth recommends that human exposure is minimised as a precaution.

What has Defence done?

Defence has commenced a national program to review its estate and implement a comprehensive approach to manage the impacts of PFAS resulting from the historical use of legacy fire fighting foams.

In addition to a number of detailed environmental investigations already underway at some Defence properties, Defence has undertaken a preliminary sampling program at a number of properties including JBRF. Based on the outcome of this preliminary sampling program it has been determined that JBRF will be subject to a detailed environmental investigation. Due to its close proximity, HMAS Creswell will fall within the investigation area. The Preliminary Sampling Program Report is available on the national Defence PFAS Environmental Program website at:

www.defence.gov.au/id/pfospfoa/DefenceSitesPending.asp

About detailed environmental investigations

The detailed environmental investigation will determine the nature and extent of PFAS on, and in the vicinity of, the base. The investigation will commence in March 2017 and will take approximately 12 months to complete.

Detailed environmental investigations are undertaken by independent and experienced environmental services providers and are undertaken in accordance with the National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) framework. Detailed environmental investigations include:

- reviewing the historical use, storage and management of AFFF to identify potential sources of PFAS;
- sampling soil, sediment, surface water and groundwater on and off the base to identify PFAS exposure in the vicinity;
- identifying pathways and receptors for the potential migration of PFAS. A 'receptor' is a person or thing (e.g. plant or animal) that can be exposed to these compounds. A 'pathway' is the way in which they can be exposed (e.g. drinking water or eating food containing these compounds);
- community and stakeholder engagement, including a water-use survey; and
- a Human Health and Ecological Risk Assessment (if required), which will evaluate potential risks to the human population and ecology, and inform future action to mitigate risks.





Investigation outcomes

Defence provides the environmental investigation reports to relevant government authorities. This ensures they have current information on which to inform their management decisions.

When detailed environmental investigation reports are finalised and publicly released, Defence will consult with residents, businesses and local stakeholders on the findings.

Defence takes detailed environmental investigations very seriously and is committed to implementing appropriate management responses based on the advice of independent scientific experts in this field.

Community consultation

Defence will conduct an information session at Jervis Bay Village to notify the community of the detailed environmental investigation.

Defence will continue to engage with the community throughout the investigation via a number of print and online avenues, including a dedicated project website, direct mail and factsheets.

Support

The provision of public health advice is the role of respective Australian Government, State/Territory and local health authorities and practitioners. Defence relies on the enHealth Guidance Statements available on the Department of Health website:

www.health.gov.au/internet/main/publishing.nsf/content/health-publhlth-publicat-environ.htm

Accordingly, Defence has adopted a precautionary approach and is providing alternative sources of drinking water to eligible residents located in close proximity to the base who do not have a town water connection, and rely on the use of a bore for drinking water. Defence will also provide water to residents if drinking water is sourced from a rainwater tank that contains, or has in the past contained, bore water. Defence may also provide drinking water to residents in other exceptional circumstances.

Residents are welcome to contact the national hotline by phone or email to discuss eligibility for water assistance and possible management strategies. Each household's drinking water requirements will be assessed on a case-by-case basis.

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>
- The Guidance Statements on Per- and Poly-fluoroalkyl Substances and the Per-and Poly-Fluoroalkyl Substances Factsheet, prepared by enHealth and the AHPPC can be accessed at the following link:
www.health.gov.au/internet/main/publishing.nsf/content/health-publhlth-publicat-environ.htm
- Australian Government Department of Infrastructure and Regional Development: www.regional.gov.au
- ACT Health: <http://www.health.act.gov.au/>

Where can I get more information?

Web: Information about the National PFAS Investigation and Management Program is available at
<http://www.defence.gov.au/id/PFOSPFOA/Default.asp>

Investigation Project Hotline: 1800 987 618 freecall (business hours)

Email: JervisBay@ghd.com

Postal address: JBRF Environmental Investigations Project, PO Box 621, Nowra, NSW, 2541

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



Jervis Bay Range Facility
COMMUNITY INFORMATION SESSION – 21 March 2017
FACTUAL STATEMENTS (as at 16 March 2017)

<p>Overview</p>	<ul style="list-style-type: none"> • Defence is undertaking an environmental investigation at Jervis Bay Range Facility and HMAS Creswell located nearby to identify the extent and levels of per- and poly-fluoroalkyl substances (PFAS) including perfluorooctane sulfonate (PFOS), perfluorohexane sulfonate (PFHxS) and perfluorooctanoic acid (PFOA) on, and in the vicinity of, the base. • The preliminary sampling program investigation occurred between May-July 2016. The detailed environmental investigation commences in March 2017 and is due to be completed by mid-2018. • The investigation is part of Defence’s review of a number of its sites around Australia that used legacy fire-fighting foams containing PFAS. The PFAS of interest include perfluorooctane sulfonate (PFOS); perfluorooctanoic acid (PFOA); and perfluorohexane sulfonate (PFHxS). • All preliminary and detailed site investigations are undertaken in accordance with the Australian National Environment Protection Measure Framework (NEPM), specifically the Assessment of Site Contamination Measure. • When Defence commenced its investigations into PFAS, PFOS and PFOA were the primary contaminants of concern. More recently enHealth has advised perfluorohexane sulfonate (PFHxS) should also be considered and has developed a screening criteria for drinking water and recreational water. All Defence environmental investigations into PFAS now consider PFOS, PFOA and PFHxS. • Defence has phased out the use of the old fire-fighting foams that contained PFOS and PFOA as active ingredients and is proactively managing legacy aqueous film forming foam (AFFF) across the estate. • Further detailed information regarding the investigations can be found on the Defence PFAS website for Jervis Bay Training Area/HMAS Creswell at http://www.defence.gov.au/ID/PFOSPFOA/DefenceSitesPending.asp • Any enquiries beyond the scope of the community information sessions can be made through the PFAS Community Hotline 1800 987 618 freecall (business hours).
<p>Reference Values</p>	<ul style="list-style-type: none"> • In April 2016, enHealth convened an expert group to provide advice to the Australian Health Protection Principal Committee on the development of an Australian interim health reference value for PFOS and PFOA for consistent use in the undertaking of human health risk assessments. The interim health reference value considered relevant international guidelines, as well as contemporary scientific and technical issues. • In June 2016, the Australian Health Protection Principal Committee endorsed the enHealth statement on Interim national guidance on human health reference values for per- and poly-fluoroalkyl substances. These reference values are a guide for site investigations around Australia and available at enHealth http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pubhlth-publicat-environ.htm. • Defence’s screening criteria will be reviewed following the introduction of applicable guidelines from Commonwealth and State agencies including any guidelines issued by Food Safety Australia New Zealand (FSANZ).
<p>Health Impacts</p>	<ul style="list-style-type: none"> • Defence cannot provide health advice. This is the role of Commonwealth, relevant state/territory and local health authorities and practitioners. Any health related questions should be directed to these organisations. • Defence relies on the enHealth Guidance Statements on per- and poly-fluoroalkyl substances, available on the Department of Health website www.health.gov.au/internet/main/publishing.nsf/content/health-pubhlth-publicat-environ.htm. According to enHealth’s Health Guidance Statements there is currently no consistent evidence that exposure to PFOS and PFOA causes adverse human health effects. • Because these chemicals persist in humans and the environment, enHealth recommends that human exposure to these chemicals is minimised as a precaution. • In 2016, The Commonwealth Department of Health commissioned an epidemiological study to examine the potential health effects resulting from PFAS exposure in Williamstown NSW, and Oakey, Queensland. The study is needed because the public health significance of exposure to PFAS is currently unclear. The National Centre for Epidemiology and Population Health at the Australian National University is leading this study which will run for approximately two and half years. • The PFAS Coordination Unit at the Department of Health has established a public information service for all public enquiries relating to health and the Health-led initiatives developed in response to PFAS contamination. The Department of Health’s PFAS Coordination Unit can be contacted via: Phone: 1800 941 180 Email: health.PFAS@health.gov.au
<p>Provision of Drinking Water</p>	<ul style="list-style-type: none"> • Based upon the enHealth guidance, and as a precautionary measure, Defence is providing alternative sources of drinking water, on request, to eligible residents located in close proximity of the base who rely on the use of a bore for drinking water.

Jervis Bay Range Facility
COMMUNITY INFORMATION SESSION – 21 March 2017
FACTUAL STATEMENTS (as at 16 March 2017)

Mental Health Awareness and Counselling	<ul style="list-style-type: none"> • Details of available Australian Government-funded mental health initiatives can be found on the Department of Health website: http://www.health.gov.au/internet/main/publishing.nsf/Content/Mental+Health+and+Wellbeing-1
Compensation	<ul style="list-style-type: none"> • The Australian Government advised in the Government's response to the Senate 'Inquiry into firefighting foam contamination Part A - RAAF Base Williamtown' that it will handle claims for compensation on a case by case basis. • Information about making a claim for compensation can be found on the Defence PFAS website http://www.defence.gov.au/ID/PFOSPFOA/Compensation.asp. • Claims for compensation will be handled in accordance with the Attorney-General's <i>Legal Services Directions 2005 (Cth)</i>.
Property Values	<ul style="list-style-type: none"> • The Department of the Prime Minister and Cabinet's PFAS Taskforce is leading the whole-of-Government response to PFAS contamination across the Commonwealth estate. The Government continues to consider potential options to assist affected communities in Williamtown and Oakey, including property acquisition. • Factors including the establishment of final Health Based Guidance Values, the outcomes of the site investigations and human health and ecological risk assessments (and any impacts on the ability to use property for the purpose for which it was intended) will inform decisions. • Throughout 2016, Defence has met with a number of lending institutions and the Australian Property Institute (API) to discuss property lending policies and practices, and the conduct of valuations in the Williamtown area. • Defence is encouraging valuers and lending institutions to consider what is now known regarding the pathways for exposure of humans to PFAS. • Defence is similarly encouraging valuers to appreciate that across an investigation area, the presence and concentrations of PFAS differs based on hydrogeology and other factors. • Defence cannot disclose individual property sampling results to valuers for privacy reasons. • Defence will continue to work with and encourage the media to consider and report the specific facts to address the potential to impact buyer interest in the locality.
Management Options	<ul style="list-style-type: none"> • As a matter of priority, Defence is continuing to work collaboratively with industry and regulatory professionals both nationally and internationally to explore management options, including potential remediation technologies. • Through its industry partners, Defence is currently trialling a range of potential remediation technologies including solidification, stabilisation and foam separation. Defence is continuing to monitor Australian and international industry progress in the area of groundwater treatment. • Defence has received and is reviewing a number of proposals relating to remediation.
Defence personnel	<ul style="list-style-type: none"> • Defence members who may wish to discuss health issues related to PFAS should speak to their local ADF health provider or health practitioner. • Current ADF personnel who suspect that they may have been exposed to PFAS can also access the Defence Exposure Evaluation Scheme (DEES). • DEES will register reported exposures. In addition, further information regarding the substances and exposure will be provided in the form of fact sheets. • DEES is open to current and former employees of the Department of Defence, Australian Defence Force (ADF) cadets, and former ADF employees who suspect that they have been exposed to a hazardous chemical. • Defence members (ADF members and Defence employees) can contact: <ul style="list-style-type: none"> - 1800 DEFENCE - Military Compensation and Rehabilitation Service 1300 550 461 - Comcare 1300 366 979 • Former members of the ADF can access DEES by contacting: <ul style="list-style-type: none"> - Department of Veterans' Affairs 133 254 - 1800 DEFENCE • Former ADF members who have a diagnosed health condition which they believe is associated with their past exposure to PFAS contained in legacy formulations of fire fighting foams can also lodge a claim with the Department of Veterans' Affairs.

PFAS Investigation & Management Community Information Session

Jervis Bay Range Facility



MARCH 2017

Jervis Bay Range Facility

Acknowledgment of Country

I'd like to begin by acknowledging the Traditional Owners of the land on which we meet today. I would also like to pay my respects to Elders past and present.

We would also like to pay our respects to the Indigenous men and women who have contributed to the defence of Australia in times of peace and war.

Jervis Bay Range Facility

Welcome

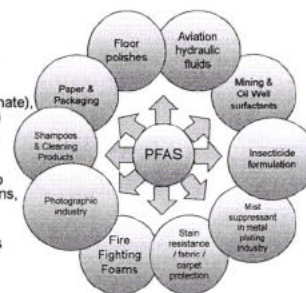
Session outline:

- Background
- PFAS and AFFF history
- Jervis Bay Range Facility (JBRF) – PFAS Investigation outline
- Next steps

Jervis Bay Range Facility

What are PFAS

- Per- and poly-fluorinated alkyl substances (PFAS) are a group of man-made compounds
- Include PFOS (perfluorinated sulfonate), PFHxS (perfluorohexane sulfonate) and PFOA (perfluorooctanoic acid)
- PFAS have been widely used around the world since the 1950s to make products that resist heat, stains, grease and water
- Most people in developed countries are likely to have levels of PFOS, PFHxS and PFOA in their blood
- Emerging contaminants



Jervis Bay Range Facility

PFAS and AFFF

Aqueous Film Forming Foam (AFFF) is a fire fighting foam used to extinguish liquid fuel fires.

AFFF has been used extensively worldwide, including Australia, since the 1970's by both civilian and military authorities. Legacy formulations contained some PFAS of concern as active ingredients, including:

- PFOS (perfluorooctane sulfonate)
- PFOA (perfluorooctanoic acid)
- PFHxS (perfluorohexane sulfonate)

Jervis Bay Range Facility


History of AFFF use in Defence

↑	From 1970s	Defence commenced use of AFFF containing PFOS/PFOA.
↓	In 2003	Defence and other users became aware that PFOS/PFOA was an emerging persistent organic pollutant.
↓	From 2004	Defence introduced a new foam and commenced phasing out use of the old foams for both training, and emergencies.
↓	Currently	For emergencies, Defence uses a foam that does not contain PFOS and PFOA as active ingredients. Defence uses a training foam which does not contain PFOS and PFOA. Foam is captured and disposed of in accordance with current regulations.

Jervis Bay Range Facility

About the Base

The base has a history of using legacy Aqueous Film Forming Foam (AFFF) for use in emergency fire fighting situations and for fire fighter training.



Jervis Bay Range Facility

About the Defence Program

Defence National PFAS Investigation and Management Program was established in late 2015.

Defence is currently conducting detailed environmental investigations at:

- Army Aviation Centre Oakey, QLD
- HMAS Albatross, NSW
- RAAF Base East Sale, VIC
- RAAF Base Edinburgh, SA
- RAAF Base Pearce, WA
- RAAF Base Williamtown, NSW

Defence is commencing detailed environmental investigations at a number of additional sites during the first half of 2017.

- RAAF Base Townsville, QLD
- RAAF Base Darwin, NT
- RAAF Base Tindal, NT
- RAAF Base Richmond, NSW
- Holsworthy Barracks, NSW
- RAAF Base Wagga, NSW
- RAAF Base Amberley, QLD
- Albury Wodonga Military Area, VIC
- Jervis Bay Range Facility, ACT
- Robertson Barracks, NT
- HMAS Stirling, WA
- HMAS Cerberus, VIC

Defence is working closely with Commonwealth agencies and State and local Governments, and other relevant agencies.

Jervis Bay Range Facility

Health

The Environmental Health Standing Committee (enHealth) has issued Guidance Statements on PFAS. Defence relies on the enHealth Guidance Statements.

EnHealth guidance statement on per- and poly-fluoroalkyl substances (PFAS) reiterated that:

"there is currently no consistent evidence that exposure to PFOS and PFOA causes adverse human health effects. Because these chemicals persist in humans and the environment, enHealth recommends that human exposure to these chemicals is minimised as a precaution".

The enHealth interim guideline values for tolerable daily intake, drinking water and recreational water are available online at the Department of Health website.

These values will be in place until Food Standards Australia New Zealand (FSANZ) develops advice on final health values for Australia.

Defence will apply any new health values in the conduct of its investigations.

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Drinking Water

Defence has adopted a precautionary approach and is providing alternative sources of drinking water to eligible residents who:

- are located in close proximity to the base; and
- do not have a town water connection; and
- rely on the use of a bore for drinking water; and/or
- source drinking water from a rainwater tank that contains, or has in the past contained, bore water.


Defence may also provide drinking water to residents in other exceptional circumstances.

Residents wishing to request an alternative drinking water supply can contact the national hotline by phone or email. Provision of water will be assessed on a case-by-case basis and reviewed as required.

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What has already been done?

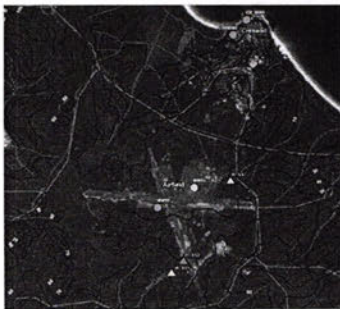
- Defence has been proactive in initiating an environmental program to investigate the nature and extent of PFAS, on and in the vicinity of selected Defence properties around Australia.
- A Preliminary Sampling Program was conducted at JBRF between May and July 2016.
- A total of 7 samples were collected on-base locations at JBRF :
 - 4 groundwater sample
 - 3 surface water samples
- The Preliminary Sampling Program report was released in November 2016.



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Preliminary Sampling Program Results

- 4 groundwater samples
 - 3 nil detects
 - 1 detection below drinking water criteria
- 3 surface water samples
 - △ 2 detects below recreational use criteria
 - ▲ 1 detection above recreational use criteria



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About this Investigation

This environmental investigation is undertaken consistent with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM)

- Preliminary Site Investigation (PSI)
- Detailed Site Investigation (DSI)
- Human Health and Ecological Risk Assessment (HHERA) – if required

Defence has engaged GHD as the lead environmental consultant to undertake the investigation at JBRF.

A separate consultant, AECOM has been engaged to conduct a peer-review/auditing function on the environmental investigation.

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Preliminary Site Investigation

- Site history assessment
 - site interviews, stakeholder information and inspecting site
- Start development of Conceptual Site Model to identify contamination
 - Sources (where and when AFFF was used)
 - Pathways (how PFAS move in the environment)
 - Receptors that may be exposed to the contamination

AIM = Understand Source-Pathway-Receptor linkages and priority of works for Detailed Site Investigation.

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Detailed Site Investigation

Work with stakeholders to confirm further works, likely to comprise:

- Soil Investigation
 - On-site soil samples
- Surface Water & Sediment Investigation
 - On-site - Sample surface water and sediment/soil within drainage areas
 - Off-site – Sample downstream at drainage areas, lagoons and lakes. Background further 'up-stream' of Base.
- Groundwater Investigation
 - Install additional shallow and multi level monitoring bores
 - Gauge all bores, sample and assess all new locations
- Biota Sampling
- Reporting on the works
 - Report consistent with the NEPM

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Human Health and Ecological Risk Assessment (HHERA) - if required

Throughout the investigation, results will be compared to relevant screening criteria to assess the need for the HHERA

- Consultation and input from agencies, experts and community,
- Prepare HHERA methodology using NEPM and enHealth guidance, and
- Complete the HHERA, to evaluate risks to the human health and ecology, and inform future action to mitigate risks.

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What will the works look like?

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Assessment Works Timing

Sampling and analysis plan

- Interviews on site and verification of existing groundwater wells – in progress
- Reporting – March 2017

Detailed Investigation Works

- Work Scoping and Planning – In progress
- Field Works – From April to August 2017
- Reporting of Results – August 2017 - January 2018

Human Health and Ecological Risk Assessment


- Ongoing assessment of risk and requirement to commence HHERA throughout program (if required)

Ongoing community consultation

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Next Steps

- Detailed environmental investigation will be undertaken in accordance with National Environmental Protection (Assessment of Site Contamination) Measure or NEPM (ASC),
- Investigation has commenced
- Investigation expected to take approximately 12 months.




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Stakeholder and Community Engagement

Regular stakeholder interactions to provide timely and accurate advice to guide decision-making:

- Public enquiry lines operate throughout project,
- Fact sheets, relevant information and results of sampling will be published on the project website,
- Individual correspondence on private property results,
- Community information sessions at key milestones, and
- Will be done with appropriate privacy consideration.

Water use survey to be conducted, to understand groundwater and rainwater tank use in the area.




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Need more information?

Defence will keep you informed

- Project Hotline Number: 1800 987 618
- Email: JervisBay@ghd.com

General information about the national Defence PFAS program & fact sheets relevant to the base can be found at: www.defence.gov.au/ID/PFOSPFOA/



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In Summary

Defence has engaged GHD to commence a NEPM compliant detailed environmental investigation at JBRF.


The Environmental Health Standing Committee (enHealth) advises that there is currently no consistent evidence that exposure to PFOS and PFOA causes adverse human health effects.

As a precautionary measure Defence will provide alternative drinking water supplies to eligible residents.

Defence will keep you informed and will continue to consult with all relevant Federal, State and local government agencies.

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Questions?



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Thank you for your attendance