



HMAS Creswell and Jervis Bay Range Facility

Freshwater and Estuarine Biota Concentrations of Peter PHXS + PFOS (Sum) - Vertebrates

Level 15, 133 Castlenagh Street Sydney NWW 2000 T 61 2 9239 7100 F 61 2 9239 7199 E sydmall@ghd.com.au W www.ghd.com.au y being inscorate, incomplete or enrollable in any way and for any reason.

пеагтар

Stedman, Andrew (Health)

@ghd.com> From: Friday 29 June 2018 6:17 PM Sent: To: @defence.gov.au; @defence.gov.au; adefence gov au <u>തde</u>fence.gov.au; @spotless<u>.com</u>.au: @environment.gov.au; 2defence.gov.au: @defence.gov.au @defence.gov.au: a)defence.gov.au @defence.gov.au; @defence.gov.au; @defence.gov.au; @aecom.com; @aecom.com; ∂)infrastructure.gov.au; Clapham, David; gepa.nsw.gov.au @health.nsw.gov.au; Stedman, Andrew (Health); Hudson, Lyndell (Health): @shoalhaven.nsw.gov.au; @shoalhaven.nsw.gov.au @imrastructure.gov.au, Subject: Factual Letter 18 - PFAS Results for Jervis Bay and Wreck Bay Biota sampling

Dear JBRF PCG,

Please find attached Factual Letter 18 – Biota sampling from Jervis and Wreck Bay areas.

Please note the figure quality has been reduced for email transfer, with higher quality figures available on request.

Regards,

GHD

aghd.com

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Stedman, Andrew (Health)

From: @ghd.com> Sent: Friday, 29 June 2018 6:37 PM <u> നിdefen</u>ce.gov.au; To: @defence.gov.au; 2defence.gov.au @defence.gov.au @spotless.com.au; @environment.gov.au; defence.gov.au; @defence.gov.au; @defence.gov.au: @defence.gov.au: @defence.gov.au; ଅdefence.gov.au; @defence.gov.au; paecom.com; @aecom.com; @infrastructure.gov.au; Clapham, David: @health.nsw.gov.au; @epa.nsw.gov.au: Stedman, Andrew (Health Hudson, Lyndell (Health); @shoalhaven.nsw.gov.au; @infrastructure.gov.au; @shoalhaven.nsw.gov.au RE: Factual Letter 18 - PFAS Results for Jervis Bay and Wreck Bay Biota sampling Subject: 2126171_LET_factual letter 18_ June 2018.pdf Attachments:

ear JBRF PCG,

Please find attached Factual Letter 18 – Biota sampling from Jervis and Wreck Bay areas.

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29 June 2018

2126171_LET_factual letter 18

- JBRF & HMAS Creswell PFAS Investigation and Management Branch Department of Defence

Dea

JBRF & HMAS Creswell- Environmental investigation: Preliminary sampling results Aquatic ecology sampling results from the marine areas of Jervis Bay and Wreck Bay (processed by 28 June 2018)

1 Introduction

GHD Pty Ltd (GHD), on behalf of the Department of Defence (Defence), is undertaking the Environmental Investigation in and around Jervis Bay Range Facility (JBRF) and HMAS Creswell, within the Jervis Bay Territory (JBT) (the Site). This report includes data that has been collected and processed as at 28 June 2018, from the aquatic sampling programs from within Jervis Bay and Wreck Bay marine areas.

It should be noted that these data are provided for information purposes only and that the use of these data should take into account factors that have been used to develop the conceptual site model (as presented in GHD's Sampling, Analysis and Quality Plan).

GHD will continue to provide results from further sampling, following the processing of the data.

2 Purpose

The purpose of the provision of preliminary data is to allow Defence and other stakeholders, including NSW and ACT Governments to view the data prior to its use in the technical reports for the Environmental Investigations.

3 Laboratory Analysis

Upon collection, the samples were sent under Chain of Custody (CoC) conditions to the following National Association of Testing Authorities (NATA) accredited laboratories:

- ALS Environmental, 277-289 Woodpark Road Smithfield, NSW, 2164
- National Measurement Institute (NMI), 105 Delhi Road, North Ryde, NSW 2113
- Eurofins | mgt, Unit F3, Building F, 16 Mars Road, Lane Cove West, NSW, 2066

4 Preliminary Results Tables

The preliminary results are provided in the attached tables.

The data is not for public distribution.

5 Closure

GHD trusts the above information is suitable for Defence requirements.

Yours Sincerely GHD Pty Ltd



Enclosures:

Table 1: Aquatic Biota Results - Jervis Bay

Table 2: Aquatic Biota Results - Wreck Bay

Figure 1: Biota Sample Locations

Figure 2A: Concentrations of PFHxS + PFOS (Sum) - Aquatic Invertebrates

Figure 2B: Concentrations of PFHxS + PFOS (Sum) - Aquatic Plants

Figure 2C: Concentrations of PFHxS + PFOS (Sum) - Aquatic Vertebrates

Table 1 Results

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Department of Defence

Biota Sample Locations Figure 1
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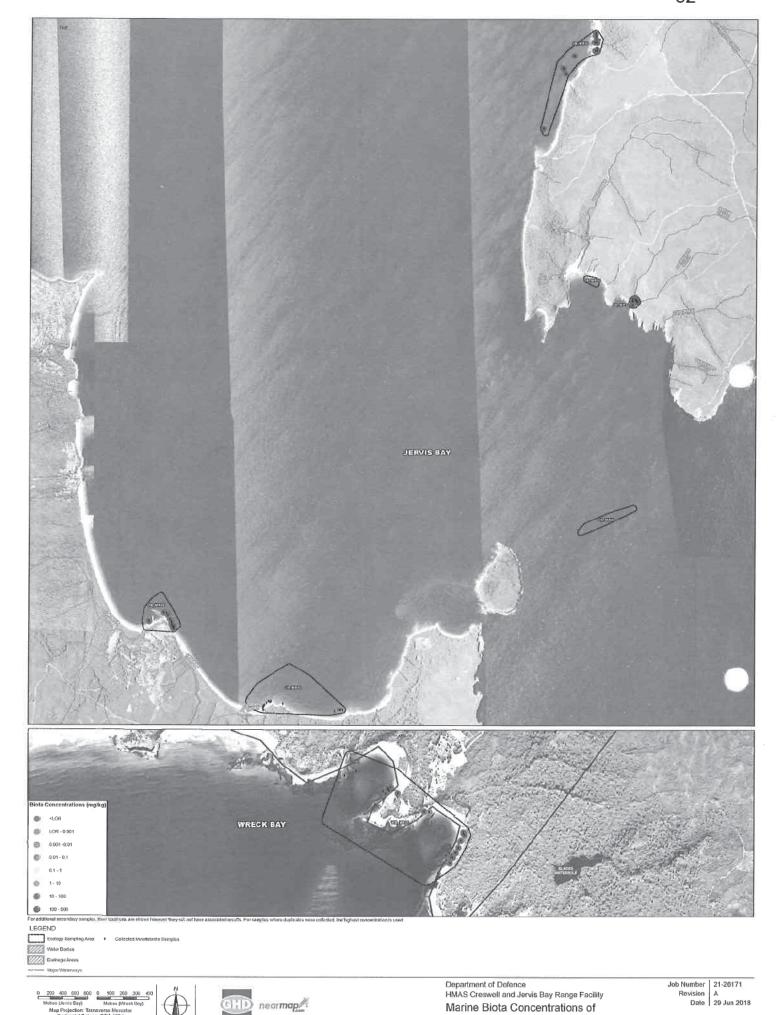


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Map Projection: Transverse Mercal Horizontal Datum: GDA 1994 Grid: GDA 1994 MGA Zone 56

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Mation Biota Concentrations of PFHxS + PFOS (Sum) - Invertebrates

Figure 2A

Igdinalign/ANLASy-Projection: Transverse Mucation

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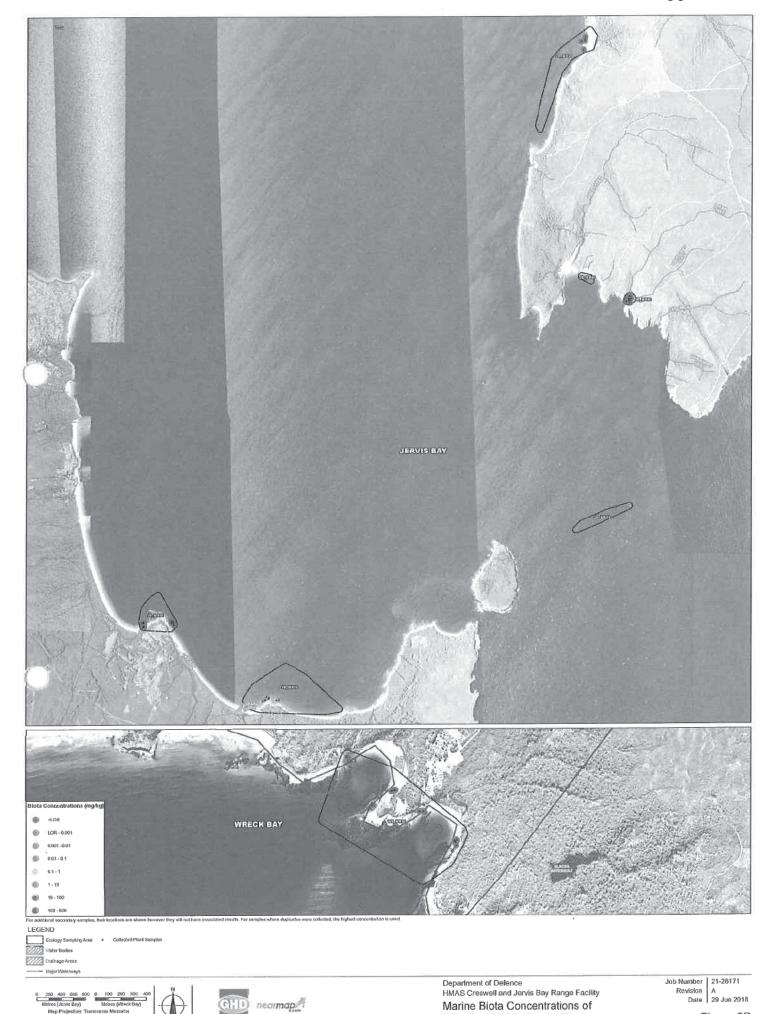
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PFHxS + PFOS (Sum) - Invertebrates

Figure 2A

Igdinalign/ANLASy-Projective (Victorial States)

Report of the projection of the



Meter (Neec Leans Bay)
Marine Biota Concentrations of
PFHx8 + PFOS (Sum) - Plants

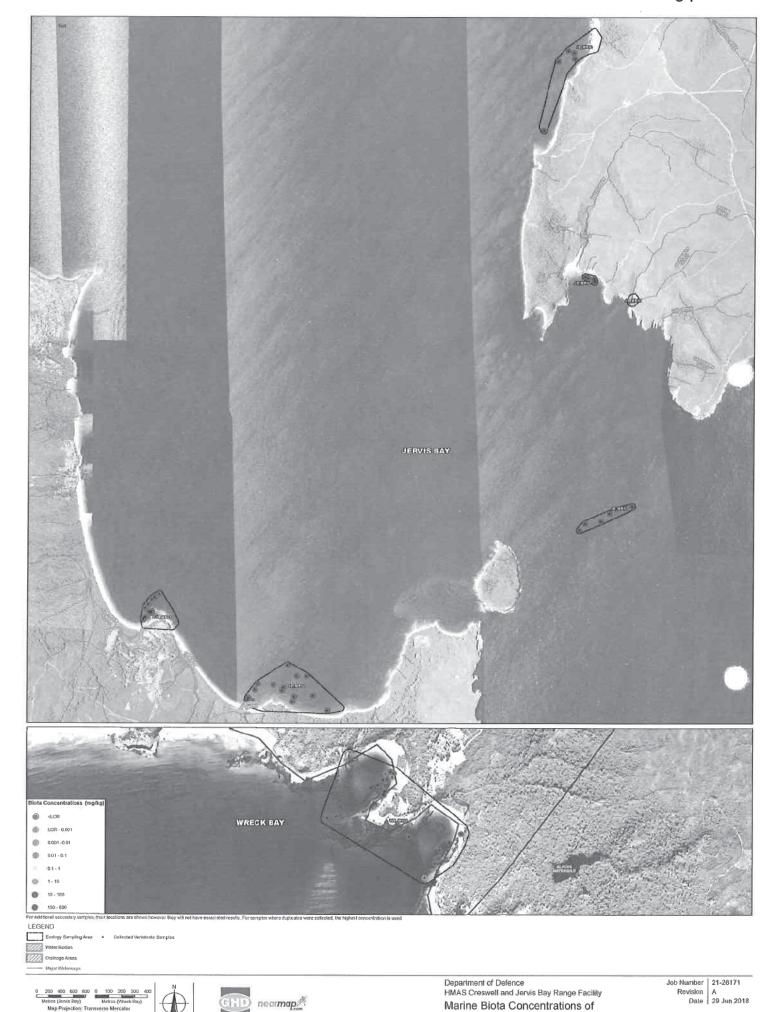
Figure 2B

29 Jun 2018

701/263771666Mspp7-0/revealed-Concentrations of
PFHx8 + PFOS (Sum) - Plants

Figure 2B

201/263771666Mspp7-0/revealed-Concentrations or vertically proved by the provided of the provided



Horizontal Datum: GDA 1994
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PFHxx + PFOS (sum) - Vertebrates
Figure 2C
SURVENTY/SISSIM-type Collectoration (27, 2617 Zon) - Bolle, MR, Verdebrate Concentrations and
East of the foliage of the contraction of the contr

Stedman, Andrew (Health)

ahd.com> From: Sent: @defence.gov.au @defence.gov.au; To: Odefence gov au: @defence.gov.au; @spotless.com.au; Denvironment.gov.au; @defence.gov.au: @defence.gov.au; @defence.gov.au: @defence.gov.au; .gov.au; @aecom.com: @aecom.com; r Dinfrastructure.gov.au; Clapham. David @epa.nsw.gov.au: @health.nsw.gov.au; Stedman, Andrew (Health); Hudson, Lyndell (Health): Dshoalhaven.nsw.gov.au; @infrastructure.gov.au; @shoalhaven.nsw.gov.au Factual Letter 21 - PFAS Results for Jervis Bay Territory residential Biota sampling Subject:

Dear JBRF PCG,

Please find attached Factual Letter 21 – Biota sampling from Jervis and Wreck Bay areas. Jease note the figure quality has been reduced for email transfer, with higher quality figures available on request.

Regards,

GHD

@ghd.com

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Stedman, Andrew (Health)

From: Sent: Friday, 29 June 2018 7:47 PM @defence.gov.au; To: <u>@def</u>ence.gov.au ndefence.gov.au; @defence.gov.au @environment.gov.au @spotless.com.au; @defence.gov.au; @defence.gov.au; Odefence gov au: @defence.gov.au; @defence.gov.au; ndefence.gov.au; @defence.gov.au; @aecom.com: ⊋aecom.com; @infrastructure.gov.au; Clapham_David @health.nsw.gov.au; @epa.nsw.gov.au Stedman. Andrew (Health): Hudson, Lyndell (Health): ②shoalhaven.nsw.gov.au; @shoalhaven.nsw.gov.au @infrastructure.gov.au; Subject: Re: Factual Letter 19 - PFAS Results for Flat rock and Captains Lagoon Attachments: 2126171_LET_factual letter 21_ June 2018.pdf; 2126171_LET_factual letter 21_ June

2018.pdf

Dear JBRF PCG,

Please find attached Factual Letter 21 – Residential Biota sampling from Jervis bay Territory area. Please note the figure quality has been reduced for email transfer, with higher quality figures available on request.

Regards,

GHD

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29 June 2018

2126171_LET_factual letter 21

- JBRF & HMAS Creswell PFAS Investigation and Management Branch Department of Defence



JBRF & HMAS Creswell- Environmental investigation: Preliminary sampling results Terrestrial ecology sampling results from home grown produce of Jervis Bay Territory (processed by 28 June 2018)

1 Introduction

GHD Pty Ltd (GHD), on behalf of the Department of Defence (Defence), is undertaking the Environmental Investigation in and around Jervis Bay Range Facility (JBRF) and HMAS Creswell, within the Jervis Bay Territory (JBT) (the Site). This report includes data that has been collected and processed as at 28 June 2018, from areas of home grown produce within the Jervis Bay Territory and Jervis Bay School.

It should be noted that these data are provided for information purposes only and that the use of these data should take into account factors that have been used to develop the conceptual site model (as presented in GHD's Sampling, Analysis and Quality Plan).

GHD will continue to provide results from further sampling, following the processing of the data.

2 Purpose

The purpose of the provision of preliminary data is to allow Defence and other stakeholders, including NSW and ACT Governments to view the data prior to its use in the technical reports for the Environmental Investigations.

3 Laboratory Analysis

Upon collection, the samples were sent under Chain of Custody (CoC) conditions to the following National Association of Testing Authorities (NATA) accredited laboratories:

- ALS Environmental, 277-289 Woodpark Road Smithfield, NSW, 2164
- National Measurement Institute (NMI), 105 Delhi Road, North Ryde, NSW 2113

4 Preliminary Results Tables

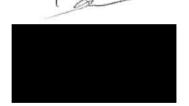
The preliminary results are provided in the attached tables.

The data is not for public distribution.

5 Closure

GHD trusts the above information is suitable for Defence requirements.

Yours Sincerely GHD Pty Ltd



Enclosures:

Table 1: Terrestrial Biota - Residential Gardens and Jervis Bay School

Table 2: Soil - Residential Gardens and Jervis Bay School

Figure 1: Concentrations of PFHxS + PFOS (Sum) - Home grown produce

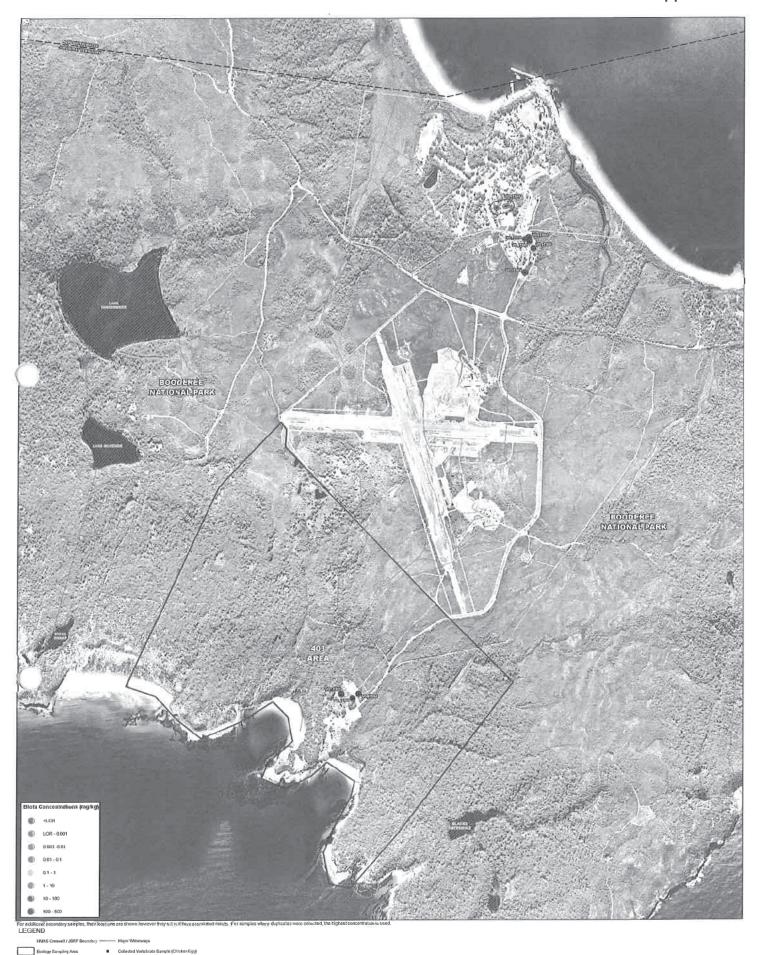
Figure 2: Concentrations of PFHxS + PFOS (Sum) - Soil Residential Gardens

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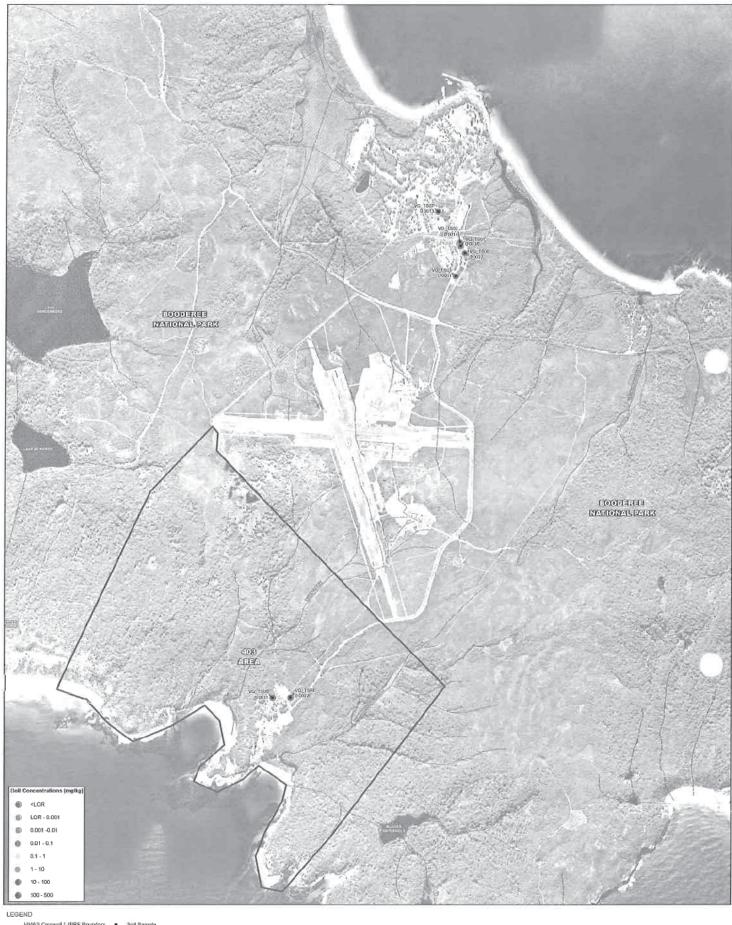
Department of Defence
HMAS Croswell and Jervis Bay Range Facility
Revision
A
Homegrown Produce Biota Concentrations of
PFHxS + PFOS (Sum) - Plants & Vertebrates

Level 15, 133 Castleragh Street Sydney NSW 2000 ** 101 2 9239 7100 F 61 2 9239 7199 E sydmall@gbd.com au Www.

Level 15, 133 Castleragh Street Sydney NSW 2000 ** 101 2 9239 7100 F 61 2 9239 7199 E sydmall@gbd.com au Www.

Job Number | 21-26171 Revision | A Date | 29 Jun 2018

Figure 1



HMAS Creswell / JBRF Boundary • Soil Sample

Water Bodies Drainage Areas









Job Number | 21-26171 Revision | A n) | Date | 29 Jun 2018

Department of Defence John AS Creswell and Jervis Bay Range Facility

Concentration plan for PFHxS and PFOS (sum)

Stedman, Andrew (Health)

From: @ghd.com> Sent: Friday, 29 June 2018 8:04 PM <u>@defen</u>ce.gov.au; To: defence.gov.au; @defence.gov.au; defence.gov.au; genvironment.gov.au; @spotless.com.au: @defence.gov.au: @defence.gov.au; @defence.gov.au: @defence.gov.au; @defence.gov.au; @defence.gov.au; @aecom.com; gaecom.com; @infrastructure.gov.au; Clapham, David; @epa.nsw.gov.au; @health.nsw.gov.au; Stedman, Andrew (Health): Hudson, Lyndell @shoalhaven.nsw.gov.au; (Health); Peter Watson; @infrastructure.gov.au; @shoalhaven.nsw.gov.au Factual Letter 21- PFAS Results for Residential sampling Jervis Bay Territory Areas Subject: Attachments: 2126171 LET factual letter 21 June 2018.pdf

Dear JBRF PCG,

Please find attached Factual Letter 21 – Residential Biota sampling from Jervis bay

Territory area.

With my apologies for previous emails with missing attachments and incorrect message titles.

Please note the figure quality has been reduced for email transfer, with higher quality figures available on request.

Regards,

 $_{\mathsf{GHD}}$

@ghd.com

evel 2, 57 Graham Street (PO Box 621) Nowra NSW 2541 Australia | http://www.ghd.com/ ter | Energy & Resources | Environment | Property & Buildings | Transportation

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Stedman, Andrew (Health)

From: Sent: To:	@ghd.com> Wonday, 2 July 2018 8:06 AM @defence.gov.au @defence.gov.au	@defence.gov.au; @defence.gov.au;
	@environment.gov.au;	@spotless.com.au;
	@defence.gov.au:	⊕defence.gov.au;
	@defence.gov.al	ce gov au: @defence.gov.au;
	@defence.gov.au;	<pre>defence.gov.au;</pre>
	@aecom.com;	@aecom.com;
	@infrastructure.gov.au; Clapha	am. David:
	@epa.nsw.gov.au;	@health.nsw.gov.au;
	Stedman, Andrew (Health);	Hudson, Lyndell
	(Health): Peter Watson;	shoalhaven.nsw.gov.au;
	@infrastructure.gov.au;	@shoalhaven.nsw.gov.au
Subject:	Recall: Factual Letter 18 - PFAS Results for	

would like to recall the message, "Factual Letter 18 - PFAS Results for Jervis Bay and Wreck Bay Biota sampling".

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From:

Clapham, David

Sent:

Monday, 2 July 2018 8:20 AM

To:

Barr, Conrad (Health); Pengilley, Andrew (Health)

Subject:

FW: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 18 Jervis Bay

Marine and Wreck Bay Marine - Data Tables [SEC=UNCLASSIFIED]

Attachments:

JB_Biota_20180628.xlsm; WB_Biota_20180628.xlsm

@defence.gov.au] On Behalf Of PFASIM Jervis Bay From Sent: Friday, 29 June 2018 8:37 PIVI To: Pengilley, Andrew (Health) <Andrew.Pengilley@act.gov.au>; Chester, Heath <Heath.Chester@act.gov.au>; Hudson, Lyndell (Health) < Lyndell. Hudson@act.gov.au>; ື່ງepa.nsw.gov.au> @epa.nsw.gov.au>; Barr, Conrad (Health) < Conrad.Barr@act.gov.au> Cc: PFASIM Jervis Bay <pfasim.iervisbay@defence.gov.au>: Clapham. David <David.Clapham@act.gov.au>; @infrastructure.gov.au>; @ghd.com> Subject: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 18 Jervis Bay Marine and Wreck Bay Marine

Data Tables [SEC=UNCLASSIFIED]

UNCLASSIFIED

Please find attached the excel data tables associated with Factual Letter 18 – Jervis Bay Marine and Wreck Bay Marine.

Regards,

Project Manager – Investigations East PFAS Investigation & Management Branch Infrastructure Division

Department of Defence | Estate & Infrastructure Group

E: steve.tattam1@defence.gov.au

From:

Clapham, David

Sent:

Monday, 2 July 2018 8:20 AM

To:

Pengilley, Andrew (Health); Barr, Conrad (Health)

Subject:

FW: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 19 - Flat Rock Creek and Captains Lagoon - Data Tables [SEC=UNCLASSIFIED]

Attachments:

CL_Biota_20180628.xlsm; FC_Biota_20180628.xlsm

From:	@defence.gov.au] O	n Behalf Of PFASIM Jervis Bay
Sent: Friday, 29 June 2018 8:38	PM	
To: Pengilley, Andrew (Health) <	Andrew.Pengilley@act.gov.au>; Ches	ster, Heath <heath.chester@act.gov.au>:</heath.chester@act.gov.au>
Hudson, Lyndell (Health) < Lynde	<pre>II.Hudson@act.gov.au>;</pre>	@epa.nsw.gov.au>;
@epa.ns	sw.gov.au>; Barr, Conrad (Health) <co< td=""><td>onrad.Barr@act.gov.au></td></co<>	onrad.Barr@act.gov.au>
Cc: PFASIM Jervis Bav <pfasim.ie< td=""><td>rvisbay@defence.gov.au>; Clapham,</td><td>David <david.clapham@act.gov.au>;</david.clapham@act.gov.au></td></pfasim.ie<>	rvisbay@defence.gov.au>; Clapham,	David <david.clapham@act.gov.au>;</david.clapham@act.gov.au>
	infrastructure.gov.au>;	@ghd.com>
Subject: Defence PFAS Investigation	tion Jervis Bay Territory - Factual Lett	er 19 - Flat Rock Creek and Captains Lagoon -
ata Tables [SEC=UNCLASSIFIED]		

UNCLASSIFIED

Please find attached the excel data tables associated with Factual Letter 19 - Flat Rock Creek and Captain's Lagoon.

Regards,

agations East PFAS Investigation & Management Branch Infrastructure Division

epartment of Defence	Es	state & Infrastructure Group
IVI:	E:	@defence.gov.au

From:

Clapham, David

Sent:

Monday, 2 July 2018 8:21 AM

To:

Pengilley, Andrew (Health); Barr, Conrad (Health)

Subject:

FW: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 20 - Mary Creek and Summercloud Creek - Data Tables [SEC=UNCLASSIFIED]

Attachments:

MC Biota 20180628.xlsm; SC Biota 20180628.xlsm

@defence.gov.au] On Behalf Of PFASIM Jervis Bay From Sent: Friday, 29 June 2018 8:38 PM To: Pengilley, Andrew (Health) <Andrew.Pengilley@act.gov.au>: Chester. Heath <Heath.Chester@act.gov.au>; Hudson, Lvndell (Health) < Lyndell. Hudson@act.gov.au >; @epa.nsw.gov.au>; @epa.nsw.gov.au>; Barr, Conrad (Health) <Conrad.Barr@act.gov.au> Cc: PFASIM Jervis Bay <pfasim.iervisbay@defence.gov.au>; Clapham, David <David.Clapham@act.gov.au>; @infrastructure.gov.au>; @ghd.com> Subject: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 20 - Mary Creek and Summercloud Creek ata Tables [SEC=UNCLASSIFIED]

UNCLASSIFIED

Please find attached the excel data tables associated with Factual Letter 20 – Mary Creek and Summercloud Creek.

Regards,

Project Manager – Investigations East PFAS Investigation & Management Branch Infrastructure Division

epartment of Defence | Estate & Infrastructure Group @defence.gov.au

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EAST-TON ONE

From:

Clapham, David

Sent:

Monday, 2 July 2018 8:21 AM

To:

Pengilley, Andrew (Health); Barr, Conrad (Health)

Subject:

FW: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 21 Residential and

School Sampling - Data Tables [SEC=UNCLASSIFIED]

Attachments:

HG_Biota_20180628.xlsm; HG_Soil_20180628.xlsm

From:	@defence.gov.au]	On Behalf Of PFASIM Jervis Bay
Sent: Friday, 29 June 2018 8:38 PM		
To: Pengilley, Andrew (Health) < Andrew.Pe	engilley@act.gov.au>; Ch	ester, Heath <heath.chester@act.gov.au>;</heath.chester@act.gov.au>
Hudson, Lyndell (Health) < Lyndell. Hudson (@act.gov.au>;	l@epa.nsw.gov.au>;
@epa.nsw.gov.au>	; Barr, Conrad (Health) <	Conrad.Barr@act.gov.au>
Cc: PFASIM Jervis Bay < pfasim.jervisbay@c	lefence.gov.au>: Claphan	n. David < David. Clapham@act.gov.au>;
@infrastruc	ture.gov.au>;	@ghd.com>
Subject: Defence PFAS Investigation Jervis		tter 21 Residential and School Sampling - Data
bles [SEC=UNCLASSIFIED]		

UNCLASSIFIED

Please find attached the excel data tables associated with Factual Letter 21 – Residential and School Data Sampling.

Regards,

Project Manager – mivestigations East PFAS Investigation & Management Branch Infrastructure Division

epartment of Defence	Estate 8	Infrastructure Group
iVI:	E:	@defence.gov.au

ED-HPS-Support

From:

@infrastructure.gov.au>

Sent:

Monday, 2 July 2018 9:45 AM

To:

Clapham, David

Cc:

Barr, Conrad (Health)

Subject:

FW: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 21 Residential

and School Sampling - Data Tables [SEC=UNCLASSIFIED]

Hi David

I note that late last Friday Defence provided factual letters 18-21 with associated data. Can you please confirm that along with the other data provided by Defence to date for the JBT, the ACT will consider the data and provide advice on what, if any, action might be necessary?

Please let me know if you wish to discuss.

Kind regards

From:

@defence.gov.au> On Behalf Of PFASIM Jervis Bay

Sent: Friday, 29 June 2018 8:38 PM

To: 'Pengilley, Andrew (Health)' <Andrew.Pengilley@act.gov.au>; 'Chester, Heath' <Heath.Chester@act.gov.au>;

'Hudson, Lyndell (Health)' < Lyndell. Hudson@act.gov.au>;

@epa.nsw.gov.au>

@epa.nsw.gov.au>; 'Barr, Conrad (Health)' <Conrad.Barr@act.gov.au>

Cc: PFASIM Jervis Bay <pfasim.jervisbay@defence.gov.au>: 'Clapham, David' <David.Clapham@act.gov.au>;

@infrastructure.gov.au>;

@ghd.com>

Subject: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 21 Residential and School Sampling - Data Tables [SEC=UNCLASSIFIED]

UNCLASSIFIED

Please find attached the excel data tables associated with Factual Letter 21 - Residential and School Data Sampling.

Regards,

Project Manager - Investigations East PFAS Investigation & Management Branch Infrastructure Division

Department of Defence | Estate & Infrastructure Group

@defence.gov.au

Disclaimer

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From:

Clapham, David

Sent:

Monday, 2 July 2018 9:49 AM

To: Cc:

Pengilley, Andrew (Health)

Subject:

RE: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 21 Residential and

School Sampling - Data Tables [SEC=UNCLASSIFIED]

Thanks Luke – yes I've ensured that Health Protection and the Office of the Chief Health Officer have received that letters and can confirm that the ACT is developing advice in consultation with NSW EPA.

While we await the finalisation of our recommendations, perhaps you and I can meet later in the week to discuss next steps?

Best

David

om

@infrastructure.gov.au]

Sent: Monday, 2 July 2018 9:45 AM

To: Clapham, David <David.Clapham@act.gov.au>
Cc: Barr, Conrad (Health) <Conrad.Barr@act.gov.au>

Subject: FW: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 21 Residential and School Sampling -

Data Tables [SEC=UNCLASSIFIED]

Hi David

I note that late last Friday Defence provided factual letters 18-21 with associated data. Can you please confirm that along with the other data provided by Defence to date for the JBT, the ACT will consider the data and provide advice on what, if any, action might be necessary?

Please let me know if you wish to discuss.

Kind regards

From

@defence.gov.au> On Behalf Of PFASIM Jervis Bay

Sent: Friday, 29 June 2018 8:38 PM

To: 'Pengilley, Andrew (Health)' < Andrew. Pengilley@act.gov.au >; 'Chester, Heath' < Heath. Chester@act.gov.au >;

'Hudson, Lyndell (Health)' < Lyndell. Hudson@act.gov.au >;

@epa.nsw.gov.au>;

'Barr, Conrad (Health)' < Conrad. Barr@act.gov.au >

c: PEASiwi jenyis Bay s masum jervispay@defence.gov.au>; 'Clapham, David' <David.Clapham@act.gov.au>;

@infrastructure.gov.au>;

@ghd.com>

Subject: Defence PFAS Investigation Jervis Bay Territory - Factual Letter 21 Residential and School Sampling - Data Tables [SEC=UNCLASSIFIED]

UNCLASSIFIED

Please find attached the excel data tables associated with Factual Letter 21 - Residential and School Data Sampling.

Regards,

Project Manager – Investigations East PFAS Investigation & Management Branch Infrastructure Division

Department of Defence | Estate & Infrastructure Group
M: @defence.gov.au

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From:

@ghd.com>

Sent:

Tuesday, 3 July 2018 9:03 AM

To:

Pengilley, Andrew (Health); Barr, Conrad (Health)

Subject:

FW: Factual Letter 18 - PFAS Results for Jervis Bay and Wreck Bay Biota sampling

Attachments:

2126171_LET_factual letter 18_ June 2018.pdf

Hi Andrew and Conrad,

Please accept my apologies for not adding you to the PCG distribution list, to follow is factual letters 19, 20 and 21 issued to the PCG on the 29/06/18.

Regards,

GHD Proudly employee owned

@ghd.com

evel 2, 57 Graham Street (PO Box 621) Nowra NSW 2541 Australia | http://www.ghd.com/ Water | Energy & Resources | Environment | Property & Buildings | Transportation

From

Sent: Friday, 29 June 2018 6:37 PM

<heath.chester@act.gov.au>; 'michelle.callaway@environment.gov.au' <michelle.callaway@environment.gov.au>;

; 'David.Clapham@act.gov.au'

'Stedman, Andrew (Health)' < Andrew. Stedman@act.gov.au>;

Subject: RE: Factual Letter 18 - PFAS Results for Jervis Bay and Wreck Bay Biota sampling

Dear JBRF PCG,

Please find attached Factual Letter 18 – Biota sampling from Jervis and Wreck Bay areas.

Please note the figure quality has been reduced for email transfer, with higher quality figures available on request.

Regards,

GHD

aghd.com

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From: Sent: To: Subject: Attachments:	@ghd.com> Tuesday, 3 July 2018 9:03 AM Pengilley, Andrew (Health); Barr, Conrad (Health) FW: Factual Letter 19 - PFAS Results for Flat rock and Captains Lagoon 2126171_LET_factual letter 19_ June 2018.pdf
From: Dave Hager Sent: Friday, 29 Jun	ne 2018 5:58 PM
<heath.chester@ac< td=""><td>rt.gov.au>;</td></heath.chester@ac<>	rt.gov.au>;
<david.clapham@a< th=""><th>ct.gov.au>;</th></david.clapham@a<>	ct.gov.au>;
	Health) <andrew.stedman@act.gov.au>; 'Glendon Lee' <glendon.lee@health.nsw.gov.au>; ct.gov.au' <lyndell.hudson@act.gov.au></lyndell.hudson@act.gov.au></glendon.lee@health.nsw.gov.au></andrew.stedman@act.gov.au>
Subject: Factual Let	ter 19 - PFAS Results for Flat rock and Captains Lagoon
areas.	ase find attached Factual Letter 19 – Biota sampling from flat rock creek and Captains lagoon requality has been reduced for email transfer, with higher quality figures available on request.
Regards,	

GHD

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@ghd.com

affiliates reserve the right to monitor and modify all email communications through their networks.

Williams, Jarrod (Health)

From:

@ghd.com>

Sent:

Tuesday, 3 July 2018 9:04 AM

To:

Pengilley, Andrew (Health); Barr, Conrad (Health)

Subject:

FW: Factual Letter 20 - PFAS Results for Mary Creek and Summercloud Creek

Attachments:

2126171_LET_factual letter 20_ June 2018.pdf

From

Sent: Friday, 29 June 2018 6:08 PM

Heath Chester (InTouch)

'David.Clapham@act.gov.au'

<heath chester@act gov au>.

'Stedman, Andrew (Health)' < Andrew. Stedman@act.gov.au>

'Glendon Lee' <Glendon.Lee@health.nsw.gov.au>;

'Lyndell.Hudson@act.gov.au' <Lyndell.Hudson@act.gov.au>;

Subject: Factual Letter 20 - PFAS Results for Mary Creek and Summercloud Creek

Jear JBRF PCG,

Please find attached Factual Letter 19 – Biota sampling from Mary Creek and Summercloud Creek

Please note the figure quality has been reduced for email transfer, with higher quality figures available on request.

Regards,

GHD

@ghd.com

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Stedman, Andrew (Health)

@ghd.com> From: Monday, 16 July 2018 11:13 AM Sent: @defence.gov.au; ence.gov.au; To: Ddefence.gov @defence.gov.au; @shoalhaven.nsw.gov.au; @spotless.com.au; @infrastructure.gov.au; @environment.gov.au; defence.gov.au; @defence.gov.au @defence.gov.au; @defence.gov.au; defence.gov.au; @defence.gov.au; @aecom.com; @defence.gov.au; @aecom.com; @infrastructure.gov.au; Clapham, David; curtis.gregory@health.nsw.gov.au; @epa.ns<u>w.gov.au;</u> Hudson, Lyndell Stedman, Andrew (Health); @shoalhaven.nsw.gov.au JBRF PFAS Investigation - Monthly meeting minutes and reports Subject: 2126171_REP_May 2018 Monthly Report_PCG.pdf; 2126171_REP_June 2018 Monthly Attachments:

Report_PCG.PDF; JBRF PCG_MEETING 16_AGENDA.pdf; JBRF-PGC Meeting Minutes

15 - June 2018.pdf

Dear JBRF PCG,

Please see attached the agenda for tomorrow's meeting along with minutes from last meeting and monthly reports.

Please join at 2:00 pm Tuesday 17 July, using details below

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Join by phone

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Call-in number:

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Regards,



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PFAS Investigation and Management Monthly Report- Jervis Bay Range Facility

20 05 2018

BP8 Level I 8 Brindabella Circuit Brindabella Business Park PO Box 7925 Canberra BC 2610

Re: Jervis Bay Range Facility Environmental Investigation - Progress Report May 2018

1.0 Introduction

The following progress report has been prepared by GHD Pty Ltd to provide a summary of activities for the Comprehensive Investigation of PFAS Site Conditions at Jervis Bay Range Facility, HMAS Creswell and surrounds for the period between 1 May 2018 and 31 May 2018.

2.0 Critical items

2.1 New items

- GHD conducted stream flow monitoring, surface water and sediment sampling post rain events 12/05/18 from Onsite and Off site areas.
- GHD issue factual letter 13 Rev 2, On site terrestrial biota, to Defence and PCG (30/05/2018).
- GHD issue raw ESDAT output data 01/05/18 as preliminary advice of received samples
 results. GHD note the ESDAT data contained sample results which had not been
 validated against internal records or supporting QA results. Preliminary results report
 elevated PFAS levels in onsite and off site biota and surface water samples.
- GHD and Defence hold planning meetings for delivery and presentation of sample results for of 403 lands.
- GHD and Defence issue 403 lands initial sample results letter to WBACC board for sample results received prior to 11/05/18. The results letter included:
 - Consolidated tables of sample results grouped by sample media.
 - Figures detailing sample locations.
 - Project and Department of Health guidance values for PFAS.
 - Laboratory Certificates of analysis, redacted to show samples from 403 land only.
- GHD and Defence attend WBACC board meeting 22/05/18 to deliver initial sample results letter and provide WBACC board members with project information and opportunity to discuss project and results. Key topics included:
 - Sampling process and activities conducted on 403 lands with support from cultural supervisors.
 - Non PFAS contamination sample analysis, reporting no exceedances of hydrocarbons and other contaminates.

- General conversation regarding PFAS contamination and health guidance.
- GHD secure and submit additional biota samples from Wreck Bay, Captains Lagoon and Flat Rock creek to support investigation dataset.
- GHD submit additional secondary biota samples from residential fruit and vegetable sampling and Mary creek to validate primary sample results and support investigation dataset.
- GHD issue Draft Waste Disposal plan Rev A to Defence to identify waste management options for drilling waste created during development of groundwater wells (29/05/2018)

2.2 Previously raised items to be addressed

GHD identify Factual Results Letters will be issued grouped by sample type and area. The list of factual letters is provided below with basic summary:

- Factual Memo 1 Combined media Soil, Sediment, Surface water and Groundwater HMAS Creswell and JBRF areas (On Site) (Issued 2017).
- Factual Memo 2 Combined media Soil, Sediment, Surface water and Groundwater HMAS Creswell and JBRF areas (On Site) (Issued 2017).
- Factual Memo 3 Combined media Soil, Sediment, Surface water and Groundwater HMAS Creswell and JBRF areas (On Site) (Issued 2017).
- Factual Memo 4 Combined media Soil, Sediment, Surface water and Groundwater HMAS Creswell and JBRF areas (On Site) (Issued 2017).
- Factual Memo 5 Combined media Soil, Sediment, Concrete core, Surface water and Groundwater - HMAS Creswell and JBRF areas (On Site) (Issued 2017).
- Factual Letter 6 Water Lake McKenzie, Lake Windermere and Potable water storage tanks (JBTA infrastructure) (Issued 2017).
- Factual Letter 7 Water Lake McKenzie, Lake Windermere (Issued 2017).
- Factual Letter 8 Black/grey water Sewerage system JBRF, HMAS Creswell (Issued 2017).
- Factual Letter 9 Black/grey water Sewerage system JBRF, HMAS Creswell, Wreck Bay sewer pump stations (Issued 2017).
- Factual Letter 10 Water Lake McKenzie, Lake Windermere (Issued 2017).
- Factual Letter 11 Water JBRF closed loop water systems associated with firefighting training school (Issued 2017).
- Factual Letter 12 Black/grey water Sewerage system JBRF, HMAS Creswell (Issued 2017).
- Factual Letter 13 Terrestrial ecology biota On Site HMAS Creswell/JBRF areas (Issued 2018).
- Factual Letter 14 Soil and Water dry weather off site 403 lands (To Be Issued 2018).
- Factual Letter 15 Soil and Water wet weather off site 403 lands (To Be Issued 2018).
- Factual Letter 16 Aquatic ecology Biota unnamed pools (403 lands) (To Be Issued 2018).
- Factual Letter 17 Aquatic and terrestrial ecology Biota lake McKenzie area (To Be Issued 2018).
- Factual Letter 18 Terrestrial ecology Biota On Site HMAS Creswell/JBRF areas (To Be Issued 2018).
- Factual Letter 19 Biota Marine/Estuarine/Freshwater Flat Rock and Captains Lagoon (To Be Issued 2018).
- Factual Letter 20 Biota Marine/estuarine/Freshwater Mary's and Summercloud Creeks (To Be Issued 2018).

• Factual Letter 21 - Biota – Fruit and vegetable residential gardens – School, Wreck Bay, Village road (To Be Issued 2018).

3.0 Project progress

The following items have been completed this reporting period:

- 100% completion of on site biota sampling (JBRF, Creswell, Flatrock Creek and Captains Lagoon).
- 100% completion of 403 and BNP investigation sampling including installation of wells, soil, sediment, surface water and biota sampling, under supervision of WBACC cultural supervisors.
- Receipt and preliminary analysis of 40% of sample results.

3.1 Project impacts

- Onsite sample results (biota, soil, water) and potential for agency dietary advice.
- 403 land sample (biota, soil, water) results and potential for agency dietary advice.

3.2 Project meetings

Project meetings held this reporting period are presented in Table 1.

Table 1: Summary of meetings held during the May reporting period

Meeting date	Meeting title	Participants	Minutes circulated
Recurring Wednesday's	Weekly meetings	JBRF project team – Defence, GHD & Site auditor	Yes
15/05/2018	PCG Monthly	Defence, GHD, Site auditor, Agencies and stakeholders	Yes
21/05/2018	WBACC results presentation preparation	GHD/Defence	No
22/05/2018	WBACC results presentation	& WBACC board members	No

3.3 Project deliverables submitted this period

Project deliverables submitted during this reporting period are presented in Table 2.

Table 2: Project deliverables submitted during the May reporting period

Document status	Title	Date submitted
Final	2126171 LET Factual Letter 13 May 2018	29/05/18
Draft	2126171_LET_Drfat Waste Disposal plan May 2018	29/05/18
Draft	Results Letter - Wreck bay 403 lands - 180521	18/05/18
Final	Results Letter – Wreck bay 403 lands - 180521	21/05/18

3.4 Project Milestones

The following project milestones were achieved in the May reporting period:

99% completion of on site, biota, soil, sediment and water sampling.

- 99% completion of off site (BNP and 403) biota, soil, sediment and water sampling.
- 99% completion of off site biota, residential garden and soil sampling.

4.0 Project Forecast

The project schedule is presented in the enclosed project schedule, dated 28 March 2018.

4.1 Schedule tracking forecast

 The project schedule originally impacted by approval processes to access the Wreck Bay community land has been revised with investigation and reporting completion programmed for January 2019.

4.2 Project deliverables expected next period

- Completion off any additional sampling, as required.
- Sample result data analysis
- Preparation and issue of sample results

4.3 Technical Advisor forecast

The Technical Advisor's achievements and planned activities are presented in Table 3.

Table 3: Technical Advisor achievements and key activities during the May reporting period

Scope item	Achieved to date	Planned for next month
Monitor Project progress	Yes	ongoing
and provide comment		

5.0 Community enquiries

In this reporting period:

- No community independent enquiries were received via the Community Hotline (1800 987 618) and email (<u>Jervisbay@ghd.com.au</u>)
- There are 0 outstanding stakeholder enquires

6.0 Interaction with Government

Meetings and communications with government stakeholders are summarised in Table 4.

Table 4: Summary of interactions with Government during the May reporting period

Meeting date	Meeting title	Participants	Minutes circulated
15/05/2018	PCG 14	Defence, GHD, Site	Yes
	Monthly	auditor, Agencies and	
	meeting	stakeholders	

9.0 Requests for information from Defence

 All relevant reports and information associated with JBRF environmental assessments and contamination investigations have been provided to GHD by Defence.

10.0 Other Matters

Nil

Yours sincerely



CC:

Enclosures: Project Mile Stone Schedule - Dated 28/03/2018

Project schedule, dated 28 March 2018

Item	Start	Finish	TOTAL PROPERTY.
DSI	5/04/2017	28/08/2017	GHD
On-Site Groundwater Bore Installation, Soil, Sediment and surface water sampling (Round 1).	5/04/2017	09/05/2017	GHD
On-Site Groundwater Bore, Sediment and surface water sampling (Round 2).	18/04/18	20/05/18	GHD
Off-Site Groundwater Bore Installation, Soil, Sediment and surface water sampling (Round 1)	19/03/18	13/04/2018	СНД
Off-Site Groundwater Bore, Sediment and surface water sampling (Round 2)	18/04/18	20/05/18	GHD
Biota sampling	15/02/2018	10/05/2018	GHD
Laboratory analysis	12/02/18	10/06/18	ALS
Laboratory analysis of on hold samples (if required)	TBC	TBC	
Defence, GHD, Auditor results analysis workshop	21/05/18	21/05/18	
			1
DSI Reporting	28/05/2018	27/08/2018	GHD/Defence/Agency/WBACC
DSI Report preparation	28/05/2018	29/06/2018	GHD
Defence and Auditor review of Draft DSI Report	02/07/2018	13/07/2018	Defence/Auditor
Update of Draft DSI Report	16/07/2018	23/07/2018	GHD
ACT & NSW State Agency review of DSI Report	24/07/2018	06/08/2018	Agency
WBACC Review of DSI report (If required)?	TBC	TBC	WBACC
Finalise DSI Report	07/08/2018	27/08/2018	GHD/Defence/Auditor
Groundwater Numerical Modelling	30/03/18	27/09/18	
Data capture, modelling, calibration and sensitivity analysis	14/04/18	16/08/18	GHD
Draft groundwater modelling report Preparation	17/08/18	30/08/18	GHD
Defence and Auditor review of Draft GWM Report	31/08/18	13/09/18	GHD/Defence/Auditor

Finalication of arminaturator manufallina surfacility	44,00,40	07.00.10	
r mansation of groundwater modelling report	14/09/18	21/09/18	
Human Health and ecological risk assessment	24/08/2017	30/09/2018	GHD/Defence/Agency/WBACC
ACT & NSW State Agency review of HHERA Plan	20/11/2017	01/12/2017	Agency
Risk Workshop	16/07/2018	16/07/2018	GHD
HHERA Draft report Preparation	17/07/2018	10/09/2018	GHD
Defence and Auditor review of Draft HHERA report	11/09/2018	24/09/2018	Defence/Auditor
Update of Draft HHERA report	24/09/2018	08/10/2018	GHD
Agency review of HHERA	09/10/2018	22/10/2018	Agency
WBACC Review of HHERA report (If required)?	TBC	TBC	WBACC
Finalise HHERA Report	23/10/2018	12/11/2018	GHD/Defence/Auditor
PFAS Area Management Plan (PMAP)	18/07/2018	12/11/2018	GHD/Defence/Auditor
PMAP Template Workshop	28/09/2018	28/09/2018	GHD/Defence/Auditor
PMAP Draft Report preparation	01/10/2018	19/10/2018	GHD
Defence and Auditor review of Draft PMAP report	22/10/2018	02/11/2018	GHD/Defence/Auditor
PMAP report workshop	15/10/2018	15/10/2018	GHD/Defence/Auditor
Finalise PMAP Report	30/10/2018	12/11/2018	GHD/Defence
Community Information Sessions	21/03/2017	25/05/2018	
Community Information Session 3	TBC	TBC	GHD/Defence/Agency/Community
Community Information Session 4	14/11/2018	14/11/2018	GHD/Defence/Agency/Community
(Post DSI/HHERA report finalisation)		4	
Stakeholder engagement reporting	19/10/2018	31/12/2018	GHD/Defence
Finalise stakeholder engagement reports	05/12/2018	11/12/2018	GHD/Defence
Meetings with Agencies	TBC	TBC	GHD/Defence/Agency
Project Close out	12/12/2018	16/01/2019	GHD/Defence



PFAS Investigation and Management Monthly Report- Jervis Bay Range Facility

04 07 2018

BP8 Level 1 8 Brindabella Circuit Brindabella Business Park PO Box 7925 Canberra BC 2610

Re: Jervis Bay Range Facility Environmental Investigation - Progress Report June 2018

1.0 Introduction

The following progress report has been prepared by GHD Pty Ltd to provide a summary of activities for the Comprehensive Investigation of PFAS Site Conditions at Jervis Bay Range Facility, HMAS Creswell and surrounds for the period between 1 June 2018 and 30 June 2018.

2.0 Critical items

2.1 New items

- GHD issue factual letters 13, 14, 15, 16, 17, 18, 19, 20 & 21, Off site water, soil, sediment, biota and residential gardens.
- GHD issue electronic files to WBACC for Results Letter 1 Wreck bay 403 lands 180522 following request from CAPT Huxtable.
- GHD issue raw ESDAT output data to Defence/NSW EPA to accompany factual letters.
- GHD, Defence and site auditor meet GHD Canberra office 19/06/2018 to discuss the following items:
 - DSI development, identifying the groundwater numerical model will form an annex to the DSI report.
 - HHERA development, identifying the HHERA will be composed of two separate reports, The Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA).
 - PMAP development, identifying all requirements and templates are not confirmed at this time.
 - o Schedule, as presented section 4.
- GHD submit secondary samples and interlab duplicates of Lilly Pilly fruit to validate primary sample results.
- GHD develop residential garden sampling results letters for Village Road, Wreck Bay and Jervis Bay School properties.