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Details of Filing

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A handwritten signature in blue ink, reading "Warwick Soden".

Dated: 9/04/2019 2:38:25 PM AEST

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Amended Statement of claim

No. 1155 of 2017

Federal Court of Australia
District Registry: New South Wales
Division: General

BRADLEY JAMES HUDSON and ORS

Applicants

THE COMMONWEALTH OF AUSTRALIA

Respondent

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A PRELIMINARY

A.1 The Applicants and the Group Members

1. This proceeding is commenced as a representative proceeding pursuant to Part IVA of the *Federal Court of Australia Act 1976* (Cth) by the Applicants on their own behalf and on behalf of other persons who or which:
 - (a) as at 29 July 2014 (**Relevant Date**):
 - (i) owned land located in whole or in part within the area delineated by black dotted lines on the map which is Annexure A to this Statement of Claim (the **Relevant Area**); or
 - (ii) operated a business situated on land located in whole or in part within the Relevant Area;
 - (b) have suffered loss or damage by or resulting from the conduct of the Respondent pleaded in this Statement of Claim; and
 - (c) have, as at ~~the commencement of this proceeding~~ 21 January 2019, entered a litigation funding agreement with IMF Bentham Ltd (ACN 067 298 088),

(**Group Members**).
2. At all material times since 25 August 1999, the First and Second Applicants have owned land in the Relevant Area, namely the land at 14 Walkers Lane, Oakey (**Applicants' Land**).

PARTICULARS

- i) *The First and Second Applicants are the owners as joint tenants of the land known as 14 Walkers Lane, Oakey in the State of Queensland (being Lot 38 on Crown Plan O15210).*
3. At all material times since on or about 10 May 2005, the Third Applicant, as trustee for the BSTS Unit Trust (the units of which are owned as to 50% by each of the First and Second Applicants), has carried on business as proprietor of a café known as the "Devon Café", situated on land within the Relevant Area, namely 91 Campbell Street, Oakey (**Applicants' Business**).

PARTICULARS

- i) *The Third Applicant is the lessee of the land situated at 91 Campbell Street Oakey, pursuant to Deed of Variation of Lease dated 3 February 2010 between Comanche Pastoral Pty Ltd and*

*the Alcorn Family Trust and the Third Applicant, guaranteed by the First and Second Applicants (**Applicants' Business Lease**). The lease originally had a term of 3 years expiring on 3 February 2013, but the Third Applicant has continued on a monthly at will basis, governed by the terms of the Applicants' Business Lease, since that time.*

- ii) The Third Applicant acquired the Applicants' Business from JF & A Smith by contract dated 12 April 2005 for a consideration of \$130,000.00 (plus an amount of \$10,000 on account of stock in trade), with a settlement date of 10 May 2005.*

- 4. As at the commencement of this proceeding, there were more than seven Group Members.

A.2 The Respondent

- 5. The Respondent (**Commonwealth**) is and at all material times was:

- (a) a body politic constituted by the *Constitution of the Commonwealth of Australia*; and
- (b) capable of being sued by reason of s 56 of the *Judiciary Act 1903* (Cth).

B THE Oakey Base and Surrounds

B.1 The Oakey Base

- 6. Since or about 1969, the Commonwealth has continuously owned and occupied land approximately 35 kilometres north-west of Toowoomba, Queensland, known as the Oakey Army Aviation Centre, including Swartz Barracks (the **Oakey Base**).

PARTICULARS

- i) Initial Environmental Review for Army Aviation Centre, Oakey Queensland (February 2002) (**Initial Environmental Review**), p.6.*
 - ii) From time to time the Commonwealth has acquired neighbouring properties which have become incorporated into the land occupied by the Oakey Base and disposed of properties which have become excluded from the land occupied by the Oakey Base.*
- 7. At all material times, the Commonwealth has leased parts of the Oakey Base to third parties for mixed grazing and farming purposes (including by irrigation, for which purposes it made available to the lessees irrigation bores).

PARTICULARS

- i) *The Oakey Base currently occupies approximately 935 hectares of land of which approximately 300 hectares is leased to third parties for mixed grazing and farming, including by irrigation: AECOM, Stage 2C Environmental Investigation – Preliminary Ecological Risk Assessment, Army Aviation Centre Oakey (November 2016), p.2.*
 - ii) *The Commonwealth has at all times since 1989 provided to the lessee from time to time of the leased land irrigation bores RN55023, RN66256 and RN83264, for agricultural purposes including the growing of crops including fodder crops, grain, cotton and other irrigation crops (and including by flood irrigation which continued from time to time until at least 2016).*
8. At all material times, neighbouring land use in the region surrounding the Oakey Base was and is:
- (a) to the west, north and east, predominantly made up of rural allotments which are used for a range of pastoral and agricultural purposes, grain cropping, livestock production, but which also includes allotments used for racehorse training and rural residential pursuits;
 - (b) to the south, immediately adjacent residential allotments forming part of the township of Oakey, the centre of which is located approximately 2 kilometres to the south of the Oakey Base and comprises residential, light industrial and business/commercial zoned areas.

PARTICULARS

- i) *URS Australia Pty Ltd, “Final Report – Stage 1 and Stage 2 Environmental Investigation at Army Aviation Centre, Oakey, Queensland (October 2010) (URS 2010 Final Report), p.9.*

B.2 The natural features of the Oakey Base and surrounding area

B.2.1 Topography

9. At all material times, the Oakey Base was situated on alluvial floodplains on land which was generally level, with a natural fall in a west/south-west direction along a floodplain known as the Oakey creek floodplain, which generally empties into a creek known as Oakey Creek (**Oakey Creek**).

PARTICULARS

- i) *URS 2010 Final Report, pp.9-10.*
- ii) *AECOM: Army Aviation Centre Oakey - PFC Background Review and Source Study (July 2015) (AECOM 2015 PFC Study), p.10.*

iii) *AECOM, Stage 2C Environmental Investigation – Preliminary Ecological Risk Assessment, Army Aviation Centre Oakey (November 2016), p.2.*

10. At all material times, by reason of the matters pleaded in paragraph 9, surface water on and around the Oakey Base (including rain water, floodwaters or overland flow):
 - (a) generally tends to pool, pond and percolate or permeate into the soil after wet weather or inundation for lengthy periods;
 - (b) naturally moves across the floodplain and ultimately into Oakey Creek as pleaded at paragraph 8 above, with such natural flow being intersected by road development in areas which directs the water in a more southerly direction, but also permits natural flow via culverts etc.

B.2.2 Soils

11. At all material times, the soil on the Oakey Base and in the Relevant Area has predominantly comprised a deep cracking clay which permits the passage of rainwater (and surface water) to the subsoil and groundwater to move extremely quickly.

PARTICULARS

- i) *Report prepared by Lt D.J. Bristow, entitled “Investigation into Waste Disposal Practices Oakey Army Aviation Base and its Effects on Ground Water Quality and Drinking Water Quality for the Oakey Aviation Base and Township of Oakey, December 1990 – January 1991”, dated 19 February 1991 (**Bristow Report**); and*
- ii) *AECOM 2015 PFC Study, p.11.*

B.2.3 Hydrology

12. At all material times:
 - (a) Oakey Creek was and is an ephemeral waterway with its headwaters located north of Toowoomba and to the east of the Oakey Base and Oakey, which flows in a south-westerly direction from its source, ultimately flowing past the Oakey Base, to its east, and then generally south through the township of Oakey, and west to its confluence with the Condamine River (approximately 60 kilometres south- west of Oakey);
 - (b) a tributary creek known as “Doctors Creek” crosses the north-west corner of the Oakey Base and flows across neighbouring land usage in a generally westerly

direction until its intersection with Oakey Creek, approximately 14 kilometres west of the Oakey Base

PARTICULARS

- i) as to sub-paragraph (a):*
 - A) URS 2010 Final Report, p.10;*
 - B) AECOM 2015 PFC Study, p.12.*
- ii) as to sub-paragraph (b), AECOM 2015 PFC Study, p.8.*

B.2.4 Hydrogeology

13. At all material times, the Oakey Base and the Relevant Area have been:

- (a) located within the Great Artesian Basin groundwater system; and
- (b) underlain by the following aquifers (from shallower to deeper, and excluding transition zones):
 - (i) the Upper Oakey Creek alluvial aquifer;
 - (ii) the Lower Oakey Creek alluvial aquifer;
 - (iii) the Main Range Volcanic basalt aquifer; and
 - (iv) the Walloon Coal Measures Aquifer.

PARTICULARS

- i) as to sub-paragraph (a), AECOM 2015 PFC Study, p.14.*
- ii) as to sub-paragraph (b), AECOM Australia Ltd, Stage 2C Environmental Site Assessment, Army Aviation Centre Oakey (26 July 2016) (AECOM Stage 2C ESA), p.64.*

14. At all material times, the Upper Oakey Creek alluvial aquifer and the Lower Oakey Creek alluvial aquifer (together, **Oakey Aquifers**) have:

- (a) been relatively close to the surface of the land beneath the Oakey Base;
- (b) flowed to the south-west;
- (c) been hydraulically interconnected with the other aquifers pleaded in paragraph 13;
- (d) consisted of meandering discontinuous sequences of gravel, sands, silts and clays;

- (e) had a variable capacity to store and transmit groundwater both vertically and laterally across its extent;
- (f) been unconfined to semi-confined in nature;
- (g) had transmissivity ranges between 140 and 3000m²/day with an average of 650m²/day and a groundwater velocity in the range of 58 metres per year and 1,275 metres per year with an average of 264 metres per year;
- (h) recharged due to losses from Oakey Creek and its tributaries and infiltration through the soils;
- (i) had a highly negative (downward) vertical gradient during periods of groundwater extraction; and
- (j) been differentiated based on observed increased water yield and presence of sand and gravel that typically occur below a depth of 19 metres.

PARTICULARS

- i) *as to sub-paragraph (a), AECOM Stage 2C ESA, p.64.*
- ii) *as to sub-paragraph (b), AECOM Australia Ltd, Stage 2B Environmental Investigation, Hydrogeological Review, Army Aviation Centre Oakey, p.3.*
- iii) *as to sub-paragraph (c), AECOM Stage 2C ESA, p.63.*
- iv) *as to sub-paragraphs (d) to (h), URS 2010 Final Report, p.109, and also for (g), "...and a groundwater velocity in the range of 58 metres per year and 1,275 metres per year with an average of 264 metres per year". Coffey Environments Stage 2 (Part 2) Environmental Investigation Army Aviation Centre Oakey, p. 70.*
- v) *as to sub-paragraph (i) and (j), Parsons Brinckerhoff, "Stage 3 Risk Assessment and Remediation: Design at Army Aviation Centre Oakey Groundwater Monitoring Event" (February 2013), pp.9, 14-15.*

B.3 The artificial water-related features of the Oakey Base

15. In the course of its occupation and use of the Oakey Base (principally in the 1970s), the Commonwealth constructed, developed, and/or upgraded a drainage system whereby site stormwater flow from a significant part of the Oakey Base is redirected from its natural flow path via a system of kerb and channel, pipes, overland flow and ephemeral earthen open drainage channels (the **Drainage System**) towards Oakey Creek.

PARTICULARS

- i) *The drainage system includes approximately 23 kilometres of pipe typically ranging in size from 300mm to 1200mm and approximately 33 km of unlined open channels: AECOM 2015 PFC Study, p.8.*
- ii) *There are three main earthen trunk drains (one of which is a dual drain) servicing all operational areas of the Oakey Base and comprising the Oakey Creek catchment area: the eastern, central and western drains, which run over neighbouring lands (supported by easements) south towards the town of Oakey and Oakey Creek: AECOM 2015 PFC Study, p.8.*
 - A) *the Western Drain extends from south west corner of the airfield, running south alongside the western boundary of the Base and merging with the central drain before discharging to Oakey Creek;*
 - B) *the Central Drain is aligned parallel to Orr Road, running in a south-westerly direction from the airfield across the Base and merging with the west drain before discharging to Oakey Creek; and*
 - C) *the Eastern Drain is aligned parallel to Swartz Road, running south from the south east corner of the airfield across the Base and discharging to Oakey Creek.*
- iii) *Flow captured in the northern part of the Oakey Base is diverted and drained directly into Doctors Creek which flows in a westerly direction across neighbouring lands before it discharges into Oakey Creek approximately 14km downstream: AECOM 2015 PFC Study, p.8.*

16. The Commonwealth, or its predecessors in title, caused or authorised a number of bores to be drilled on the Oakey Base to draw groundwater (including from the Oakey Aquifers), which was used by the Commonwealth in the course of its occupation of the Oakey Base up until 2013.

PARTICULARS

- i) *The following bores exist on the Oakey Base:*

DRILLED DATE	LOCATION	RN & SOURCE AQUIFER	DEPT H (M)
1/01/1940	8/RP88219	RN35983 - All Alluvium and Basalt	33.5
1/01/1940	1/SP208379	RN55008 - Oakey Creek Alluvium	Not recorded
7/10/1950	2/RP88218	RN52998 - Oakey Creek Alluvium	33.53
23/11/1950	4/RP88219	RN52999 - Oakey Creek Alluvium	35.97
Prior to 1965	4/RP88219	RN19718 - Aquifer not recorded	32

Prior to 1965	4/RP88219	RN19719 - Aquifer not recorded	35.4
4/04/1970	2/RP113524	RN35453 - Oakey Creek Alluvium	33.5
14/04/1970	4/RP88219	RN35454 - Oakey Creek Alluvium	31.1
21/04/1971	4/RP88219	RN36603 - Oakey Creek Alluvium	28
1/01/1977	1/CP851106	RN55021 - Aquifer not recorded	30.5
9/12/1977	4/RP25491	RN55023 - Condamine River Alluvium	-
9/12/1977	1/CP851106	RN55022 - Aquifer not recorded	30.5
28/01/1984	1/CP851106	RN66256 - Oakey Creek Alluvium	26.21
14/08/1987	2/RP113524	RN42231382 - Oakey Creek Alluvium	38.1
17/08/1987	2/RP113524	RN42231383 - Oakey Creek Alluvium	32.5
13/08/1987	1/SP208379	RN42231381 - Oakey Creek Alluvium	36.6
12/05/1988	1/CP851106	RN83264 - Oakey Creek Alluvium	33.5
20/03/1992	1/RP123544	RN87138 - Oakey Creek Alluvium	25.91
18/10/1999	4/RP88219	RN107225 - Oakey Creek Alluvium	32.9
14/11/2012	4/RP88219	RN147449 - Walloon Coal Measures	29
15/11/2012	1/CP851106	RN147460 - Walloon Coal Measures	26
17/11/2012	1/CP851106	RN147503 - Walloon Coal Measures	26
18/11/2012	4/RP88219	RN147504 - Walloon Coal Measures	29
7/08/2014	1/CP851106	RN147873 - Oakey Creek Alluvium	16
7/08/2014		RN147871 - Oakey Creek Alluvium	16
8/08/2014	1/CP851106	RN147872 - Oakey Creek Alluvium	19
Not recorded	2/RP113524	RN9617 - Condamine River Alluvium	22.25
9/04/2016	4/RP88219	RN172097 - Aquifer not recorded	20
9/04/2016	4/RP88219	RN172096 - Aquifer not recorded	20
9/04/2016	4/RP88219	RN172095 - Aquifer not recorded	20
9/04/2016	4/RP88219	RN172093 - Aquifer not recorded	20

9/04/2016	4/RP88219	RN172094 - Aquifer not recorded	20
Not recorded	4/RP88219	RN19717 - Aquifer not recorded	Not recorded

ii) *The Commonwealth used bore water for the following purposes:*

- A) *up until 1997, for all domestic purposes for on-base personnel, including drinking, cooking, washing and laundry;*
- B) *up until 2013, for recreational purposes (swimming pool), fire-fighting and fire training purposes, an extensive irrigation network to various gardens, sporting fields and helicopter landing strips throughout the Oakey Base (sporting ovals and fields, airfield dust suppression, workshop and aircraft wash-down, and sundry industrial uses);*
- C) *from 1989, for leasing to the lessee of land used for agricultural purposes as pleaded in paragraph 7;*

AECOM 2015 PFC Study, p.7; AECOM, Stage 1 and Stage 2 Environmental Investigation, Army Aviation Centre Oakey (July 2015), pp.8-9; Parsons Brinckerhoff, "Stage 3 Risk Assessment and Remediation Design at Army Aviation Centre Oakey Remediation Action Plan – Perfluorocarbons in groundwater" (June 2013), p.7.

B.4 The foreseeable flow of water from the Oakey Base

17. At all material times, by reason of the matters pleaded in paragraphs 9 to 16, it was reasonably foreseeable that waters, liquids, and soluble materials discharged on the Oakey Base would:

- (a) permeate or percolate into the soil at the Oakey Base;
- (b) be transmitted to the groundwater beneath the Oakey Base, including the Oakey Aquifers and mingle and flow with that groundwater in a generally south-west direction;
- (c) mingle with other surface water on the Oakey Base (especially after periods of rain), and flow overland in a generally west/south-west direction, towards and into the surrounding water catchment areas (including via the Drainage System), including into Oakey Creek, and:
 - (i) permeate or percolate into the soil over which the surface water overland flows occurred; and
 - (ii) be transmitted to the groundwater beneath the soil over which the surface water overland flows occurred, including the Oakey Aquifers.

C WATER USE AT OAKLEY

C.1 Oakley Creek

18. At all material times, Oakley Creek has been accessed and used by the residents of Oakley and the Relevant Area for extensive riparian purposes including stock and domestic uses and also for general recreational use, including fishing and swimming (**Oakley Creek Usages**).

PARTICULARS

i) *AECOM 2015 PFC Study, p.60.*

19. The township of Oakley to the south and south-west of the Oakley Base that abuts Oakley Creek are considered within a high and medium flood hazard from Oakley Creek.

PARTICULARS

i) *AECOM 2015 PFC Study, p.12.*

20. At all material times prior to the Relevant Date, persons owning and/or occupying land in the Relevant Area (within the township of Oakley and on rural residential, rural and non-town areas outside the township), have had a reliance or dependency on surface water flow (**Surface Water Usage**):
- (a) for natural overland water irrigation purposes including the growing of crops and pastures, and residential an amenity purposes such as the growing and maintaining of lawns and gardens; and
 - (b) for livestock and bloodstock watering purposes including by waterholes, dams and other impounded water.

C.2 Groundwater

21. At all material times the Oakley Aquifers have been extensively developed as a source of irrigation, industrial and urban water supply.

PARTICULARS

i) *Preliminary Report Groundwater Resources of Oakley Creek Alluvium by G A Murphy, Queensland Water Resources Commission October 1990, p1.*

22. At all material times prior to 1997, the township of Oakley solely sourced its water for its municipal potable water network from local underground water bores which drew water from the Oakley Aquifers (**Council Bores**).

PARTICULARS

- i) *Council Bore #1 (RN52998) situated on Lot 2 on RP882 18 on the Oakey Base and drilled on 7 October 1950 sourced from the Oakey Creek Alluvium.*
- ii) *Council Bore #2 (RN52999) situated on Lot 4 on RP882 19 on the Oakey Base and drilled on 23 November 1950 sourced from the Oakey Creek Alluvium.*
- iii) *Council Bore #3 (RN36603) situated on Lot 4 on RP882 19 on the Oakey Base and drilled on 24 April 1971 sourced from the Oakey Creek Alluvium (supported by an easement from the Commonwealth to the Jondaryan Shire Council).*
- iv) *Council Bore #4 (RN55328) situated approximately 5.8 kilometres west of the Oakey Base and drilled on 12 March 1979 sourced from the Oakey Creek Alluvium.*
- v) *Council Bore #5 (RN83202) situated approximately 2.1 kilometres west of the Oakey Base and drilled on 26 November 1987 sourced from the Oakey Creek Alluvium.*
- vi) *Council Bore #6 (RN83203) situated approximately 2.3 kilometres west of the Oakey Base and drilled on 29 November 1989 sourced from the Oakey Creek Alluvium.*

23. From 1997, the majority of residential areas of the township of Oakey connected to the Toowoomba City Council municipal potable water network, but between 1997 and 2012 Council Bores continued to be used intermittently to supplement, or principally provide, for the municipal water supply.

PARTICULARS

- i) *The reticulated water supply system covers the majority of the residential areas of the township of Oakey but areas bordered by Showgrounds Road, Sexton-Weise Road and Oakey Cooyar Road (including Williams Road, Racecourse Road and Janetzki Road) do not currently, and never have had, a mains water supply.*
- ii) *Council Bores were used as follows:*
 - A) *Council Bore #3 abstracted 333ML from 2009 to 2012;*
 - B) *Council bore #5 abstracted 222ML from 2009 to 2012;*
 - C) *Council bore #6 abstracted 308ML from 2009 to 2012;*
 - D) *The following Council Bores were drilled in about 2007:*
 - I) *Council bore #7 situated approximately 600 metres to the west of the Oakey Base drill date unknown, sourced from the Oakey Creek Alluvium, and abstracted 118ML from 2009 to 2012; and*
 - II) *Council bore #8 (RN147447) situated on Lot 73 on Crown Plan O1524 approximately 600 metres to the west of the Oakey Base and drilled on 26 October 2007,*

sourced from the Oakey Creek Alluvium, and abstracted 280ML from 2009 to 2012;

- E) Council Bores #7 and #8 together supplied 8.2% and 22.6% of Oakey's total water supply between 2008 and 2012: Kleinschmidt, A., Briefing Notes, Water and Waste Services Group – "Potential Contamination of Oakey Drinking Water Supply by Army Aviation Centre Oakey Activities", 18 July 2014, p.307;*
- F) Council Bores provided 70% of Oakey's water supply in 2010/11: Email, Jarvis D. to defence.oakey@aecom.com dated 16 June 2014 (2.29PM).*

24. At all material times, many persons resident in the township of Oakey and surrounding areas, including in the Relevant Area, had private bores on their land which drew water from the Oakey Aquifers (**Private Bores**).

PARTICULARS

- i) Some Private Bores are registered, while some are unregistered.*
- ii) The best particulars the Applicants can provide of the Private Bores in the Relevant Area are contained in the AECOM 2015 PFC Study, Figure F6 and in Annexure B (which is a list of 207 registered bores, but which does not take into account unregistered bores).*
- iii) There is a Private Bore on the Applicants' Land.*
- iv) Some Group Members have Private Bores on their land. The identity of all those Group Members who have Private Bores will be particularised following opt out, the determination of the Applicants' claim and identified common issues at an initial trial and if and when it is necessary for a determination to be made of the individual claims of those Group Members.*

25. At all material times prior to the Relevant Date, persons owning and/or occupying land in the Relevant Area (including the Applicants and Group Members) have had a reliance or dependency on groundwater as the primary and/or supplementary source of water, having used such groundwater for purposes including the following (each an **Oakey Groundwater Usage**):

- (a) for drinking water (**Drinking Usage**);
- (b) for irrigation purposes, including:
 - (i) agricultural crop and produce (including fodder crops for animals), irrigation and crop spraying;
 - (ii) residential gardening (including fruit trees, orchards, grapes, vegetables, trees and plants, lawns, gardens and water features),

(**Irrigation Usage**);

- (c) for the watering and washing of animals, including:
 - (i) commercial and/or agricultural stock, poultry, livestock and bloodstock;
 - (ii) pets and domestic animals (including horses),**(Animal Watering Usage);**
- (d) for other residential purposes, including:
 - (i) bathing, cooking, laundry, general cleaning and washing down vehicles, chattels and the like;
 - (ii) swimming pools and children's play,**(General Residential Usages);**
- (e) for use in the course of businesses conducted from their property, including commercial businesses such as transport businesses (including the washing down of vehicles and dust suppression) and equine businesses, (including horse breeding, training and racing and dust suppression) **(Business Usages);** and
- (f) for recreational purposes, including equestrian activities and other uses incidental to their recreational use and enjoyment of their land.

PARTICULARS

- i) AECOM 2015 PFC Study, pp.14, 59-60.*
- ii) Paragraphs 21 to 24 are repeated.*

C.3 The foreseeable usage of water emanating from the Oakey Base

26. At all material times, by reason of the matters pleaded in paragraphs 16 and 18 to 19, it was reasonably foreseeable that waters, liquids, and soluble materials discharged and/or allowed to escape the Oakey Base which were transmitted to the Oakey Creek would:

- (a) be utilised by residents of Oakey engaged in Oakey Creek Usages; and
- (b) be transmitted to and permeate or percolate into soils over which Oakey Creek passed (including during periods of inundation as pleaded in paragraph 19); and
- (c) be transmitted to groundwater beneath the Oakey Creek and mingle with and flow with that groundwater.

27. At all material times, by reason of the matters pleaded in paragraphs 7, 8 and 21 to 25, it was reasonably foreseeable that waters, liquids, and soluble materials discharged and/or allowed to escape the Oakey Base which were transmitted to the Oakey Aquifers would:
- (a) be extracted and utilised by persons engaged in Oakey Groundwater Usages; and
 - (b) be transmitted to and permeate or percolate into soils to which waters extracted from the Oakey Aquifers were discharged or applied, through Oakey Groundwater Usages (and, in particular, Irrigation Usages); and
 - (c) permeate or percolate into the soils which waters extracted from the Oakey Aquifers were discharged or applied.

D THE COMMONWEALTH'S USE OF AFFF AT THE OAKEY BASE

D.1 Introduction

28. At all material times since the establishment of the Oakey Base, the Commonwealth has been responsible for conducting all of the activities conducted at the Oakey Base.

D.2 The Commonwealth's use of AFFF

29. As part of the operation of the Oakey Base since or about 1977, the Commonwealth has regularly conducted fire drills, firefighting training, fire tests, mock emergency aircraft landing and accident drills, foam training and nozzle (monitor) testing (including the testing of firefighting trucks and equipment), and like operations (**Training and Operation Activities**).

PARTICULARS

- i) *AECOM 2015 PFC Study, pp.22-23.*
 - ii) *Further particulars may be provided after discovery and inspection.*
30. At all material times in the period from 1977 until a time unknown to the Applicants in about 2011, in the use and occupation of the Oakey Base for the purpose of the Training and Operation Activities, the Commonwealth:
- (a) used an aqueous film forming foam fire-fighting product in a liquid form (**AFFF Concentrate**);

- (b) mixed the AFFF Concentrate with water to create a working solution (at a concentration rate of up to 6%) (**AFFF Working Solution**);
- (c) aspirated the AFFF Working Solution into a foam via nozzles on firefighting trucks and other mechanisms (the aspirated foam being known as **AFFF**).

PARTICULARS

- i) Document entitled "AFFF Survey Responses" released under FOI 070/16/17.*
- ii) The AFFF Concentrate used was principally a product known as "Light WaterTM" (being manufactured by the Minnesota Mining and Manufacturing Company (now known as 3M Company) and/or its subsidiary 3M Australia Pty Ltd (**3M**)).*
- iii) At a time unknown to the Applicants in about 2011, the Commonwealth moved to use a training foam called "Ansul" and a foam for operational purposes called "Ansulite": Community Information Session, Army Aviation Centre Oakey (AACO) – Environmental Investigation dated August 2015 and dated 4 December 2015.*

31. The Training and Operation Activities included weekly training (**Weekly Training**) which:

- (a) involved igniting significant quantities of petroleum hydrocarbon fuels and other combustible materials in various areas around the Oakey Base and extinguishing the fire with AFFF, particularly in an area known as the "former fire training ground" (**FFTG**):
 - (i) upon which, up until 1989/90 there was an unlined fire pit, such that AFFF was discharged to bare ground;
 - (ii) upon which, from 1989/90 until about April to July 1997 there was a concrete pad, with a Caribou Large Mock-up (**LMU**), containing bungs to allow release of unburnt fuels and liquids captured in the LMU onto the ground, such that AFFF was discharged to the concrete pad, and then drained from there to bare ground or to the Drainage System;
 - (iii) which was decommissioned between April and July 1997, following which the soil in the area surrounding the FFTG was excavated to a depth of 0.5 metres and an area of approximately 10 metres by 20 metres, and the excavated soil was spread across the surrounding land;
- (b) involved deployment of multiple (two to four) tenders per training event;

- (c) involved discharging approximately 100L to 150L of AFFF Concentrate per tender per training event;
- (d) continued for more than 20 years; and
- (e) resulted in the discharge to bare ground of a very substantial quantity of AFFF Concentrate and AFFF.

PARTICULARS

- i) as to subparagraphs (a)(i)-(ii), (b)-(d), AECOM 2015 PFC Study, pp.22-23, 24, 51-55.*
- ii) as to subparagraph (a)(iii), AECOM, "Stage 1 and Stage 2 Environmental Investigation, Army Aviation Centre Oakey" – Offsite Assessment 2013-2014" (July 2015), p.8.*
- ii) If two to four tenders participated in Weekly Training, an estimated 208,000L to 624,000L of AFFF Concentrate would have been discharged over a 20 year period.*

32. The Training and Operation Activities included daily testing (**Daily Testing**) which:

- (a) involved routine testing to monitor performance of two to four tenders per day, comprising a 20 to 30 second release with hand held lines of AFFF per tender;
- (b) involved discharging approximately 14,600L of AFFF Concentrate per firefighting tender, per year;
- (c) was conducted anywhere on the Oakey Base, however typically near the airfield, fuel compounds and open spaces;
- (d) continued for more than 25 years; and
- (e) resulted in the discharge to bare ground of a very substantial quantity of AFFF Concentrate and AFFF.

PARTICULARS

- i) AECOM 2015 PFC Study, pp.22, 24, 51-55.*
- ii) If two to four primary fire tenders had Daily Testing each day, an estimated 730,000L to 1,460,000L of AFFF Concentrate would have been discharged over a 25 year period during Daily Testing.*

33. The Training and Operation Activities also included daily training (Monday to Friday) (**Daily Training**) which:

- (a) was undertaken at the rear (landside) of the former fire station (**FFS**) on an area approximately 15 m x 30 m, which was grassed;

- (b) was allowed to drain directly to ground or towards the Drainage System;
- (c) continued for more than 25 years; and
- (d) resulted in the discharge to bare ground of a very substantial quantity of AFFF Concentrate and AFFF.

PARTICULARS

- i) AECOM 2015 PFC Study, pp.22, 51-55.*
- ii) An estimated 65,000L of AFFF Concentrate was discharged over a 25 year period during Daily Training.*

34. Further, since about 1977 the Commonwealth also used AFFF Concentrate, AFFF Working Solution and AFFF at the Oakey Base including for:

- (a) fire or possible fire incidents (including fuel spillages) (**Fire Response Activities**), but such uses were infrequent;
- (b) in fire suppression systems in workshops and hangars involving sprayers using AFFF with drains collecting the Spent AFFF and being diverted to a holding tank which was emptied when full; and
- (c) off-label uses including:
 - (i) use of AFFF Working Solution as a general detergent, such as cleaning floors and vehicles, laundering clothing and similar activities; and
 - (ii) celebratory discharges of AFFF (dousing of personnel who were promoted or achieved a significant milestone such as 500 hours of flight training or who were celebrating birthdays),

which resulted in a further unknown quantity of AFFF Concentrate and AFFF being discharged at the Oakey Base.

PARTICULARS

- i) AECOM 2015 PFC Study, pp.22-24.*

35. By reason of the matters pleaded in paragraphs 29 to 33 and/or 34, the Training and Operation Activities resulted in:

- (a) the discharge to bare ground of a very substantial quantity of AFFF at the Oakey Base (such discharged AFFF and its residues being **Spent AFFF**); and/or

- (b) the co-mingling of Spent AFFF with combustion by-products created during Weekly Training and otherwise (**Fire Run-Off**), and the discharge of a very substantial quantity of such material to bare ground at the Oakey Base.

PARTICULARS

- i) *The minimum quantities of AFFF Concentrate were of 1,003,000L (208,000L + 730,000L + 65,000L), which equates to 33,433,333L of AFFF working solution at 3% dilution and 16,716,667L of AFFF working solution at 6% dilution).*
- ii) *The maximum quantities of AFFF Concentrate were 2,149,000L (624,000L + 1,460,000L + 65,000L), which equates to 71,633,333L of AFFF working solution at 3% dilution and 35,816,667L of AFFF working solution at 6% dilution).*
- iii) *Between approximately 20 and 30% of this was discharged during Weekly Training (and the particulars to paragraph 31 are repeated), and so involved co-mingling of Spent AFFF with Fire Run-Off.*

D.3 The Commonwealth's methods for disposal of Spent AFFF

36. At all material times:

- (a) AFFF discharged in the course of the Training and Operations Activities; and/or
- (b) Fire Run-Off created in the course of the Weekly Training, co-mingled with Spent AFFF,

was generally directed by the Commonwealth towards bare ground and the earthen drains comprising the Drainage System.

PARTICULARS

- i) *Paragraphs 31 to 35 are repeated.*
- ii) *In 1994 an underground storage tank was constructed to capture spent AFFF and Fire Run-off from the refuelling area known as Area A2, but has had little use: Coffey Environments Australia Pty Ltd "Stage 2 (Part 2) Environmental Investigation Army Aviation Centre Oakey" (September 2011), p.6.*
- iii) *By in or about 1999, a number of further underground storage tanks were constructed in:*
 - A) *an area known as "Area A2" (including assets known as Asset A83);*
 - B) *an area known as "Area S1" (including assets known as Asset A12);*
 - C) *an area known as "Area C1" (including assets known as Asset C59); and*

D) the area known as the “hot refuelling pad” and “bulk fuel storage” south of Building C2 (Helicopter hanger and maintenance facility) – which underground storage tank was found in 2009 to be leaking into the soil under it,

AECOM 2015 PFC Study, pp.22-23, 33, 53, 55; Intelara “Building C2 Oil Separator and Storage – Report on probable leak and ground contamination (March 2009), pp.4-6.

- iv) Other than the underground storage tanks described in subparagraphs (i) and (ii) above, there was no containment tank to capture Spent AFFF, or any procedure to contain Spent AFFF and Fire Run-Off.*
- v) The Applicants do not, with their present state of knowledge, know the quantities of Spent AFFF and/or Fire Run-Off directed to bare ground and the earthen drains comprising the Drainage System.*

37. At all material times after 1999, to the extent that:

- (a) AFFF discharged in the course of the Training and Operations Activities; and/or
- (b) Fire Run-Off co-mingled with Spent AFFF,

was directed by the Commonwealth to underground storage tanks (which is presently unknown by the Applicants save that it was not always done), those underground storage tanks were ineffective to ensure that liquids contained in them did not leak into the soils below and around them.

PARTICULARS

- i) Particular (ii) to paragraph 36 is repeated.*
- ii) AECOM 2015 PFC Study, p.33.*

D.4 Physical properties of AFFF and Spent AFFF

38. At all material times, AFFF Concentrate was soluble in water.

PARTICULARS

- i) AFFF Concentrate was a manufactured product and particular (ii) to paragraph 30 is repeated.*
- ii) The fact that AFFF Concentrate was soluble was at all times intrinsic to its property as a concentrate.*

39. At all material times AFFF and Spent AFFF had the same properties as AFFF Concentrate (as pleaded in paragraph 38 above).

D.5 The foreseeable flow of Spent AFFF from the Oakey Base

40. At all material times, by reason of the matters pleaded in paragraphs 9 to 27 and 38 to 39, it was reasonably foreseeable that use of AFFF on the Oakey Base as pleaded in paragraphs 29 to 35 and/or 36 to 37 would result in Spent AFFF and/or Fire Run-Off co-mingled with Spent AFFF:
- (a) permeating or percolating into the soil at the Oakey Base;
 - (b) be transmitted to the groundwater beneath the Oakey Base, including the Oakey Aquifers, and mingling and flow with that groundwater, and would thereafter:
 - (i) being extracted and utilised by persons engaged in Oakey Groundwater Usages; and
 - (ii) being transmitted to and permeating or percolating into soils to which waters extracted from the Oakey Aquifers were discharged or applied, through Oakey Groundwater Usages (and, in particular, Irrigation Usages); and
 - (c) mingling with other surface water on the Oakey Base, and flow overland in a generally west/south-west direction, towards and into the surrounding water catchment areas (including via the Drainage System), including into Oakey Creek, and
 - (i) collecting, pooling and ponding in natural depressions in the land;
 - (ii) permeating or percolating into the soil over which the surface water overland flows occurred (and where water collected, pooled and ponded); and
 - (iii) being transmitted to the groundwater beneath the soil over which the surface water overland flows occurred (and where water collected, pooled and ponded), including the Oakey Aquifers.

E THE TOXIC PROPERTIES OF SPENT AFFF

E.1 The potential for AFFF to harm humans and the environment

41. At all material times, AFFF Concentrate was a non-naturally occurring (unnatural) substance.
42. At all material times prior to a time unknown to the Applicants in about 2011, the AFFF Concentrate used by the Commonwealth at the Oakey Base contained, among other constituent ingredients, synthetic per- and poly-fluorinated compound chemical surfactants (**PFCs**), including:
 - (a) perfluoro-octane sulfonate (**PFOS**);
 - (b) perfluoro-octanoic acid (**PFOA**); and
 - (c) other PFCs, such as perfluoro-hexane sulfonate.

PARTICULARS

- i) *the MSDS sheets for "Light WaterTM" disclosed that AFFF Concentrate contained various fluoroalkyl substances.*
 - ii) *It was only in about 2011, that the Commonwealth implemented a policy to restrict use of AFFF containing PFOS/PFOA and introduce a training foam called "Ansul" which the Commonwealth considered to contain no PFOS/PFOA) and a foam for operational purposes called "Ansulite" (which the Commonwealth considered to contain only trace levels of PFOS/PFOA): Community Information Session, Army Aviation Centre Oakey (AACO) – Environmental Investigation dated August 2015 and dated 4 December 2015.*
43. PFCs, and in particular each of PFOS and PFOA (together **PFC Contaminants**) have the following properties:
 - (a) they are persistent in soil and water;
 - (b) they are mobile, and can migrate significant distances with little attenuation;
 - (c) they are bio-accumulative and persistent in the human body and in animals;
 - (d) they are bio-accumulative in plants;
 - (e) they bio-magnify in the food chain; and
 - (f) they are readily absorbed by humans and animals, including by:
 - (i) drinking water containing the compounds;

- (ii) consuming produce from land and/or water containing the compounds;
 - (iii) consuming meat from animals that have grazed on land and/or consumed water or produce grown therewith and/or thereon containing the compounds; and
 - (iv) inhalation, including inhalation of dust generated from surface soils containing the compounds and dermal contact, including dermal contact with impacted soil and groundwater containing the compounds; and
- (g) they are toxic.

PARTICULARS

- i) *URS 2010 Final Report, pp. ix-xii, 120.*
 - ii) *GHD Transfield Services RAAF Williamtown Stage 1 Conceptual Site model for AFFF contamination (March 2013), p(i).*
 - iii) *Coleville & McCarron (Environmental, Heritage and Risk Branch), "Environmental Issues Associated with Defence Use of Aqueous Film Forming Foam (AFFF)" (May 2013), pp.3-4.*
 - iv) *AECOM 2015 PFC Study, pp.1-2, 32-33 & Stage 2 Environmental Investigation – Human Health Risk Assessment, Army Aviation Centre Oakey, 1 September 2016, AECOM, p46.*
 - v) *AECOM, Stage 2C Environmental Investigation – Preliminary Ecological Risk Assessment, Army Aviation Centre Oakey (November 2016), p.77.*
 - vi) *Australian Government, Foreign Affairs and Trade Committee, Submission by the Department of the Environment in relation to Part B: Inquiry into PFOS and PFOA contamination on other Commonwealth, state and territory sites in Australia where firefighting foams containing PFOS and PFOA were used (2016).*
44. By reason of the matters pleaded in paragraphs 41 and/or 42 to 43, AFFF Concentrate was:
- (a) potentially damaging to the environment; and/or
 - (b) potentially causative of adverse health effects in humans.
45. At all material times AFFF and Spent AFFF had the same properties as AFFF Concentrate (as pleaded in paragraphs 41 and/or 42 to 43 and/or 44 above).

E.2 The foreseeable flow and transmission of a toxic substance

46. At all material times, by reason of the matters pleaded in paragraphs 9 to 27 and 38 to 39 and 44 to 45, it was reasonably foreseeable that the use of AFFF on the Oakey Base

as pleaded in paragraphs 29 to 35 and/or 36 to 37 would result in an unnatural soluble substance containing synthetic chemicals:

- (a) permeating or percolating the soil at the Oakey Base;
- (b) being transmitted to the groundwater beneath the Oakey Base, including the Oakey Aquifers, and mingle and flow with that groundwater, and would thereafter:
 - (i) being extracted and utilised by persons engaged in Oakey Groundwater Usages; and
 - (ii) being transmitted to and permeating and percolating into soils to which waters extracted from the Oakey Aquifers were discharged or applied, through Oakey Groundwater Usages (and, in particular, Irrigation Usages);
- (c) mingling with other surface water on the Oakey Base, and flow overland in a generally west/south-west direction, towards and into the surrounding water catchment areas (including via the Drainage System), including into Oakey Creek, and
 - (i) collecting, pooling and ponding in natural depressions in the land;
 - (ii) permeating or percolating into the soil over which the surface water overland flows occurred (and where water collected, pooled and ponded); and
 - (iii) being transmitted to the groundwater beneath the soil over which the surface water overland flows occurred (and where water collected, pooled and ponded), including the Oakey Aquifers.

F THE CONTAMINATION OF OAKEY

F.1 The contamination of Oakey's Groundwater

47. A large and diffuse PFC plume affecting an area of approximately 1,800 hectares emanating from the Oakey Base has been identified in the Oakey Aquifers under the Relevant Area (or part thereof) (**Toxic Plume**).

PARTICULARS

- i) The Toxic Plume is shown in the AECOM 2015 PFC Study, Figures 7a and 7b. See Annexure A.*
- ii) AECOM Stage 2C ESA, p.20.*

48. The Toxic Plume is the result of AFFF discharged on the Oakey Base resulting in Spent AFFF:

- (a) permeating or percolating the soil at the Oakey Base;
- (b) being transmitted to the groundwater beneath the Oakey Base, including the Oakey Aquifers, and mingling and flowing with that groundwater, and thereafter
 - (i) being extracted and utilised by persons engaged in Oakey Groundwater Usages; and
 - (ii) being transmitted to and permeating and percolating into soils to which waters extracted from the Oakey Aquifers were discharged or applied, through Oakey Groundwater Usages (and, in particular, Irrigation Usages);
- (c) mingling with other surface water on the Oakey Base, and flowing overland in a generally west/south-west direction, towards and into the surrounding water catchment areas (including via the Drainage System), including into Oakey Creek, and
 - (i) collecting, pooling and ponding in natural depressions in the land;
 - (ii) permeating or percolating into the soil over which the surface water overland flows occurred (and where water collected, pooled and ponded); and
 - (iii) being transmitted to the groundwater beneath the soil over which the surface water overland flows occurred (and where water collected, pooled and ponded), including the Oakey Aquifers.

PARTICULARS

- i) As to sub-paragraph (a), Bristow Report, p.8, Environmental Issues Associated with Defence Use of Aqueous Film Forming Foam (AFFF) - Sonia Coleville & Nicole McCarron, Environmental Stewardship, Environment, Heritage and Risk Branch (May 2003) p.20 and p.44, Stage 3 Risk Assessment and Remediation Design at Army Aviation*

Centre Oakey - Parsons Brinckerhoff (February 2013), p.8, Final Report, Stage 1 and Stage 2 Environmental Investigation at Army Aviation Centre, Oakey, Queensland 14 October 2010, URS, Page 100.

- ii) As to sub-paragraph (b)(i) and (ii), Dames & Moore, Waste Audit Report for AACO (May 1998), Appendix A, Stage 3 Risk Assessment and Remediation Design at Army Aviation Centre Oakey - Parsons Brinckerhoff (February 2013), p.8, Addendum to Stage 3 Risk Assessment and Remediation Design at Army Aviation Centre Oakey Groundwater Monitoring Event - Parsons Brinckerhoff (February 2013), p.14-15, Stage 3 Risk Assessment and Remediation Design at Army Aviation Centre Oakey Remediation Action Plan – Perfluorocarbons in Groundwater - Parsons Brinckerhoff (June 2013), p.15.;*
- iii) As to sub-paragraph (c)(i), Water Quality Assessment Army Aviation Centre Oakey - - IT Environmental (Australia) Pty Ltd (December 2002), p.8, AECOM Stage 2C ESA, p.v.*
- iv) As to sub-paragraph (c)(ii), Water Quality Assessment Army Aviation Centre Oakey - IT Environmental (Australia) Pty Ltd (December 2002), p.8, Stage 3 Risk Assessment and Remediation Design at Army Aviation Centre Oakey - Parsons Brinckerhoff (February 2013), p.8, AECOM Stage 2C ESA, p.v, Stage 2 (Part 2) Environmental Investigation Army Aviation Centre Oakey, 9 September 2011, Coffey Environments, p.68.*
- v) As to sub-paragraph (c)(iii), Stage 3 Risk Assessment and Remediation Design at Army Aviation Centre Oakey - Parsons Brinckerhoff (February 2013), p.38, AECOM Stage 2C ESA, p.v and 9, Stage 2 (Part 2) Environmental Investigation Army Aviation Centre Oakey, 9 September 2011, Coffey Environments, p.69.*

49. By reason of the matter pleaded in paragraphs 47 and 48, groundwater in the Oakey Aquifers beneath the Relevant Area (including under land owned by the Applicants and many Group Members) has become, and is likely to continue to remain, contaminated by, and a receptor of, PFC Contaminants originally emanating from the Oakey Base.

PARTICULARS

- i) The AECOM Stage 2C ESA modelled the Toxic Plume for 100 years into the future (until 2115), which showed a substantial expansion of the contamination towards to the west and south-west of the Oakey Base on conservative but inaccurate assumptions: (1) that the source has ceased (ie, there is no continuing input of PFOS and PFOA into the water table – specifically from the soil under the Base) and (2) that pumping of Private Bores will continue to extract water at their current rate.*
- ii) The concentration of PFOS in the plume is indicated as largely exceeding health-based guidance values for that compound (before taking into account the additive effect of the additional*

PFC contaminants), issued by the Commonwealth and in particular the Health Based Guidance Values for PFAS For Use In Site Investigations in Australia, issued by the Australian Government Department of Health, and incidentally is subject to certain specific health precautions issued by the Commonwealth in respect of certain activities including consumption of groundwater, incidental ingestion via showering, bathing, swimming pools, wading pools, sprinkler play, consumption of fruit and vegetables grown in soil consumption of eggs, consumption of meat from sheep, cattle and fish, and outdoor use within the extent of the Plume. (Australian Government Department of Health, Health Based Guidance Values for PFAS For Use In Site Investigations in Australia) (AECOM Addendum to Stage 2C Environmental Investigation – Human Health Risk Assessment, Sensitivity Assessment of HHRA Outcomes for Food Standards Australia New Zealand Tolerable Daily Intake Army Aviation Centre Oakey, p.20.)

- iii) *The groundwater in the Oakey Aquifers, under the Applicants' Land has been contaminated with high levels of PFCs:*
 - A) *As at 13 August 2014, water drawn from the Private Bore on the Applicants' Land was found to contain PFOS 17.5µg/l, PFOA 0.63 µg/l, which levels exceed the recommended maximum allowable concentrations set out in Guidelines developed by the United States Environmental Protection Agency Office of Water: Letter dated 14 September 2014 from Department of Defence to the Applicants.*
 - B) *As at 8 February 2016, water drawn from the Private Bore on the Applicants' Land was found to contain PFOS 21.4 µg/l, PFOA 0.76 µg/l, which levels exceed the recommended maximum allowable concentrations set out in Guidelines developed by the United States Environmental Protection Agency Office of Water: Letter dated 14 September 2014 from Department of Defence to the Applicants.*
 - C) *As at the dates mentioned at A) and B), water drawn from the Private Bore on the Applicants' Land exceed the permitted levels for release of water contaminated by fluorinated organic compounds to the environment under the Environmental Management of Fire Fighting Foam Policy issued by the Department of Environment and Heritage Protection as at 7 July 2016.*
- iv) *Particulars of the contamination of the groundwater under the land of Group Members will be given following opt out, the determination of the Applicants' claim and identified common issues at an initial trial and if and when it is necessary for a determination to be made of the individual claims of those Group Members.*

50. By reason of the matters pleaded in paragraph 49, groundwater in the Oakey Aquifers beneath the Relevant Area (including land owned by the Applicants and Group Members) has become, and is likely to continue to remain, potentially hazardous and unfit for Oakey Groundwater Usages (**Groundwater Contamination**).

PARTICULARS

- i) *The groundwater in the Oakey Aquifers under the Applicants' Land is potentially hazardous and unfit for Drinking Usages: paragraphs 41 and 58(g) are repeated.*
 - ii) *The groundwater in the Oakey Aquifers is potentially hazardous and unfit for:*
 - A) *Irrigation Usages because such usages result in the further spreading of PFC Contaminants to soils, and the exposure of people to PFC Contaminants: paragraphs 41, 58(h) and 60 (and the particulars thereto) are repeated.*
 - B) *Animal Watering Usages because such usages may result in the further spreading of PFC Contaminants to soils, and the exposure of people to PFC Contaminants: paragraphs 41, 58(h) and 60 (and the particulars thereto) are repeated.*
 - C) *General Residential Usage and Business Usage because such usages may result in the further exposure of people to PFC Contaminants: paragraphs 41, 58(h) and 60 (and the particulars thereto) are repeated.*
 - iii) *Particulars of the contamination of the groundwater in the Oakey Aquifers under the Group Members' land will be given following opt out, the determination of the Applicants' claim and identified common issues at an initial trial and if and when it is necessary for a determination to be made of the individual claims of those Group Members.*
51. There is no practical or cost-effective way of remediating the Toxic Plume, or the Groundwater Contamination.
52. Further, there is no practical, cost-effective or reliable alternative water supply to the Oakey Aquifers for:
- (a) Irrigation Usages; and
 - (b) use by some Group Members who do not have and have never had a mains water supply.

PARTICULARS

- i) *As to sub-paragraph (a), cost-effective irrigation, especially for agricultural purposes, requires access to groundwater, and the groundwater lying deeper than the Oakey Aquifers is also affected by reason of vertical transmission and the hydraulic interconnectedness between aquifers pleaded in sub-paragraph 14(c).*
- ii) *As to sub-paragraph (b), the reticulated water supply system covers the majority of the residential areas of the township of Oakey but areas bordered by Showgrounds Road, Sexton-Weise Road and Oakey Cooyar Road (including Williams Road,*

Racecourse Road and Janetzki Road) do not currently, and never have had, a mains water supply.

F.2 The contamination of soil in Oakey

53. Soil on the land within the Relevant Area (including soil on land owned by the Applicants and Group Members) has become, and is likely to continue to remain, contaminated by PFC Contaminants emanating from the Oakey Base (**Soil Contamination**), by:
- (a) overland flows of surface water commingled with Spent AFFF (containing PFC Contaminants) from the Oakey Base, such flows occurring in a generally west/south-west direction, including via the Drainage System; and
 - (b) discharge or application of groundwater containing PFC Contaminants extracted from the Oakey Aquifers by persons engaged in Oakey Groundwater Usage to the soils (by, in particular, Irrigation Usages).

PARTICULARS

- i) The soil on the Applicants' Land has been contaminated with high levels of PFCs. As at 9 April 2015, testing of two samples of soil on the Applicants' Land resulted in PFOS 0.0494 and 0.120 mg/kg.*
 - ii) Particulars of the contamination of the soils on lands of Group Members will be given following opt out, the determination of the Applicants' claim and identified common issues at an initial trial and if and when it is necessary for a determination to be made of the individual claims of those Group Members.*
54. There is no practical or cost-effective way of remediating the Soil Contamination.

F.3 The Broader Biota Contamination

55. Further, or alternatively to the Groundwater Contamination and the Soil Contamination, extensive other aspects of the biotic and abiotic matrices within the Relevant Area (including on land owned by the Applicants and Group Members) has become and is likely to continue to remain, contaminated by PFC Contaminants, and be recirculated indefinitely within the Relevant Area (the **Broader Biota Contamination**).

PARTICULARS

- i) Grass, chicken, egg yolks, horse serum, cattle serum and sheep serum all from within the Relevant Area have all been found to contain levels of PFCs due to use of the groundwater: Braunig. J, Baudel. C, Heffernan. A et al., Fate and redistribution of*

*perfluoroalkyl acids through AFFF-impacted groundwater (2017)); AECOM Stage 2C Environmental Investigation – Human Health Risk Assessment, Army Aviation Centre Oakey (**AECOM HHRA**), pages 27 to 31, and Appendix B – Tables 11 to 14; Stage 2C Environmental Investigation – Preliminary Ecological Risk Assessment, Army Aviation Centre Oakey, 1 November 2016, AECOM, Tables T10 to T14.*

- ii) *Ingestion of home-grown produce (including fruit trees, and vegetables etc.) irrigated with impacted groundwater (or impacted surface water) and/or livestock watered with impacted water or fed with impacted grasses or crops (including accumulation of PFAS in eggs from chickens) are secondary sources of PFC contamination: AECOM HHRA at Appendix A, Figure 9.*
- iii) *Secondary sources of PFC contamination, leading to further redistribution of contamination and creation of additional exposure pathways for ongoing contamination of the biota generally (including humans): Braunig. J, Baudel. C, Heffernan. A et al., Fate and redistribution of perfluoroalkyl acids through AFFF-impacted groundwater (2017).*

56. There is no practical, cost-effective way of remediating the Broader Biota Contamination.

F.4 The announcement of the contamination of Oakey

57. On a date shortly before 29 July 2014 (that is, the Relevant Date), the Commonwealth published a flyer (**Contamination Announcement**) which it distributed in Oakey which stated:
- (a) the Department of Defence had undertaken environmental investigations and identified that groundwater beneath the Oakey Base may have been impacted by the historical use of firefighting foams during training activities, held between 1970 and 2005;
 - (b) These foams contained perfluorooctane sulphonate (PFOS) and perfluorooctanoic acid (PFOA);
 - (c) The Department of Defence had commenced targeted water sampling to the west and south-west of the Oakey Base as part of a long-term investigation into the potential human health risks to water users that may be associated with the levels of PFOS and PFOA in groundwater;

- (d) PFOS and PFOA were “emerging contaminants”, and limited research had been done in Australia or overseas into the possible health impacts of these chemicals;
- (e) The Department of Defence was recommending that landholders within the investigation area do not drink any water sourced from underground water bores on their property; and
- (f) A community information session was to be held on 29 July 2014 at 6.00PM to 7.30PM at the Oakey Cultural Centre (Corner of McDonald and Campbell Streets, Oakey).

PARTICULARS

- i) As to sub-paragraphs (a) to (e), Contamination Announcement, p.1.*
- ii) As to sub-paragraph (f), Contamination Announcement, p.2.*

58. On 29 July 2014, the Commonwealth convened the public meeting as publicised in the Contamination Announcement (**July 2014 Public Meeting**) at which its representatives made the following statements:

- (a) The Department of Defence had hosted firefighting training activities from the 1970s to date at the Oakey Base using Aqueous Fire Fighting Foam (AFFF);
- (b) AFFF contained per-fluorinated chemicals (PFCs), which were a group of chemicals used to make coatings and products that resist heat, oil, stains, grease and water;
- (c) The PFCs used included PFOA and PFOS;
- (d) The Department of Defence’s policy:
 - (i) from 2006 was to use only AFFF without PFOS/PFOA;
 - (ii) is to limit the use of current AFFF products to emergency and incident requirements;
 - (iii) is to use dedicated training foams which are less toxic to the environment;
- (e) the Department of Defence had undertaken an investigation of groundwater on the Oakey Base in a designated “Investigation Area” shown on a map, and:

- (i) In 2010, PFOS had been detected in groundwater on the Oakey Base;
- (ii) In 2013 and early 2014, targeted on-base sampling and expanded off-base sampling had been conducted;
- (iii) Bore water samples had detected PFOS in areas designated on a map entitled “PFOS detections – bore water samples” (which map contained different coloured shading to designate different ranges of PFOS detection);
- (f) PFOS and PFOA were “emerging contaminants”, and limited research had been done in Australia or overseas on potential health impacts of these chemicals;
- (g) The Department of Defence was recommending that landholders within the investigation area, (that is, the Relevant Area), do not drink any water sourced from underground water bores on their property; and
- (h) The next challenges included identifying potential risks when using water other than for drinking (such as for watering crops, watering cattle/other livestock, household use and industrial use) and the impacts to Oakey Creek.

PARTICULARS

- i) *The July 2014 Public Meeting was held on 29 July 2014 at the Oakey Cultural Centre (Corner of McDonald and Campbell Streets, Oakey) between 6.00PM and 7.30PM, at which a slideshow presentation entitled “Community Information Session: Army Aviation Centre Oakey Groundwater Investigation”, dated 29 July 2014, was made (**July 2014 Presentation**). The July 2014 Presentation is published on http://www.defence.gov.au/id/_Master/docs/Oakey/OakeyCommInfoPPTFinal28Jul14.pdf.*
- ii) *Each of the statements in subparagraphs (a) to (h) was made in writing in the July 2014 Presentation, and spoken to orally at the meeting by representatives of the Commonwealth.*

F.5 The injurious affectation to land in the Relevant Area

59. Land in the Relevant Area (including the land of the Applicants and Group Members) has become, and is likely to remain:
- (a) affected by Groundwater Contamination; and/or
 - (b) affected by Soil Contamination and/or

- (c) affected by the Broader Biota Contamination.

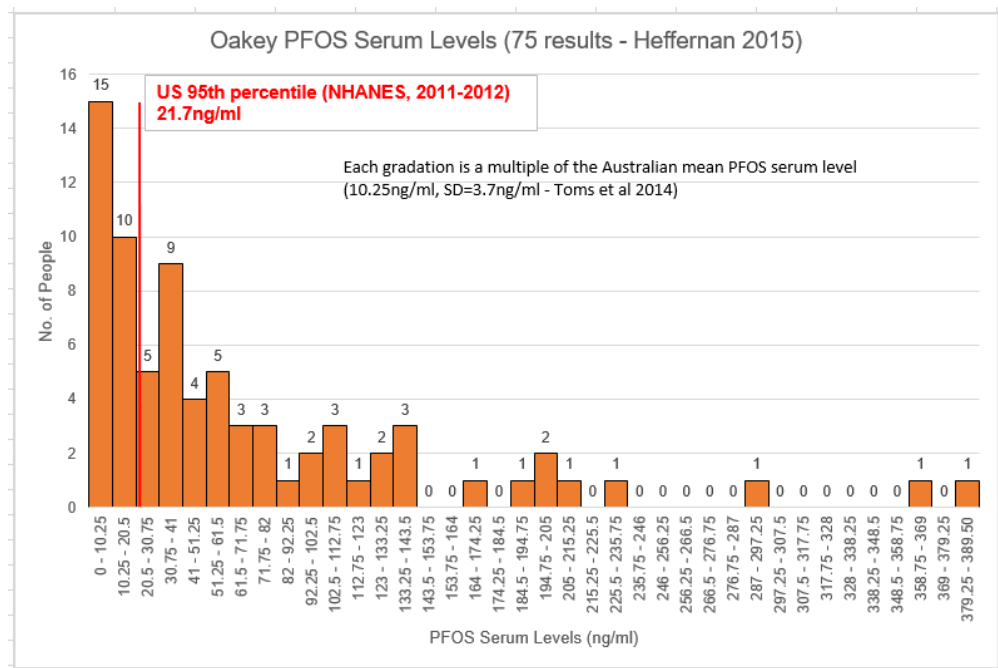
PARTICULARS

- i) As to subparagraph (a), paragraphs 49 to 50 are repeated.
- ii) As to subparagraph (b), paragraphs 52 to 53 are repeated.
- ii) As to subparagraph (c), paragraphs 54 to 55 are repeated.

60. Further, or alternatively, by reason of the Groundwater Contamination and/or the Soil Contamination, and/or the Broader Biota Contamination land in the Relevant Area (including the land of the Applicants and Group Members) has become, and is likely to remain land, of which occupiers and produce, livestock and biota from which, have ongoing and largely unavoidable exposure to PFC Contaminants through multiple potential pathways (**Ongoing Contaminant Exposure**).

PARTICULARS

- i) Paragraphs 49 to 58 are repeated.
- ii) AECOM HHRA, p.ii, 21, 22, 43-54.
- iii) Blood serum testing of 75 persons within the Relevant Area in 2015 indicated that approximately 65% of the PFOS blood results are above the US 95th percentile (that is, statistically abnormal) as indicated in the following histogram:



- iv) Braunig. J, Baudel. C, Heffernan. A et al., Fate and redistribution of perfluoroalkyl acids through AFFF-impacted groundwater (2017)).

61. Further, or alternatively, there exists a material risk that:

- (a) land in the Relevant Area (including land owned by the Applicants and Group Members) may be recorded on the environmental management register or the contaminated land register (**EMR/CLR**) established pursuant to s 540A(1)(d) of the *Environmental Protection Act 1994* (Q) (**EPA(Q)**), pursuant to ss 371 or 372 of the EPA(Q); and
- (b) owners of land in the Relevant Area (including land owned by the Applicants and Group Members) may be obligated to disclose to prospective purchasers that land is and/or that there is a risk that land may be contaminated by PFC Contaminants (with any contract of sale subject to rescission if disclosure is not made).

PARTICULARS

- i) *As to subparagraph (a):*
 - A) *Land may be placed on the EMR/CLR if it is “contaminated land”, that is, if it is contaminated by a “hazardous contaminant”, being a contaminant that, if, improperly treated, stored, disposed of or otherwise managed is likely to cause serious or material environmental harm because of its quantity, concentration, acute or chronic toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity or flammability or its physical, chemical or infectious characteristics.*
 - B) *PFOS/PFOA are “emerging contaminants”, and subparagraphs 56(d) and 57(f) are repeated. Further, a number of lots on the Oakey Base have been placed on the EMR, namely 1/CP851106, 1/SP208379, 2/RP113524, 4/RP88219 by reason of the land being subject to a hazardous contaminant described as “levels of fluorinated organic compounds exceeding the adopted health base criteria identified on site from firefighting foam used in training exercises between 1970 and 2005.”*
- ii) *The obligations in subparagraph (b) arise under ss 408 of the EPA(Q) if land is recorded on the EMR/CLR and/or at common law in respect of the risk of contamination to land.*

62. Further, or alternatively, by reason of the matters pleaded in paragraphs 47 to 61, there exists a material risk that by reason of the Groundwater Contamination and/or the Soil Contamination and/or the Broader Biota Contamination:

- (a) persons may be unable to conduct agricultural businesses or activities growing crops, feedstock or producing livestock on land in the Relevant Area at all and/or with the same degree of profitability;

- (b) persons may be unable to conduct equine businesses or activities on land in the Relevant Area, breeding, agisting or training bloodstock at all and/or with the same degree of profitability.

PARTICULARS

- i) Paragraphs 43 is repeated, so far as the properties of PFC Contaminants is concerned.*
- ii) Paragraphs 44 and 57 to 58 are repeated, so far as the potentially adverse and/or uncertain health impacts for humans of exposure to PFC Contaminants is concerned.*
- iii) There is a material risk that persons who are participants in and supply meat which is said to be compliant with the Aus-Meat Limited "Livestock Production Assurance Program" from land within the Relevant Area may be found to be non-compliant with the Rules for the Livestock Production Assurance Program (Rule 14.2), and so be unable to sell meat with that accreditation.*
- iv) There is a material risk that persons who supply stock feeds that are grown within the Relevant Area and provide a commodity vendor declaration under the LPA may be unable to state that the stock feeds are free of chemical residue and may be obliged to disclose the possible presence of PFOS/PFOA.*
- v) There is a material risk that the exposure of bloodstock to PFOS/PFOA may involve exposing them to a contaminant with potentially adverse and/or uncertain health impacts.*

63. By reason of the matters pleaded in paragraphs 47 to 61, land in the Relevant Area has become, and is likely to remain:

- (a) land which is, or may be perceived by prospective purchasers of land to be, unfit for residential purposes or human occupancy because occupiers and visitors have ongoing and largely unavoidable exposure to PFC Contaminants through multiple potential pathways;
- (b) land which is, or may be perceived by prospective purchasers of land to be unfit for agricultural purposes, including use for growing crops for sale for human consumption, growing feedstock for sale for livestock intended for sale for human consumption, pasture for livestock intended for sale for human consumption and for reasonable use for breeding, agistment or training of bloodstock.

PARTICULARS

- i) As to subparagraph (a), paragraphs 58 to 60 are repeated.*
- ii) As to subparagraph (b), paragraph 61 is repeated.*

64. By reason of the matters pleaded in paragraph 63, land in the Relevant Area has become, and is likely to remain, injuriously affected in its value (**Contamination Land Value Affection**).

PARTICULARS

- i) *The quantum of the adverse affection on the value of the Applicants' Land will be particularised following service of the Applicants' opinion evidence in chief.*
- ii) *The quantum of the adverse affection on the value of the land of Group Members will be given following opt out, the determination of the Applicants' claim and identified common issues at an initial trial and if and when it is necessary for a determination to be made of the individual claims of those Group Members.*

F.6 The injurious affection to businesses in the Relevant Area

65. By reason of the matters pleaded in paragraphs 47 to 61 and/or 62 to 63, businesses operating from land in the Relevant Area have become, and are likely to remain:
- (a) businesses operating from land which is, or may be perceived by prospective purchasers of businesses to be, unfit for human occupancy because occupiers and visitors have ongoing and largely unavoidable exposure to PFC Contaminants through multiple potential pathways;
 - (b) businesses operating from land which is unfit for conducting business growing crops for sale for human consumption, growing feedstock for sale for livestock intended for sale for human consumption, pasture for livestock intended for sale for human consumption and for reasonable use for breeding, agistment or training of bloodstock; and
 - (c) businesses operating in an area which is economically retarded by reason that actual and prospective consumers of business services perceive it to be affected by the Groundwater Contamination and/or the Soil Contamination and/or the Broader Biota Contamination and/or the Contamination Land Value Affection
66. By reason of the matters pleaded in paragraph 65, businesses operating from land in the Relevant Area have become, and are likely to remain injuriously affected in their profitability and/or value (**Contamination Business Affection**)

F.7 The reasonable foreseeability of the injurious affectation to the value of land and businesses in the Relevant Area

67. At all material times, by reason of the matters pleaded in paragraphs 9 to 27 and 38 to 39 and 44 to 46, it was reasonably foreseeable that use of AFFF on the Oakey Base as pleaded in paragraphs 29 to 35 and/or 36 to 37 would result in:

- (a) the Groundwater Contamination;
- (b) the Soil Contamination;
- (c) the Broader Biota Contamination;
- (d) the Contamination Land Value Affectation; and/or
- (e) the Contamination Business Affectation.

G THE COMMONWEALTH'S ACTS AND OMISSIONS

G.1 The Commonwealth's knowledge

G.1.1 *The Commonwealth's knowledge of the Oakey Base and its surrounds*

68. At all material times, the Commonwealth knew, or ought reasonably to have known each of:

- (a) the matters pleaded in paragraphs 6 to 12 above;
- (b) the matters pleaded in paragraphs 13 and 14(a)-(b) above;
- (c) the matters pleaded in paragraphs 15 to 16 above; and
- (d) the matters pleaded in paragraph 17 above.

PARTICULARS

- i) as to sub-paragraph (a), these were natural features which ought reasonably to have been known to a reasonable person occupying the land comprising the Oakey Base.*
- ii) as to sub-paragraph (b), these were natural features which ought reasonably to have been known to a reasonable person occupying the land comprising the Oakey Base, and who engaged in the activities pleaded in paragraph 16 above.*
- iii) as to sub-paragraph (c), these were artificial features which the Commonwealth developed, constructed, upgraded and utilised (as pleaded in paragraphs 15 to 16 above).*

- iv) *as to sub-paragraph (d), this ought reasonably to have been known to a reasonable person who knew or ought reasonably to have known of the matters referred to in sub-paragraphs (a) to (c) above.*

G.1.2 The Commonwealth's knowledge of water use at Oakey

69. At all material times, the Commonwealth knew, or ought reasonably to have known each of:
- (a) the matters pleaded in paragraph 18 to 20 above;
 - (b) the matters pleaded in paragraphs 21 to 24 above;
 - (c) the matters pleaded in paragraph 25 above; and
 - (d) the matters pleaded in paragraphs 26 and 27.

PARTICULARS

- i) *as to sub-paragraph (a), these were matters which were readily observable to, and ought reasonably to have been known by a reasonable person occupying the land comprising the Oakey Base, having regard to its proximity to the township of Oakey and Oakey Creek.*
- ii) *as to sub-paragraph (b), these were matters which were readily observable to, and ought reasonably to have been known by a reasonable person occupying the land comprising the Oakey Base, having regard to its proximity to the township of Oakey, especially having regard to the visibility of Private Bores on private land from numerous public roads in and around the township of Oakey, and general knowledge as to the use of Council Bores prior to 1997.*
- iii) *as to sub-paragraph (c), this ought reasonably to have been known to a reasonable person who knew or ought reasonably to have known of the matters referred to in sub-paragraphs (a) and (b) above.*
- iv) *as to sub-paragraph (d), this ought reasonably to have been known to a reasonable person who knew or ought reasonably to have known of the matters referred to in sub-paragraphs (a) to (c) above.*

G.1.3 The Commonwealth's knowledge of the potential flow of Spent AFFF and Fire Run-Off from the Oakey Base

70. At all material times, the Commonwealth knew, or ought reasonably to have known each of:
- (a) the matters pleaded in paragraphs 29 to 37;

- (b) the matters pleaded in paragraphs 38 to 39;
- (c) the matters pleaded in paragraph 40.

PARTICULARS

- i) as to sub-paragraph (a), these were matters known to the Commonwealth as the entity responsible for conducting the Training and Operation Activities, and using AFFF Concentrate, AFFF Working Solution and AFFF, and disposing of the same.*
- ii) as to sub-paragraph (b), these were matters which were readily observable to, and ought reasonably to have been known by a reasonable person using AFFF Concentrate, AFFF Working Solution and AFFF.*
- iii) as to sub-paragraph (c), this ought reasonably to have been known to a reasonable person who knew or ought reasonably to have known of the matters referred to in sub-paragraphs (a) and (b) above, together with the matters pleaded in sub-paragraph 67(d).*

G.1.4 The Commonwealth's knowledge of the toxic properties of Spent AFFF and Fire Run-Off

71. At all material times from 1977, the Commonwealth ought reasonably to have known that Spent AFFF and/or Fire Run-Off were:

- (a) potentially damaging to the environment; and/or
- (b) potentially causative of adverse health effects in humans.

PARTICULARS

- i) See Annexure C.*
72. Further, or alternatively, at all material times from 19 February 1991, alternatively 3 June 1996, alternatively, June 1997, alternatively May 1998, the Commonwealth knew that its Training and Operations Activities at the Oakey Base using AFFF were:

- (a) potentially damaging to the environment; and/or
- (b) potentially causative of adverse health effects in humans.

PARTICULARS

- i) As to sub-paragraph (a), see Annexure C, Items C3(a), C3(b), C3(c) and C3(d);*

- ii) *As to sub-paragraph (b), the matters referred to in particular (i) involved knowledge of the contamination of groundwater, and it may be inferred that a person who knew that groundwater was contaminated also knew that there existed a potential for adverse health effects in humans who may consume groundwater.*

73. Further, or alternatively, at all material times from no later than 16 May 2000, the Commonwealth knew that AFFF and Spent AFFF was:

- (a) potentially damaging to the environment; and/or
- (b) potentially causative of adverse health effects in humans,

because it contained PFCs, namely PFOS.

PARTICULARS

- i) *See Annexure C, Item C2(u).*

74. Further, or alternatively, at all material times from no later than May 1998, alternatively 13 February 2002, alternatively December 2002, alternatively May 2003, alternatively May 2005 the Commonwealth knew or ought reasonably to have known that AFFF and Spent AFFF had contaminated groundwater under the Oakey Base.

PARTICULARS

- i) *See Annexure C, Item C3(d), C6(b), C6(c), C6(e) and C6(g).*

G.2 The Commonwealth's conduct

G.2.1 The Commonwealth's deliberate conduct

75. At all material times, the Commonwealth's:

- (a) use of AFFF in the Training and Operations Activities, as pleaded in paragraphs 28 to 35; and/or
- (b) method of disposal of AFFF and Spent AFFF, as pleaded in paragraph 36,

was deliberate.

G.2.2 The Commonwealth's careless conduct

76. Further, or alternatively, by reason of the matters pleaded in paragraphs 28 to 37 at all material times on and after each of the times identified in paragraphs 70, 71 and 72, the Commonwealth carelessly:

- (a) did the following acts:

- (i) it allowed large quantities of AFFF to be discharged to bare ground;
 - (ii) it allowed Spent AFFF and Fire Run-Off to flow directly onto bare ground in large quantities;
 - (iii) it allowed Spent AFFF and Fire Run-Off to permeate or percolate into the soil at the Oakey Base;
 - (iv) it allowed Spent AFFF and Fire Run-Off to be transmitted to the groundwater beneath the Oakey Base, including the Oakey Aquifers (where it was likely to mingle with groundwater underlying areas off-base in the Relevant Area);
 - (v) it allowed Spent AFFF and Fire Run-Off to drain into the surrounding water catchment areas (including via the Drainage System), including into Oakey Creek; and/or
 - (vi) to the extent it stored Spent AFFF, it designed, engineered and/or constructed storage tanks in a manner that failed to avoid leakage to the surrounding environment and/or failed to adequately avoid soil movement causing a compromise of the integrity of the storages;
- (b) made the following omissions:
- (i) it failed to investigate and assess, or to do so adequately, the risks associated with the use of AFFF before using, or continuing to use AFFF;
 - (ii) it failed to restrict, or to do so adequately, the use of AFFF only to Fire Response Activities;
 - (iii) it failed to take any or any adequate steps to contain or limit the use of AFFF in Training and Operations Activities;
 - (iv) it failed to take any or any adequate steps to contain, capture, clean up and securely dispose of Spent AFFF and Fire Run-Off, such that it did not:
 - (A) flow directly onto bare ground;
 - (B) permeate or percolate into the soil at the Oakey Base;

- (C) become transmitted to the groundwater beneath the Oakey Base, including the Oakey Aquifers (where it was likely to mingle with groundwater underlying areas off-base in the Relevant Area);
- (D) drain into the surrounding water catchment areas (including via the Drainage System), including into Oakey Creek;
- (v) it failed to store wastewater from the use of AFFF in impermeable pits or tanks which did not leak into surrounding soil (so as to avoid leakage to the surrounding environment and/or soil movement causing a compromise of the integrity of the storages);
- (vi) it failed to restrict the use of the agricultural irrigation bores located on the land leased by the Commonwealth to others (as pleaded in paragraph 6 above) at any time after the time when it knew or ought reasonably to have known that groundwater was contaminated, as pleaded in paragraph 74;
- (vii) it failed to take any or any adequate steps to remediate the contamination of the groundwater under the Oakey Base at any time after the time when it knew or ought reasonably to have known that groundwater was contaminated, as pleaded in paragraph 74 (to the extent, which is unknown to the Applicant, that the contamination may at one time have been remediable).

PARTICULARS

- i) As to subparagraph (a)(i), paragraphs 30 to 34 are repeated.*
- ii) As to subparagraph (a)(ii), paragraphs 35 to 36 are repeated.*
- iii) As to subparagraph (a)(iii), paragraphs 35 to 36 and 47 to 48 are repeated.*
- iv) As to subparagraph (a)(iv), paragraphs 47 to 48 are repeated.*
- v) As to subparagraph (a)(v), paragraph 36 is repeated.*
- vi) As to subparagraph (a)(vi), paragraph 37 is repeated.*
- vii) As to subparagraph (b)(i), paragraphs 29 to 37 and 71 to 73 are repeated.*
- viii) As to subparagraph (b)(ii), paragraphs 30 to 33, 34(b) to (c) and 35 are repeated.*
- ix) As to subparagraph (b)(iii), paragraphs 30 to 35 are repeated.*
- x) As to subparagraph (b)(iv), paragraphs 30 to 35 and 47 to 48 are repeated.*

- xi) As to subparagraph (b)(v), paragraph 37 is repeated.*
- xii) As to subparagraph (b)(vi), paragraphs 6 and 74 are repeated;*
- xiii) As to .subparagraph (b)(vii), paragraphs 51, 54 and 56 are repeated.*

77. Further, or alternatively, the Commonwealth:

- (a) failed, at all material times after each of the times identified in paragraphs 72 and/or 73 and/or 74 (**Actual Knowledge Dates**) prior to the Relevant Date, to warn persons resident in the Relevant Area that:
 - (i) it had been using AFFF at the Oakey Base since or about 1977;
 - (ii) Spent AFFF had permeated and percolated into the soil at the Oakey Base and entered and/or contaminated the Oakey Aquifers; and/or
 - (iii) Spent AFFF was:
 - (A) potentially damaging to the environment; and/or
 - (B) potentially causative of adverse health effects in humans; and/or
- (b) failed, at all material times after the inception of the *National Environmental Protection (Assessment of Site Contamination) Measure 1999*, Volume 1, Ch6(6), to comply with that measure by providing all relevant information on site contamination for persons resident in the Relevant Area.

H THE COMMONWEALTH'S LIABILITY

H.1 Nuisance

H.1.1 Liability in nuisance

78. By its use of the Oakey Base as pleaded in paragraphs 29 to 37 and 75 and/or 76, the Commonwealth has created, and continued, an interference with the use and enjoyment of the land owned by the Applicants and Group Members (**the Nuisance**), in that:
- (a) they are no longer able safely to use Private Bores on their land to access the Oakey Aquifers as a water supply for Oakey Groundwater Usages, given the Oakey Aquifers are irretrievably contaminated (and paragraph 51 is repeated);

- (b) their soil has sustained Soil Contamination, and such contamination is irreparable (and paragraph 54 is repeated);
- (c) their land is affected by the Broader Biota Contamination, and such contamination is irreparable (and paragraph 56 is repeated);
- (d) those occupying their land are subject to the Ongoing Contaminant Exposure.

PARTICULARS

- i) The Applicants' use and enjoyment of the Applicants' Land has been interfered with by reason of the Groundwater Contamination, the Soil Contamination and/or the Broader Biota Contamination, and particular (iii) to paragraph 49, particular (i) to paragraph 50 and particular (i) to paragraph 53 are each repeated.*
- ii) The interference with the land of Group Members will be given following opt out, the determination of the Applicants' claim and identified common issues at an initial trial and if and when it is necessary for a determination to be made of the individual claims of those Group Members.*

79. Further, by reason of the matters pleaded in paragraphs 17, 26, 27, 40, 46 and 67 and/or 68 to 74, at all material times it was reasonably foreseeable to a reasonable person in the Commonwealth's position that persons owning land or businesses in the Relevant Area (including the Applicants and Group Members) would suffer loss by the Commonwealth's use of the Oakley Base as pleaded in paragraphs 29 to 37, being:

- (a) pure economic loss, in the form of diminution in the value of land in the Relevant Area; and/or
- (b) pure economic loss, in the form of diminution in the value of businesses conducted on land in the Relevant Area.

PARTICULARS

- i) Paragraphs 17, 26, 27, 40, 46 and 67 and/or 68 to 74 are repeated*

80. By reason of the matters pleaded in paragraphs 78 to 79, the Nuisance constitutes a substantial and unreasonable interference with the use and enjoyment of the land owned by the Applicants and Group Members.

H.1.2 Causation, loss and damage

81. The Nuisance directly caused:

- (a) the Groundwater Contamination (as pleaded in paragraphs 50);
 - (b) the Soil Contamination (as pleaded in paragraph 53);
 - (c) the Broader Biota Contamination (as pleaded in paragraph 55);
 - (d) the Contamination Land Value Affectation (as pleaded in paragraph 64); and/or
 - (e) the Contamination Business Affectation (as pleaded in paragraph 65), and
- the Applicants and Group Members have thereby suffered loss and damage.

PARTICULARS

- i) *The First and Second Applicants have suffered loss being:*
 - A) *Diminution in the value of the Applicants' Land (including by development of that land to conduct an equine horse training business);*
 - B) *Loss of opportunity to acquire land in a different area;*
 - C) *Wasted expenditure in developing the Applicants' Land so that it could accommodate an equine horse training business;*
 - D) *Distress, annoyance and inconvenience;*
- ii) *The First Applicant has also suffered loss by reason of inability to develop his horse training activities from a hobby into a profitable equine business as a licensed horse trainer on the Applicants' Land;*
- iii) *The Third Applicant has suffered loss being:*
 - A) *Diminution in the value of the Applicants' Business;*
 - B) *Loss of profits;*
- iv) *Further particulars of the Applicants' loss (and the quantum thereof) will be particularised following the service of the Applicants' evidence (including opinion evidence) in chief;*
- v) *Particulars of the losses of Group Members will be given following opt out, the determination of the Applicants' claim and identified common issues at an initial trial and if and when it is necessary for a determination to be made of the individual claims of those Group Members.*

H.1.3 Aggravated and exemplary damages

82. Further, on and from each of the Actual Knowledge Dates, by continuing the Nuisance by:
- (a) continuing to do the acts as pleaded in paragraph 75 and/or sub-paragraph 76(a) (and each of them); and/or

- (b) continuing to fail to do the things as pleaded in sub-paragraph 76(b) (and each of them),

in circumstances where it had the knowledge as pleaded in paragraphs 68 to 74, the Commonwealth engaged in aggravating conduct, and the Applicants and Group Members claim aggravated damages.

- 83. Further, or alternatively, on and from each of the Actual Knowledge Dates, by continuing the Nuisance by:

- (a) continuing to do the acts as pleaded in paragraph 75 and/or sub-paragraph 76(a) (and each of them); and/or
- (b) continuing to fail to do the things as pleaded in sub-paragraph 76(b) (and each of them),

in circumstances where it had the knowledge as pleaded in paragraphs 68 to 74, the Commonwealth engaged in conduct in contumelious disregard for the rights of the Applicants and Group Members, and the Applicants and Group Members claim exemplary damages.

H.2 Negligence

H.2.1 Duty of care

- 84. At all material times, persons other than the Commonwealth (including the Applicants and Group Members) had no capacity to control the activities of the Commonwealth on the Oakey Base, and in particular the use of AFFF on the Oakey Base.
- 85. At all material times, the land in the Relevant Area (including the Applicants' Land, the land on which the Applicants' Business was conducted, the land owned by Group Members, and the land upon which Group Members' businesses were conducted) was physically proximate to the Oakey Base.
- 86. At all material times, by reason of the matters pleaded in paragraphs 84 to 85 persons:
 - (a) owning, or considering purchasing land in the Relevant Area;
 - (b) owning, or considering acquiring businesses in the Relevant Area,
 (including the Applicants and Group Members) were in a position of vulnerability.

87. By reason of the matters pleaded in paragraphs 17, 26, 27, 40, 46 and 67 and/or 68 to 74, a reasonable person in the Commonwealth's position would have foreseen a reasonably foreseeable and not insignificant risk of harm to persons owning, or acquiring land or businesses in the Relevant Area (including the Applicants and Group Members) by the Commonwealth's use of AFFF on the Oakey Base as pleaded in paragraphs 29 to 37, being:

- (a) pure economic loss, in the form of diminution in the value of their land;
- (b) pure economic loss, in the form of diminution in the value, or profitability, of businesses conducted on land in the Relevant Area,

(the **Risk of Harm**).

PARTICULARS

- i) Paragraphs 17, 26, 27, 40, 46 and 67 and/or 68 to 74 are repeated*

88. By reason of the matters pleaded in paragraphs 84 to 87, the Commonwealth owed a duty to each and all of the Applicants and Group Members to exercise reasonable care, in the use of AFFF on the Oakey Base not to cause:

- (a) pure economic loss, in the form of diminution in the value of land in the Relevant Area;
- (b) pure economic loss, in the form of diminution in the value, or profitability, of businesses conducted on land in the Relevant Area,

(**Duty of Care**).

89. By reason of the matters pleaded in paragraphs 84 to 87, on and after each of the Actual Knowledge Dates the Commonwealth owed a duty to each and all of the Applicants and Group Members to exercise reasonable care to warn them that:

- (a) it had been using AFFF at the Oakey Base since or about 1977;
- (b) Spent AFFF had permeated and percolated into the soil at the Oakey Base and entered and/or contaminated the Oakey Aquifers; and/or
- (c) Spent AFFF was:
 - (i) potentially damaging to the environment; and/or

- (ii) potentially causative of adverse health effects in humans.

(Duty to Warn).

H.2.2 Scope of Duty of Care

90. On and from 1 March 1973, the *Clean Waters Act 1971* (Q) (**CWA(Q)**):

- (a) obliged occupiers of land in Queensland (including the Crown) to keep and use premises, conduct any trade, industry or process and operate works and control equipment in or on such premises in such a manner as to avoid “water pollution” by the discharge of wastes therefrom, and so that any matter or thing, whether solid, liquid or gaseous is not placed in or on such premises in such a manner that “water pollution” is caused or is likely to be caused by any part of such matter or thing falling or being carried or washed or blown into any waters or by the percolation of any part of such matter or thing into any waters; and
- (b) defined “water pollution” to mean any change in the properties of any “waters” (meaning all waters of Queensland, including underground waters, rivers, streams and watercourses (including the bed and banks of any such waters) such as to cause or be likely to cause a nuisance or render such waters harmful, detrimental or injurious to public health, safety or welfare or to domestic, commercial, industrial, agricultural recreational or other legitimate uses thereof or to livestock, wild animals, birds, fish or other aquatic life.

PARTICULARS

CWA(Q), ss 4, 8 and 31.

91. On and from 1 March 1995, the *EPA(Q)*:

- (a) obliged persons not to cause “environmental harm”, being any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an “environmental value” (being a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety), unless the person takes all reasonable and practicable measures to prevent or minimise the harm; and
- (b) made it an offence to cause or allow a contaminant to be placed in a position where it could reasonably be expected to cause:

- (i) environmental nuisance (being unreasonable interference or likely interference with an environmental value by, inter alia, an unhealthy condition because of contamination); and
- (ii) material environmental harm (being environmental harm (other than environmental nuisance) that was not trivial or negligible in nature, extent or context or that causes actual or potential loss or damage to property of more than \$5,000.

PARTICULARS

- i) *As to sub-paragraph (a), Environmental Protection Act 1994 (Q), ss 9, 14, 36.*
- ii) *As to subparagraph (b), Environmental Protection Act 1994 (Q), ss 15, 126.*

92. At all material times:

- (a) from 1 March 1973 to 1 March 1995, the content of the CWA(Q) (as pleaded in paragraph 90); and
- (b) from 1 March 1995 onwards, the content of the EPA(Q) (as pleaded in paragraph 91),

bound the Commonwealth by reason of the *Commonwealth Places (Application of Laws) Act 1970* (Cth), and/or informed the scope of what a reasonable person ought do in relation to conduct which it was reasonably foreseeable might result in environmental harm (including the Risk of Harm pleaded in subparagraph (a) of paragraph 87).

93. The Commonwealth had the capacity to exercise control of the Training and Operations Activities and the use of AFFF on the Oakey Base so as to take the precautions which a reasonable person in its position would have taken against the Risk of Harm, by:

- (a) not doing the following acts at all, or alternatively any time after each of Actual Knowledge Dates:
 - (i) allowing large quantities of AFFF to be discharged to bare ground;
 - (ii) allowing Spent AFFF and Fire Run-Off to flow directly onto bare ground in large quantities;

- (iii) allowing Spent AFFF and Fire Run-Off to permeate or percolate into the soil at the Oakey Base;
 - (iv) allowing Spent AFFF and Fire Run-Off to be transmitted to the groundwater beneath the Oakey Base , including the Oakey Aquifers (where it was likely to mingle with groundwater underlying areas off-base in the Relevant Area); and/or
 - (v) allowing Spent AFFF and Fire Run-Off to drain into the surrounding water catchment areas (including via the Drainage System), including into Oakey Creek;
 - (vi) to the extent it stored Spent AFFF, designing, engineering and/or constructing storage tanks in a manner that failed to avoid leakage to the surrounding environment and/or failed to adequately avoid soil movement causing a compromise of the integrity of the storages;
- (b) doing the following things, at any time, or alternatively any time after each of the Actual Knowledge Dates:
- (i) investigating and assessing the risks associated with the use of AFFF before using, or continuing to use, AFFF (and not using it at all);
 - (ii) restricting the use of AFFF only for Fire Response Activities;
 - (iii) taking steps to contain or limit the use of AFFF in the Training and Operations Activities;
 - (iv) taking steps to contain, capture, clean up and securely dispose of Spent AFFF and Fire Run-Off, such that it did not:
 - (A) flow directly onto bare ground;
 - (B) permeate or percolate into the soil at the Oakey Base;
 - (C) become transmitted to the groundwater beneath the Oakey Base, including the Oakey Aquifers (where it was likely to mingle with groundwater underlying areas off-base in the Relevant Area);
 - (D) drain into the surrounding water catchment areas (including via the Drainage System), including into Oakey Creek;

- (v) storing wastewater from the use of AFFF in impermeable pits or tanks which did not leak into surrounding soil (so as to avoid leakage to the surrounding environment and/or soil movement causing a compromise of the integrity of the storages;
- (vi) restricting and/or discontinuing the use of the agricultural irrigation bores located on the land leased by the Commonwealth to others (as pleaded in paragraph 7 above) promptly after the time when it knew or ought reasonably to have known that groundwater was contaminated, as pleaded in paragraph 74;
- (vii) taking steps to remediate the contamination of the groundwater under the Oakey Base promptly after the time when it knew or ought reasonably to have known that groundwater was contaminated, as pleaded in paragraph 74 (to the extent, which is unknown to the Applicant, that the contamination may at one time have been remediable).

H.2.3 Scope of Duty to Warn

94. At all material times after each of the Actual Knowledge Dates, the Commonwealth had capacity to warn the general public (including the Applicants and Group Members) that:
- (a) it had been using AFFF at the Oakey Base since or about 1977;
 - (b) Spent AFFF had permeated and percolated into the soil at the Oakey Base and entered and/or contaminated the Oakey Aquifers; and/or
 - (c) Spent AFFF was:
 - (i) potentially damaging to the environment; and/or
 - (ii) potentially causative of adverse health effects in humans.

H.2.4 Breach of duty

95. By reason of the matters pleaded in paragraphs 29 to 37, 76 and 93, the Commonwealth breached the Duty of Care (**the Negligence**).
96. By reason of the matters pleaded in paragraphs 29 to 37, 77 and 94, the Commonwealth breached the Duty to Warn (**the Negligent Failure to Warn**).

H.2.5 Causation, loss and damage

97. The Commonwealth's Negligence caused:

- (a) the Groundwater Contamination (as pleaded in paragraph 50);
 - (b) the Soil Contamination (as pleaded in paragraph 53);
 - (c) the Broader Biota Contamination (as pleaded in paragraph 55);
 - (d) the Contamination Land Value Affectation (as pleaded in paragraph 64);
 - (e) the Contamination Business Affectation (as pleaded in paragraph 65), and
- the Applicants and Group Members have thereby suffered loss and damage.

PARTICULARS

- i) The particulars to paragraph 81 are repeated.*

98. Further, or alternatively, the Commonwealth's Negligent Failure to Warn caused or materially contributed to the Applicants and some Group Members acquiring land in the Relevant Area, and the Applicants and Group Members have thereby suffered loss and damage.

PARTICULARS

- i) The First and Second Applicants would not have acquired the Applicants' Land were it not for the Commonwealth's Negligent Failure to Warn, and have thereby suffered loss, and particular (i) to paragraph 81 is repeated.*
- ii) The Third Applicant would not have acquired the Applicants' Business were it not for the Commonwealth's Negligent Failure to Warn, and have thereby suffered loss, and particular (iii) to paragraph 81 is repeated.*
- iii) Particulars of the identity of those Group Members who would not have acquired land were it not for the Commonwealth's Negligent Failure to Warn will be given following opt out, the determination of the Applicants' claim and identified common issues at an initial trial and if and when it is necessary for a determination to be made of the individual claims of those Group Members, and particular (ii) to paragraph 81 is repeated.*

H.2.6 Aggravated and exemplary damages

99. Further, on and from each of the Actual Knowledge Dates by:

- (a) continuing to do the acts as pleaded in paragraph 75 and/or sub-paragraph 76(a) (and each of them); and/or

- (b) continuing to fail to do the things as pleaded in sub-paragraph 76(b) (and each of them),

in circumstances where it had the knowledge as pleaded in paragraphs 68 to 74, the Commonwealth engaged in aggravating conduct, and the Applicants and Group Members claim aggravated damages.

100. Further, or alternatively, on and from each of the Actual Knowledge Dates by:

- (a) continuing to do the acts as pleaded in paragraph 75 and/or sub-paragraph 76(a) (and each of them); and/or
- (b) continuing to fail to do the things as pleaded in sub-paragraph 76(b) (and each of them),

in circumstances where it where it had the knowledge as pleaded in paragraphs 68 to 74, the Commonwealth engaged in conduct in contumelious disregard for the rights of the Applicants and Group Members, and the Applicants and Group Members claim exemplary damages.

H.3 Breach of statutory duty

H.3.1 Liability

101. The Oakey Base is situated on Commonwealth land as defined in ss 27 and 525 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**)

102. Pursuant to s 28 of the EPBC Act, the Commonwealth or a Commonwealth agency must not take an action that has, will have, or is likely to have a significant impact on the environment, defined by s 528 non-exhaustively to include:

- (a) ecosystems and their constituent parts, including people and communities;
- (b) natural and physical resources;
- (c) the qualities and characteristics of locations, places and areas;
- (d) heritage values of places; and
- (e) the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b), (c) or (d).

103. By its use of the Oakey Base on and from 16 July 1999, as pleaded in paragraphs 29 to 37 and 75 and/or 76, the Commonwealth took an action or actions that has or is likely to have a significant impact on the environment.

PARTICULARS

- i) *These actions have had such an impact by reason of the matters pleaded in paragraphs 47 to 53, namely the Toxic Plume, the Groundwater Contamination, the Soil Contamination and the Broader Biota Contamination*
- ii) *These actions were likely to have such an impact by reason that they were reasonably foreseeable, by reason of the matters pleaded in paragraphs 17, 26, 27, 49, 46 and 67.*

104. By reason of the matters pleaded in paragraph 103, the Commonwealth has contravened s 28 of the EPBC Act (**EPBC Act Breach**).

H.3.2 Causation, loss and damage

105. The EPBC Act Breach caused:

- (a) the Groundwater Contamination (as pleaded in paragraph 50);
- (b) the Soil Contamination (as pleaded in paragraph 53);
- (c) the Broader Biota Contamination (as pleaded in paragraph 55);
- (d) the Contamination Land Value Affection (as pleaded in paragraph 64);
- (e) the Contamination Business Affection (as pleaded in paragraph 65), and

the Applicants and Group Members have thereby suffered loss and damage arising from the EPBC Act Breach.

PARTICULARS

The particulars to paragraph 81 are repeated.

I CLAIM FOR RELIEF

AND the Applicants claim on their own behalf, and on behalf of Group Members the relief set out in the Originating Application under Part IVA of the *Federal Court of Australia Act 1976* (Cth):

1. Damages (including aggravated and exemplary damages);

2. Further, or alternatively:

- (a) a declaration that by its use of the Oakey Base as pleaded in paragraphs 29 to 37 and 75 and/or 76 of this Statement of Claim, the Commonwealth contravened s 28(1) of the EPBC Act on and from 16 July 1999;
- (b) statutory compensation pursuant to s 500(1) of the EPBC Act;

3. Interest;

4. Costs; and

5. Such further or other relief as the Court thinks fit.

Date: ~~10 July 2017~~ 9 April 2019

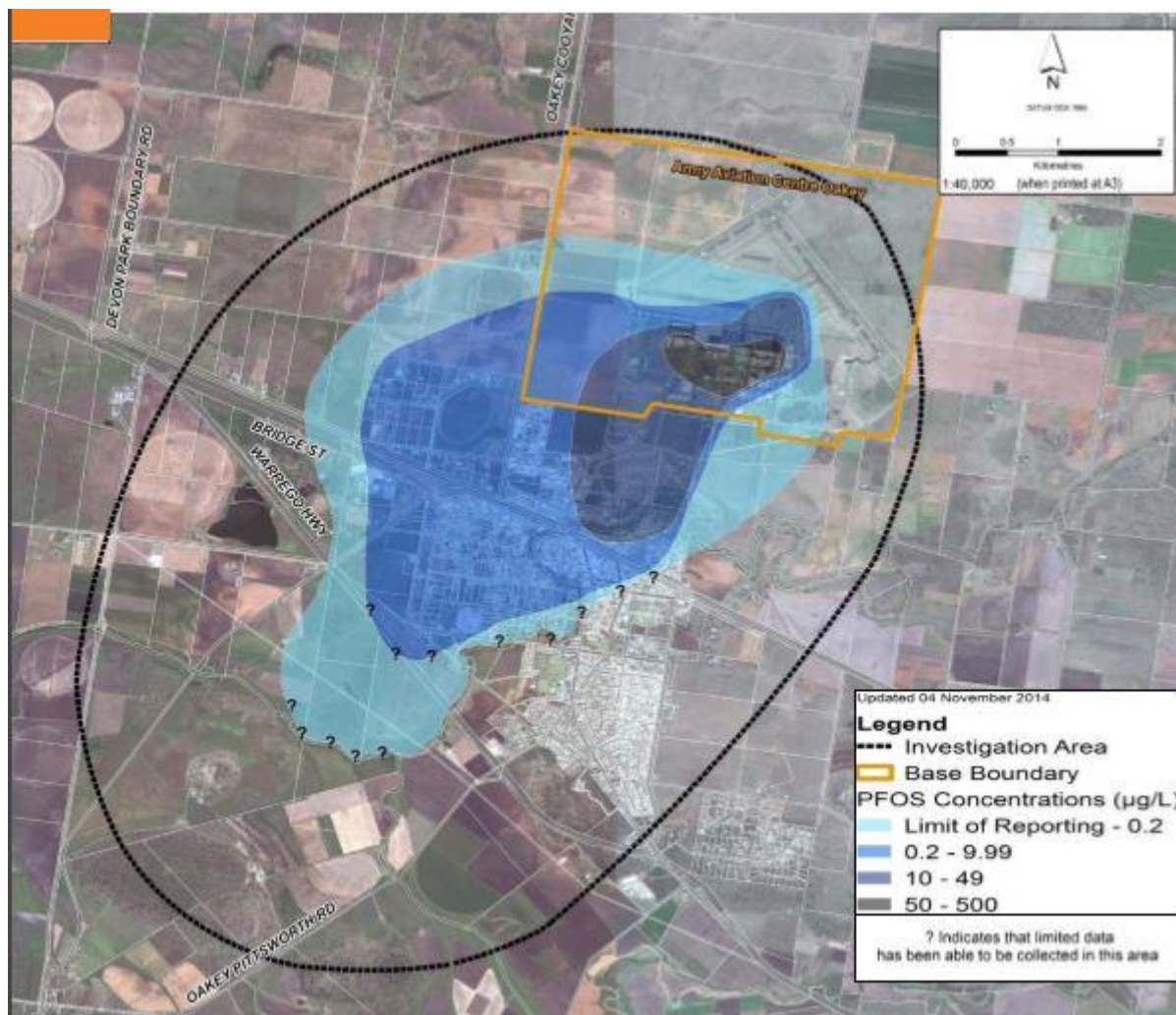


Signed by Joshua Aylward
Lawyer for the Applicants

This pleading was prepared by W.A.D. Edwards of counsel.

ANNEXURE A

(Relevant Area ~ [1])



ANNEXURE B**(Registered Private Bores in the Oakey Investigation Area ~ [21])**

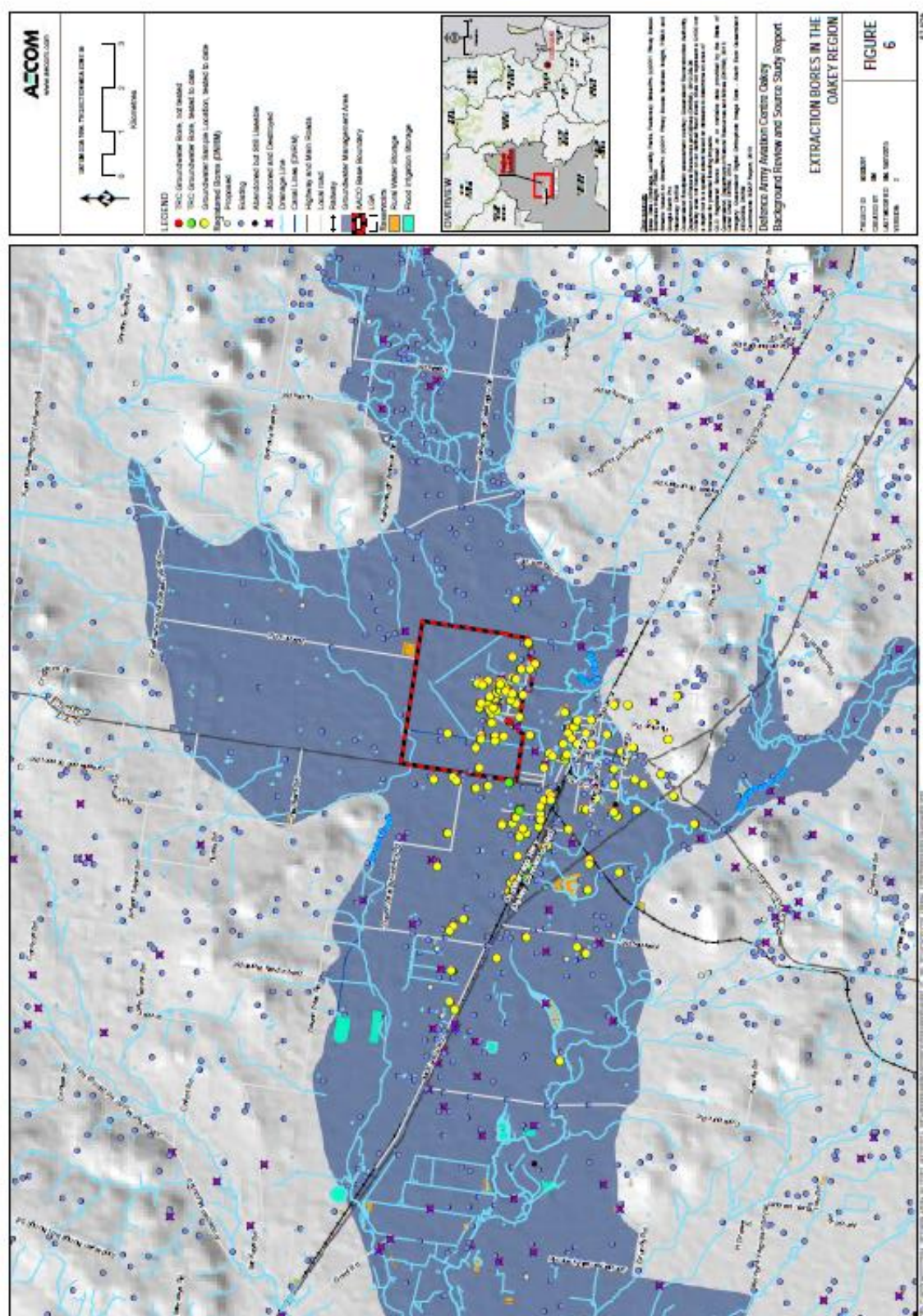
Registered Number	Drilled Date
55115	1/01/1870
18555	1/01/1925
9555	10/10/1928
26102	1/01/1930
9679	1/01/1937
21928	1/01/1939
35983	1/01/1940
87015	1/01/1940
26100	1/01/1940
55008	1/01/1940
26101	1/01/1940
83432	1/07/1944
21923	1/01/1946
52991	1/01/1949
33086	1/01/1949
55135	1/01/1950
52998	10/07/1950
52999	23/11/1950
66668	4/01/1953
26097	1/01/1961
19716	1/01/1965
55134	1/01/1965
16591	1/01/1965
55112	1/01/1965
21897	10/01/1965
21898	10/01/1965
21899	10/01/1965
16592	11/01/1965
16593	12/01/1965
55114	13/04/1965
16579	13/11/1965
26095	1/01/1967
26098	1/01/1967
26096	1/01/1967
26104	1/01/1967
16590	1/01/1967
17516	19/04/1967
17295	4/05/1967
17492	19/07/1967

26009	19/03/1968
17963	22/03/1968
30698	16/12/1968
30701	1/01/1969
33024	26/05/1969
34678	19/12/1969
36256	1/01/1970
35453	4/04/1970
35454	14/04/1970
55136	30/04/1970
35615	22/10/1970
35185	5/12/1970
36426	1/01/1971
36603	21/04/1971
36963	18/05/1971
36726	31/05/1971
37010	7/12/1971
38332	16/06/1972
44238	1/01/1973
43357	22/02/1973
44016	7/04/1973
38661	16/05/1973
43659	25/05/1973
26305	9/07/1973
44070	9/09/1973
48074	5/01/1974
48020	8/01/1974
48019	9/01/1974
48068	24/05/1974
48389	1/01/1976
48390	1/01/1976
48347	21/07/1976
48255	6/09/1976
55021	1/01/1977
48532	1/01/1977
55022	12/09/1977
55023	12/09/1977
52847	14/09/1977
52978	25/03/1978
55167	23/04/1978
55116	24/04/1978
55151	4/10/1978
44594	17/10/1978
56066	17/09/1979
61286	27/09/1979
56631	9/07/1980

64455	18/09/1981
64119	9/01/1982
66502	9/01/1982
64115	11/02/1982
64104	26/04/1982
61496	15/09/1982
66503	2/02/1983
66651	8/06/1983
61124	27/07/1983
66256	28/01/1984
66274	28/06/1984
42231307	26/11/1985
83101	12/12/1986
83038	15/01/1987
71162	11/03/1987
42231381	13/08/1987
42231382	14/08/1987
42231383	17/08/1987
42231384	16/11/1987
42231385	16/11/1987
83202	26/11/1987
83406	16/12/1987
83362	1/01/1988
83380	5/07/1988
83214	5/10/1988
83264	5/12/1988
86756	12/08/1989
83357	20/11/1989
83203	29/11/1989
42231401	2/07/1990
86733	1/09/1990
86806	1/09/1990
42231402	2/09/1990
42231403	2/09/1990
42231404	2/12/1990
83204	1/01/1991
87634	13/03/1992
87138	20/03/1992
87659	8/05/1992
87667	10/06/1992
83211	22/02/1993
87369	7/03/1993
87760	17/06/1993
87870	23/09/1993
87205	2/11/1993
87231	3/12/1993

94158	1/01/1994
87429	27/01/1994
87439	16/04/1994
87489	16/11/1994
94159	6/03/1995
87341	5/06/1995
94710	29/07/1995
94478	20/08/1998
107119	7/12/1998
107225	18/10/1999
107580	16/11/1999
107293	6/08/2000
107294	6/09/2000
119261	2/10/2003
119133	25/11/2003
119324	11/03/2004
119572	7/05/2004
119399	19/10/2004
119400	22/10/2004
119203	10/12/2004
107538	21/02/2005
119727	12/05/2005
119827	15/11/2005
137268	2/03/2006
137669	11/07/2006
137875	13/11/2006
137284	13/11/2006
137675	14/11/2006
137443	20/05/2007
137706	27/07/2007
137030	13/08/2007
147447	26/10/2007
147317	26/12/2008
147190	23/01/2009
147352	8/11/2009
147465	17/11/2009
147464	18/11/2009
147480	16/12/2009
147699	29/07/2011
147157	6/08/2012
147449	14/11/2012
147460	15/11/2012
147503	17/11/2012
147504	18/11/2012
147713	23/12/2012
147873	8/07/2014

147871	8/07/2014
147872	8/08/2014
147908	14/01/2015
147907	15/01/2015
48141	N/A
107527	N/A
26307	N/A
9617	N/A
66066	N/A
19715	N/A
33812	N/A
64442	N/A
26105	N/A
119262	N/A
19555	N/A
9681	N/A
26306	N/A
87056	N/A
107812	N/A
19718	N/A
107619	N/A
42231452	N/A
43699	N/A
19717	N/A
26099	N/A
35511	N/A
19719	N/A
42231265	N/A
9680	N/A



ANNEXURE C

- C1. Prior to 1980, the Commonwealth knew or ought to have known of the following publications:
- (a) Air Force Weapons Laboratory (1974). *Treatability of Aqueous Film-Forming Foams Used for Firefighting*. New Mexico: Air Force Weapons Laboratory, pp.1-82;
 - (b) Krasner, L. Breen, D. and Fitzgerald, P. (1975). *Fire Protection of Large Airforce Hangars*. Norwood: Air Force Weapons Laboratory;
 - (c) US Navy, Air Force and Army (1980). *Membrane Treatment of Aqueous Film Forming Foam (AFFF) Wastes for Recovery of Its Active Ingredients*. Port Hueneme: Georgia Institute of Technology, pp.1-99.
- C2. Prior to 1998, the Commonwealth knew or ought to have known of the following publications (in addition to the publications referred to in C1 above:
- (a) Alger, R. and Johnson, W. (1981). *Evaluation of the North Island A/C Crash/Rescue Training Facility*. Alexandria: Naval Facilities Engineering Command;
 - (b) Salazar, S. (1985). *Toxicity of Aqueous Film Forming Foams to Marine Organisms: Literature Review and Biological Assessment*. San Diego: Naval Ocean Systems Center;
 - (c) Mitchell, J. (1985). *Engineering Technical Letter, 86-8 Aqueous Film Forming Foam Waste Discharge Retention and Disposal*. Washington: Department of the Air Force;
 - (d) Thurman, E., Barber, L. and LeBlanc, D. (1986). Movement and fate of detergents in groundwater: a field study. *Journal of Contaminant Hydrology*, 1(1-2), pp.143-161;
 - (e) Sinovi, R., Tetla, R., Slavich, F. (1987). *Wastewater Characterization and Hazardous Waste Survey*. Texas: USAF Occupational and Environmental Health Laboratory;
 - (f) Sinovi, R., Tetla, R., Slavich, F. (1987). *Wastewater Characterization and Hazardous Waste Survey at George AFB CA*. Texas: USAF Occupational and Environmental Health Laboratory;
 - (g) Slavich, F. and Atterbery, C. (1988). *Wastewater and Hazardous Waste Survey, England AFB, LA*. Texas: US Air Force Occupational Health Laboratory, pp.18
 - (h) Dharmavaram, S., Knowlton, D., Heflin, C. and Donahue, B. (1988). *Hazardous Waste Minimization Assessment*. Champaign: US Army Construction Engineering Research Laboratory, pp.117;

- (i) Andrews, R. (1992). *The Environmental Impact of Firefighting Foam Concentrates*. Strategic Analysis of Fire Prevention Programs. Texas: National Fire Academy;
- (j) Andrews, R. (1992). *The Environmental Impact of Firefighting Foams*. Industrial Fire Safety. Texas: Refinery Terminal Fire Company;
- (k) Holemann, H. (1994). *Environmental Problems Caused by Firefighting Agents*. Wuppertal: International Association for Fire Safety Science;
- (l) Wilkinson, M. (1994). *A Review of Fire Fighting Foams to Identify Priorities for EQS Development*. Almondsbury: National Rivers Authority;
- (m) Darwin, R., Ottman, R., Norman, E., Gott, J. and Hanauska, C. (1995). Foam and the Environment: a Delicate Balance. *NFPA Journal*, (67);
- (n) Lattimer, B., Verdonik, D., Beltel, J. and Hanauska, C. (1997). *Development of Detection Method for Aqueous Film Forming Foam*. Baltimore: United States Air Force Laboratory;
- (o) US Army Corps of Engineers. (1997). *Containment and Disposal of Aqueous Film Forming Foam Solution*. Washington: US Army Corps of Engineers;
- (p) Latham, T. (1998). Safety and Spill Control. *Hazardous Materials Management*, 10(2);
- (q) Naval Facilities Engineering Command. (1980). *Aircraft Fire and Rescue Training Facilities*. Alexandria: Naval Facilities Engineering Command;
- (r) Booz, Allen & Hamilton Inc. (1981). *Fire Fighter Trainer Environmental Considerations Phase II*. Bethesda: Advanced Technology Systems;
- (s) Stern, J., Routley, J. (1996). *Class A Foam for Structural Fire Fighting*. Emmitsburg: National Fire Data Center. "However, class A foams are more environmentally friendly than class B foams, which often must be collected as hazardous waste after use";
- (t) US National Fire Protection Association. (1997). *Foam Environmental Issues*. Quincy: NFPA;
- (u) Moody, C. and Field, J. (1999). Determination of Perfluorocarboxylates in Groundwater Impacted by Firefighting Activity. *Environmental Science and Technology*, 33(16);
- (v) Saam, R., Rakowski, P. and Aydlett, G. (1980). *Treatability of Fire Fighting School Wastewaters: US Navy Compliance with POTW Pretreatment Requirements*. Virginia: US Navy, pp.244-263;
- (w) Garcia, C. (1991). *Water Supply and Service Training*. Washington: Firehouse;
- (x) Brittain, J. (1991). *Foams: The Environmental Challenge*. Reims: Second International Oil and Petrochemical Forum;
- (a) Brittain, J. (1992) Minimizing the Impact of Foam on the Environment is Now a Challenge. *Fire*, 85(1047).

C3. Prior to May 1998, the Commonwealth knew of the following publications:

- (a) Bristow, D. (1991). *Investigation into Waste Disposal Practices Oakey Army Aviation Base and its Effects on Ground Water Quality and Drinking Water Quality for the Oakey Aviation Base and Township of Oakey, December 1990 – January 1991*. Oakey: Oakey Army Aviation Base;
- (b) Sinclair Knight Mertz. (1996). *Environmental Management Plan for Oakey Base*. Oakey: Department of Defence Oakey Army Aviation Centre, pp.59. “...many of the activities at the AACO...have the potential to cause contamination of the environment. These activities include ... Fire training and firefighting equipment operations.”
- (c) Thiess. (1997). *Remediation of Old Fire Training Area*. Oakey: Department of Defence, pp.3-4, 29, 31.
- (d) Dames & Moore. (1998). *Waste Audit Report, Army Aviation Centre Oakey*. Brisbane: Environment Group.
 - (A) stated that the area surrounding the fire station was described as a contaminated site;
 - (B) stated that foam (from fire engine tanks) was described as a contaminant of the area surrounding the fire station;
 - (C) recommended that bunds be provided around paved areas at the area surrounding the fire station to minimise ground water and soil contamination by the foam from fire engine tanks;
 - (D) specifically drew attention to the possibility of contamination of surrounding soil and surface water by poor storage of disused equipment situated on unpaved areas;
 - (E) Specifically recommended that contaminants and nutrients from the Base facilities “*should not pass into the natural groundwater system either directly or via storm (surface) water drainage system*”;
 - (F) Acknowledged that the waste stream from the Base was classified a “*regulated waste*” under the Queensland Environmental Protection Act.

C4. By no later than 16 May 2000, the Commonwealth knew of the following publications (in addition to the publications of which it knew referred to in C3 above (and the publications of which it knew or ought to have known referred to in C1 and C2 above):

- (a) Environmental Protection Agency (2000). *EPA and 3M Announce Phase Out of PFOS*:
 - (A) 3M, the manufacturer of 3M Light Water intended to phase out the production of products containing PFOS;
 - (B) 3M data indicated that PFOS and related chemicals were persistent in the environment, had a strong tendency to accumulate in human and animal tissues and could potentially pose a risk to human health and the environment over the long term; and
 - (C) US EPA would contact foreign governments and domestic and international chemical manufacturers to seek their support for a voluntary phase out of products containing PFOS.
- (b) email received by employees of the Commonwealth (mark.hyman@ea.gov.au and vickersc@worksafe.gov.au) from Charles Auer of United States Environmental Protection on 16 May 2000 at 11.17AM], which stated:

- (A) At page 1 - *"I would like to draw your attention to an important development in the US which concerns a persistent, bioaccumulative, and toxic chemical."*
 - (B) At pages 1 and 2 - *"Following negotiations with EPA, 3M Corporation today announced that it will voluntarily phase out perfluorooctanyl sulfonate (PFOS) chemistry... EPA supports this effort which began as a result of data 3M supplied to the Agency which indicated that these chemicals are very persistent in the environment, have a strong tendency to accumulate in human and animal tissues and, based on recent information, could potentially pose a risk to human health and the environment over the long term. The company plans to exit worldwide from production of these chemicals by the end of the year."*
 - (C) At page 2 - *"Preliminary data indicated to EPA that PFOS is of significant concern on the basis of evidence of widespread human exposure and indications of toxicity in a 2 generation rat study. In addition, EPA's preliminary risk assessment indicated potentially unacceptable margins of exposure (MOEs) for workers and possibly the general population."*
 - (D) At page 3 - *"At the same time, we agree that continued manufacture and use of PFOS represents an unacceptable technology that should be eliminated to protect human health and the environment from potentially severe long terms consequences."*
- (c) 3M (2000). *3M Phasing Out Some of its Specialty Materials:*
- (A) *"The affected product lines represent about two percent of 3M's nearly \$16 billion in annual sales. These include many ScotchgardTM products, such as soil, oil and water repellent products; coatings used for oil and grease resistance on paper packaging; fire-fighting foams; and specialty components for other products. 3M said it plans to substantially phase out production by the end of the year and will work with customers to accomplish as smooth transition."*
 - (B) *"Our decision anticipates increasing attention to the appropriate use and management of persistent materials," said Dr Charles Reich, executive vice president, Specialty Material Markets."*
- C5. Between 16 May 2000 and 2008, the Commonwealth knew or ought to have known of the following publications (in addition to the publications of which it knew referred to in C3 and C4 above (and the publications of which it knew or ought to have known referred to in C1 and C2 above):
- (a) The Federal Register. (2000). *Perfluorooctyl Sulfonates; Proposed Significant New Use Rules*. Washington: The Daily Journal of the United States Government; and/or
 - (b) "Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology. (2002). *Hazard Assessment of Perfluorooctane Sulfonate and its Salts*. Crystal City: Organisation for Economic Co-Operation and Development.
- C6. Between 16 May 2000 and 2008, the Commonwealth knew of the following publications (in addition to the publications of which it knew referred to in C3 and C4 above (and the publications of which it knew or ought to have known referred to in C1 and C2 above):

- (a) National Industrial Chemicals Notification and Assessment Scheme. (2002). *NICNAS Alert No. 1 – Existing Chemicals – Perfluorooctanyl sulfonate (PFOS)*. Sydney: NICNAS.

“The 3M Company stopped manufacturing PFOS chemicals in December 2000 because of concerns about their persistence in the environment and long-term health and environmental effects. PFOS does not biodegrade in the environment.” (2002);
- (b) Chenery, M. Delaney, J. (2002). *Initial Environmental Review for Army Aviation Centre Oakey*. Brisbane: Department of Defence;
- (c) Chenery, M. (2002). *Water Quality Assessment Oakey Aviation Centre*. Brisbane: Department of Defence;
- (d) National Industrial Chemicals Notification and Assessment Scheme. (2003). *NICNAS Alert No.2 – Existing Chemicals – Perfluorooctane sulfonate (PFOS)*. Brisbane: NICNAS;
- (e) Defence Corporate Services Infrastructure Centre. (2003). *Environmental Issues Associated with Defence use of Aqueous Film Forming Foam (AFFF)*. Williamtown: Environmental Stewardship, Environment, Heritage and Risk Branch, pp. iii-iv, 3-4, 13, 17, 19-20, 24;
- (f) Defence Corporate Services Infrastructure Centre. (2003). *RAAF Base Williamtown Fire Training Pit*. Williamtown: Department of Defence;
- (g) Sinclair Knight Mertz. (2005). *Department of Defence Stage 1 Environmental Investigation*. Brisbane: Department of Defence Oakey Army Aviation Centre;
- (h) Directorate of Environmental Impact Management. (2007). *Environmental Guidelines for Management of Fire Fighting Aqueous Film Forming Foam (AFFF) Products*. Canberra: Department of Defence;
- (i) Department of Defence. (2008). *Aqueous Film Forming Foam (AFFF) Procurement and Usage Interim Policy*. Canberra: Department of Defence.

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Certificate of lawyer

I Joshua Aylward certify to the Court that, in relation to the statement of claim filed on behalf of the Applicant, the factual and legal material available to me at present provides a proper basis for each allegation in the pleading.

Date: ~~10 July 2017~~ 9 April 2019

A handwritten signature in cursive script, reading "Joshua Aylward".

Signed by Joshua Aylward
Lawyer for the Applicants