



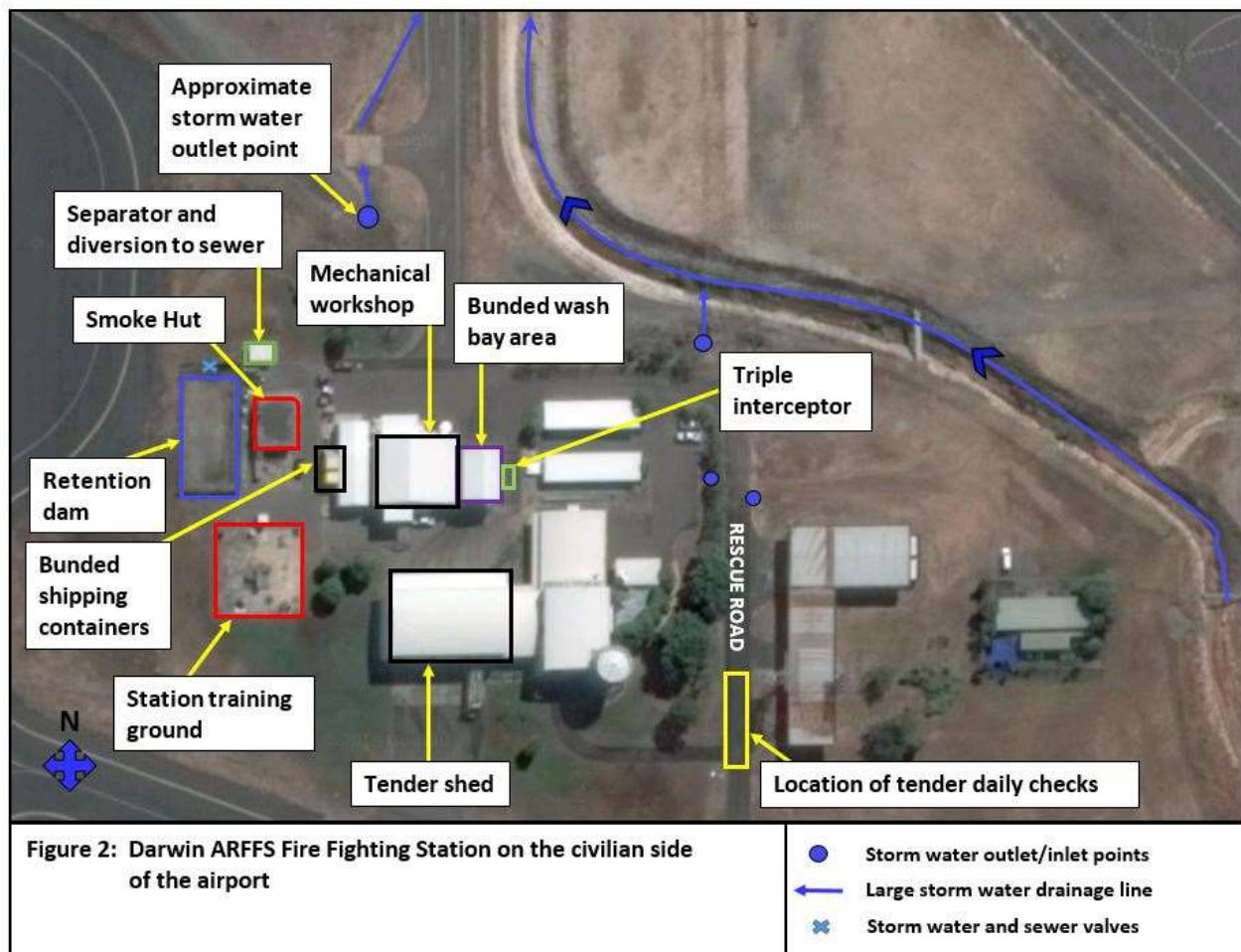
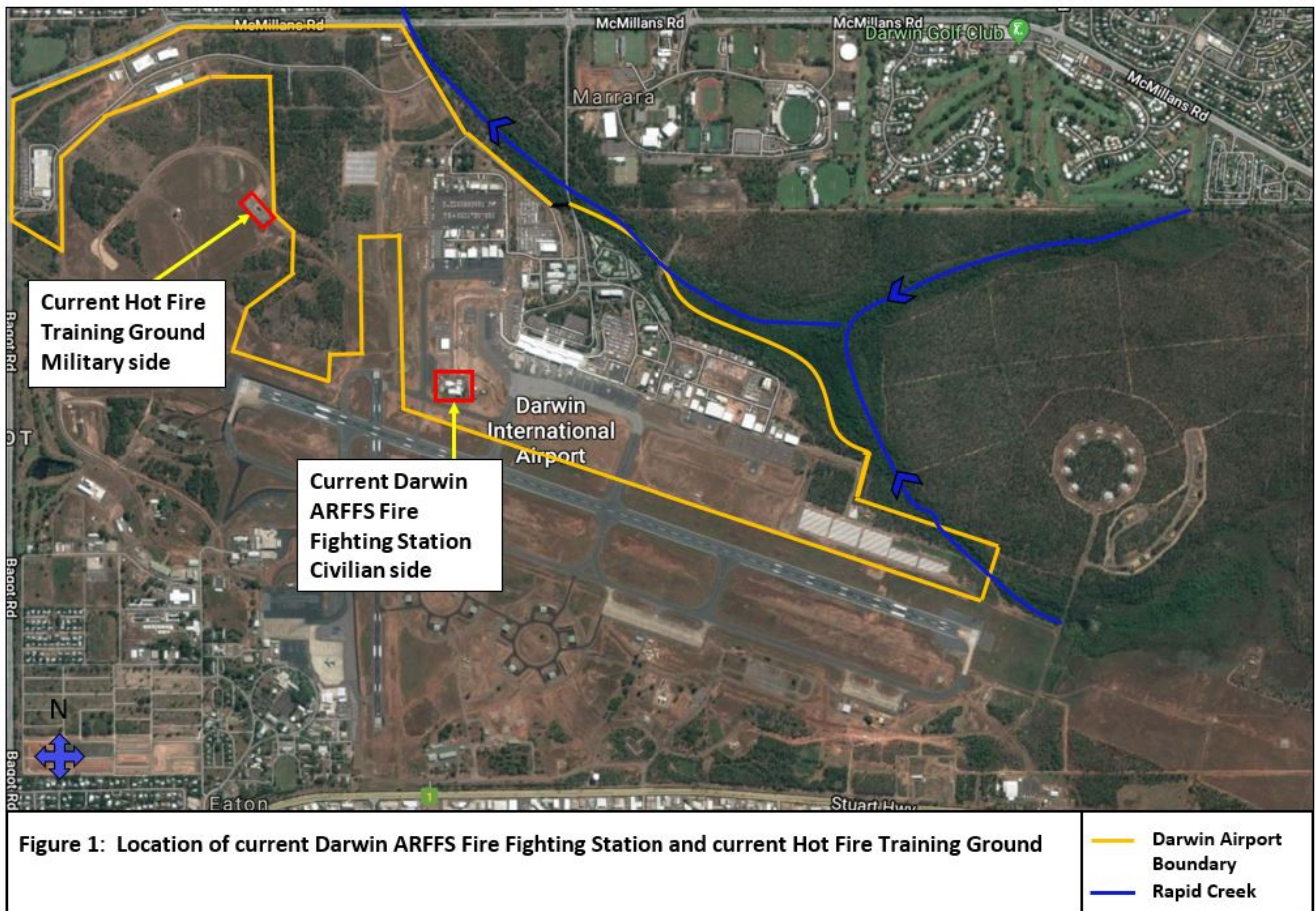
Australian Government  
Department of Infrastructure,  
Regional Development and Cities

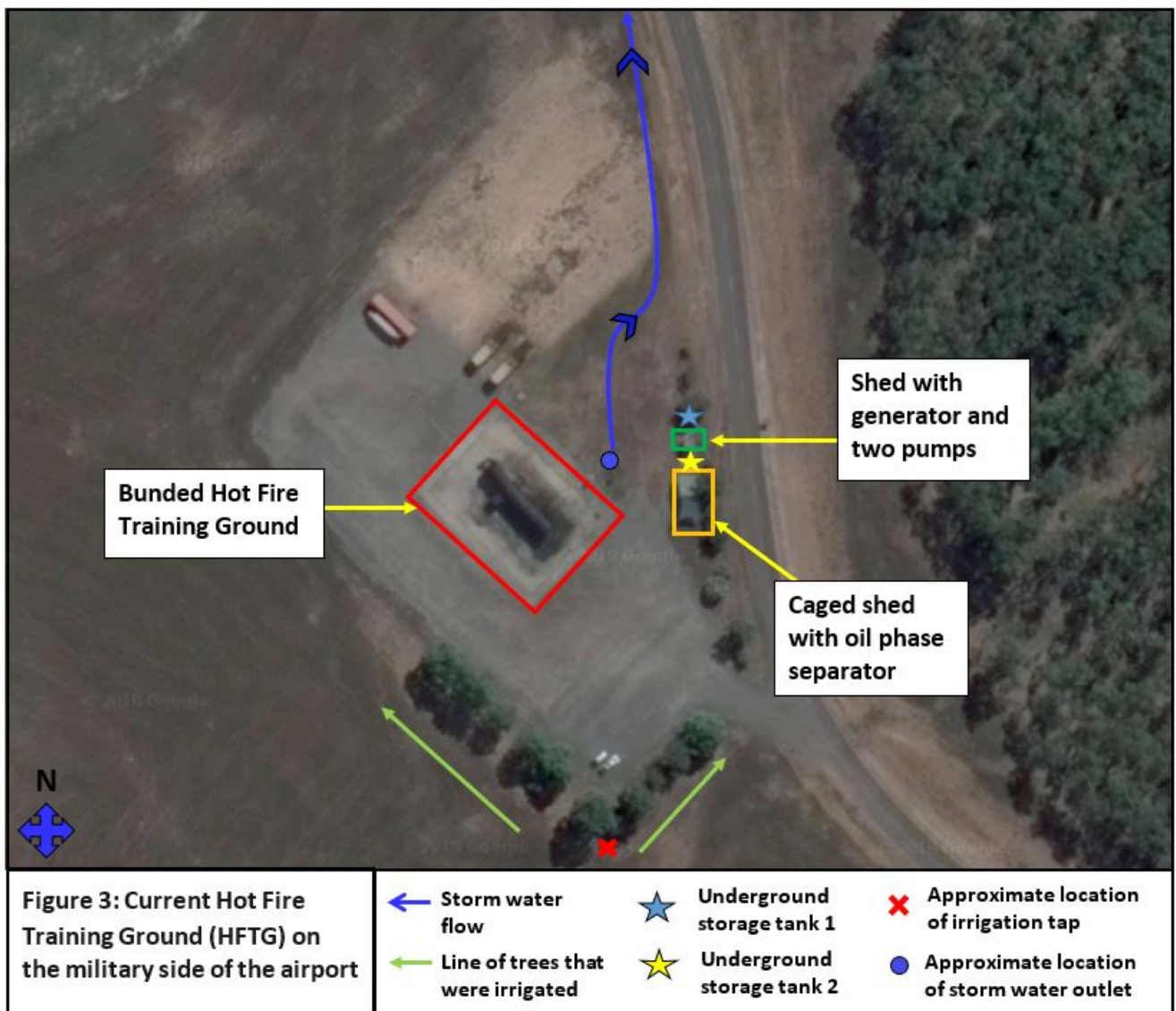
# **INVESTIGATION INTO ALLEGATIONS OF WASTE MISMANAGEMENT PRACTICES BY AIRSERVICES AUSTRALIA AT DARWIN INTERNATIONAL AIRPORT APPENDICES**

**FEBRUARY 2019**

# FIGURES

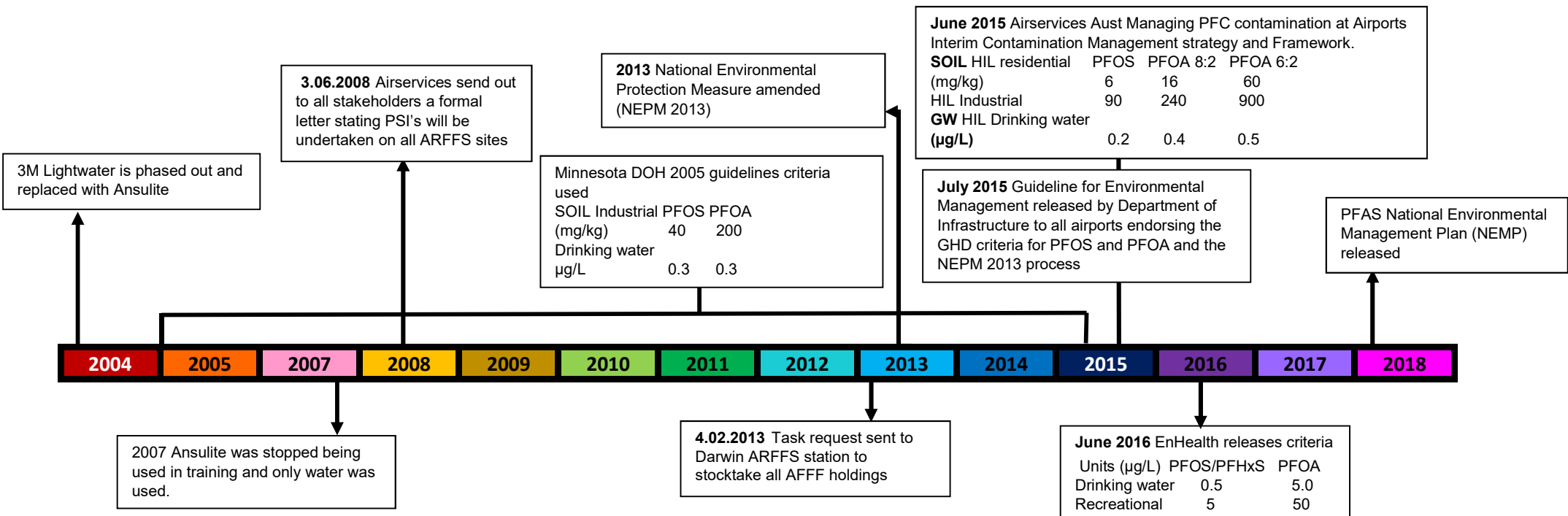




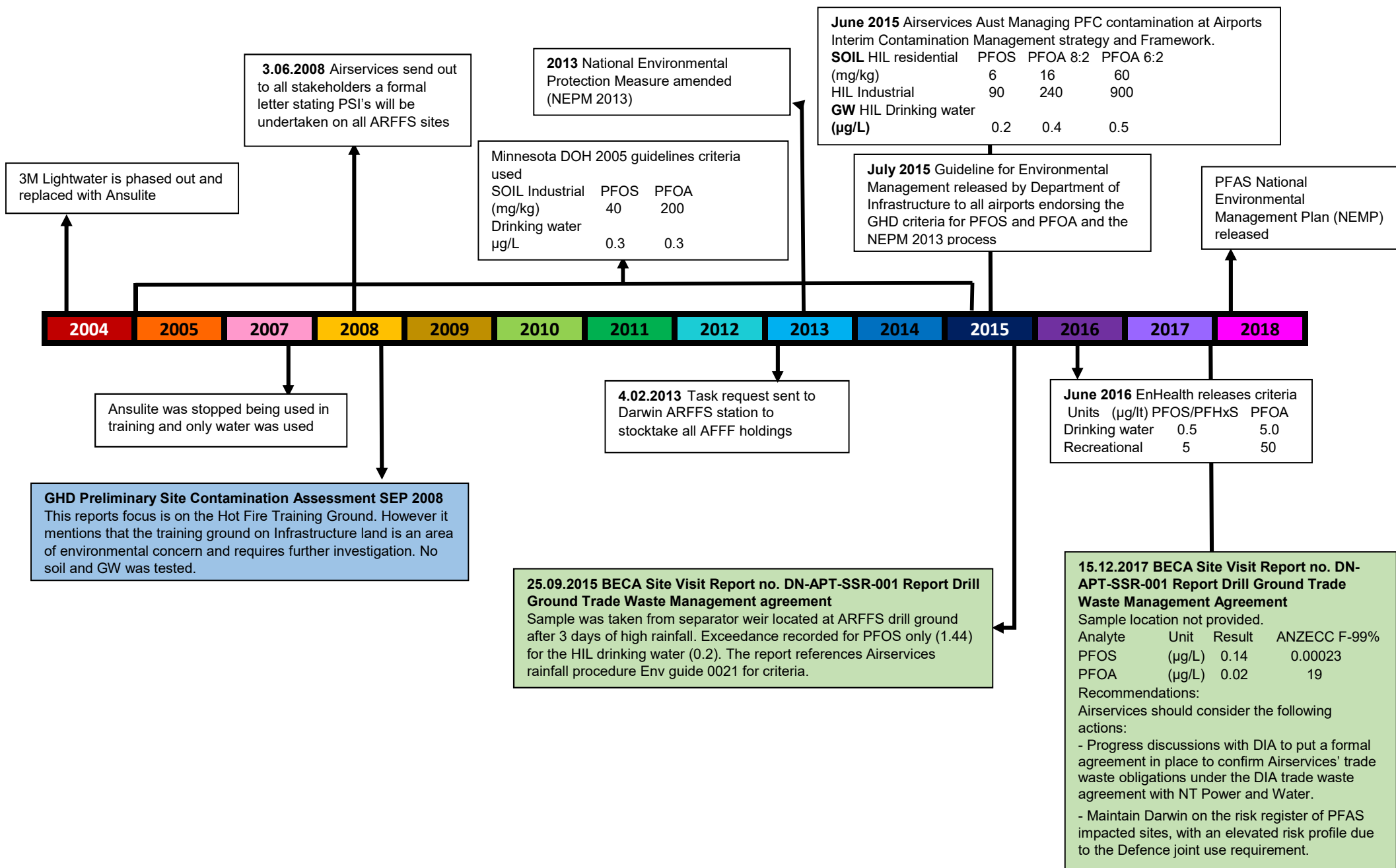


# **TIMELINES**

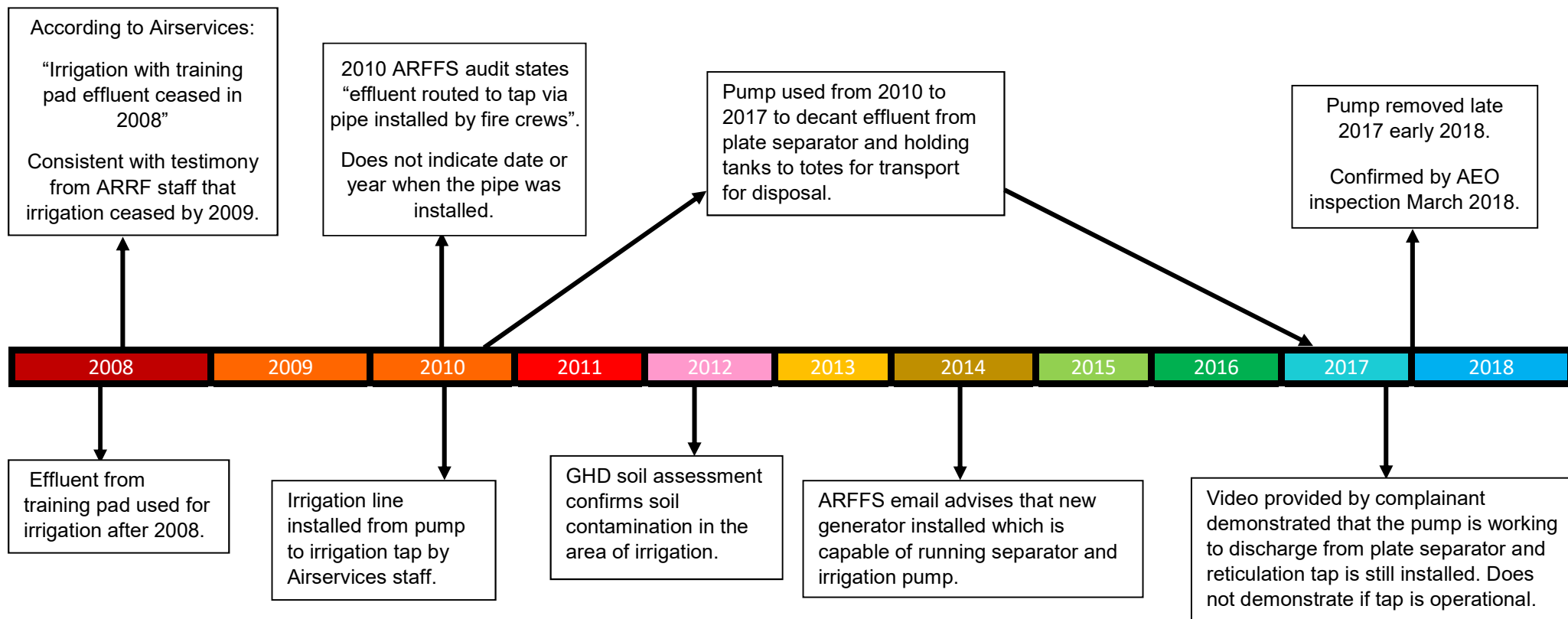




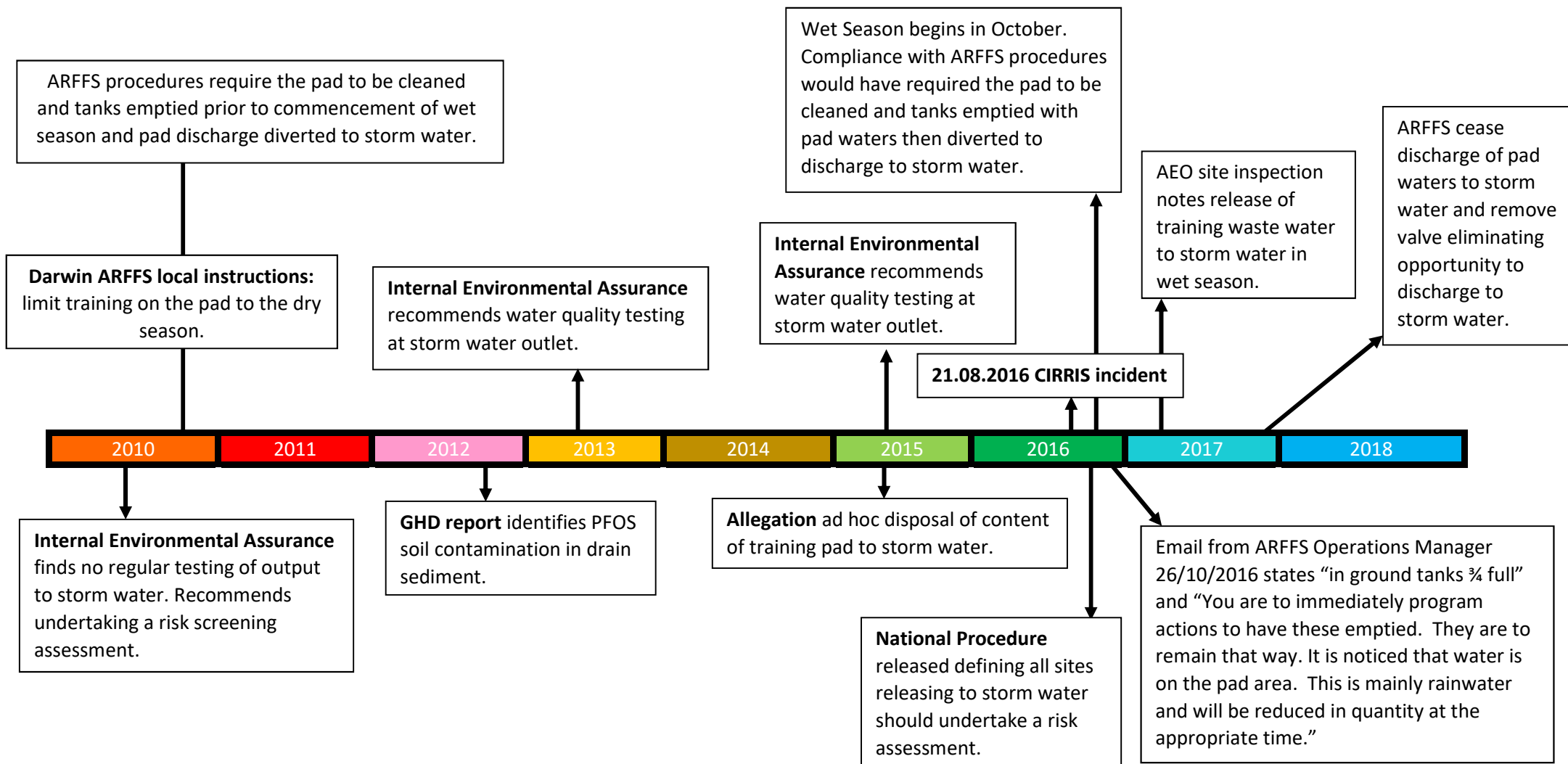
**Timeline 1: Darwin ARFFS Hot Fire Training Ground - Historical Criteria, Investigations and Water Testing Results**



**Timeline 2: Darwin ARFFS Training Ground - Historical Criteria, Investigations and Water Testing Results**



**Timeline 3: Darwin ARFFS Hot Fire Training Ground (HFTG) - Allegation 1: waste water from the HFTG was used for irrigation (post-2010)**



**Timeline 4: Darwin ARFFS Hot Fire Training Ground (HFTG) - Allegation 2: waste water from the ARFFS 'Mock Up' HFTG was released into the storm water system**

# **APPENDIX 1**

## **Site Inspection Summaries**



## **Appendix 1 Site Inspections summaries**

**ARFFS training ground Defence walk over movie dated 17.09.2017**

The video is of the lower mock up (LMU) training ground (located on Defence land). The following is a description of what can be seen:

- starts the movie at the edge of the LMU pad on the north east edge. In the background you can hear the noise of a pump running;
- the large drain located on the north west corner of the LMU with a close up of white residue near the drain and water is in the drain;
- the valves with lids labelled to process tank and storm water, the process tank valve is open and the storm water tank valve is shut;
  - the storm water drain has water settled at the base of it, however no water is coming out;
- containers of truck wash are located outside the shed;
- the location of the green shed:
  - inside the shed is a gentech generator and two pumps - the yellow pump is located in the north west corner and the southern cross blue pump is located in the south east corner;
  - All pumps and generator are on;
  - The generator is connected to the main power board and the power board is connected to both pumps;
  - The yellow pump is connected to two pipes - the suction pipe is located on the western wall with the origin of the inlet pipe unknown, however it is assumed it originates from the underground tank. The outlet pipe is connected to the pump and exits on the northern wall; it is not certain what the outlet is connected to, however later on in the movie it shows the oil phase separator with the water being pumped out;
  - The southern cross blue pump is connected to two pipes the suction pipe is entering from the south wall and appears to be from the underground storage tank located south of the green shed. The movie shows the underground storage tank (UST) open with the suction pipe leading into it and open. The discharge pipe is exiting on the east wall via a black pipe. The black pipe has a double connection: one is a tap and the second is a black hose with a lever. The long black hose is laid down past the UST and is connected to an irrigation pipe in the ground;
  - Note confirmation of the connection of the irrigation pipes and the connection of the tanks cannot be provided. The connection of pipes to the UST's would need to be investigated to develop a line of evidence that the irrigation water was/was not first put through an oil phase separator;
  - Weekly Checklist instructions for the drill ground are located on the east wall, as part of the weekly checks is the irrigations checks. The checks include starting the oil water separator and the irrigation pump and checking the irrigation lines for leaks;
  - the location of the irrigation switch board with irrigation pump and tank switches to empty the tanks . The light for the irrigation pump is on;
  - The movie moves to the north end of the shed showing that the northern UST has water in the bottom of it and the north wall has a pipe exiting it (from the yellow pump);
- The movie moves to the location of the caged area with the separator, the hose connected to the 2 phase separator is located in the north east corner;
- turns the 2 phase separator on and water flows out of the pipe located in the north east corner. The assumption is made that the irrigation pump when turned on converts all water from the irrigation tank to the oil phase separator and then the outlet pump is turned on and released to storm water.
- The fuel pump control panel is located within the caged area;
- the location of the irrigation tap;
- the location of the truck with empty tote on it;
- Site Inspection 24.03.2017 present  =  and  =

## AEO site inspection 24.03.2017

The AEO ( ) undertakes a monthly site inspection of the civilian side of the airport with the DIA environmental manager ( ). This inspection includes both Airside and Landside. On 24.03.2017, wanted to clarify to the location of the two Airservices training grounds and the location of the former fire training ground.

- **Photos 1, 2:** and walked over the ARFFS LMU Defence training ground. It became evident that the training ground was in use because of remnant dry chemical powder (DCP) located at the base of the old plane and around the square drainage in the LMU concrete pad.
- informed that training should not be undertaken during the wet season. asked if foam was used in training. clarified that it was not and that the purple DCP was basically the same composition as baking powder.
- **Photos 3:** It was evident that the training ground waste water had been released to storm water. asked to contact Defence and let them know training had occurred during the wet season.
- **Photo 4** is the view of the drainage leading away from the storm water drain.



**Photo 1.** View looking south west at LMU training ground. Note no water is present.



**Photo 2.** View of the LMU looking north east at the drain in the training ground pad. Note presence of DCP around drain.



**Photo 3.** Close up view of plane base on LMU pad with remnant purple DCP.



**Photo 4.** View looking south west at storm water drain located north of LMU training ground. Note the purple Dry Chemical Powder (DCP) and water - the only things used in training.



Site Inspection 3.03.2018 at ARFFS LMU Defence training ground, present [REDACTED] and [REDACTED]

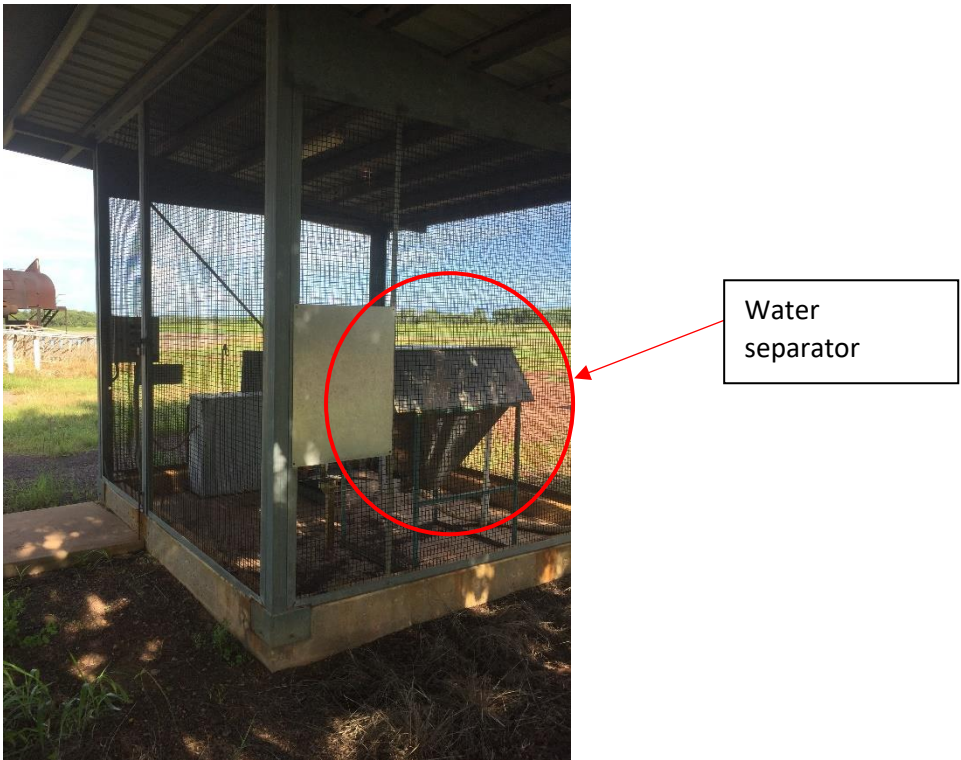
The AEO received a number of email complaints from a former Airservices employee [REDACTED] on 28.02.2018. A number of the allegations sent to [REDACTED] included the Darwin ARFFS LMU Defence Fire Training ground. [REDACTED] inspected the site on 3.03.2018 (with the permission of Darwin RAAF base) with [REDACTED] the DIA Environmental Manager. The points below were noted at that inspection:

- **Photo 7:** There are two switches located near the northern boundary of the LMU training ground. One valve is to divert the training water waste to the process tank, the second is a valve to divert the training water waste to storm water;
- **Photo 8:** There is an open shed structure located north east of the training ground that houses a water separator and a fuel pump switchboard. A hose was observed attached to the separator and exiting the structure in the north west corner. Fuel lines were also observed exiting the south wall of the structure;
- **Photo 10:** An electrical conduit with wiring was sticking up out of the grass located north west of the irrigation pipe;
- **Photos 15 and 16:** A locked enclosed green shed was observed with:
  - two square concrete pads located near the north wall;
  - two square concrete pads located near the south wall; and
  - a pipe exiting the eastern wall;
- **Photo 17:** An irrigation pipe was sticking up out of the long grass area located in the south east corner of the training ground near the line of trees - no tap was attached to the pipe;
- **Photo 21:** A wet patch was observed on the graveled area of the training ground.
- **Photo 22:** The LMU training pad was full of water;



Blue handle  
attached to the  
storm water valve.

**Photo 7.** Close up view of release valves at LMU training ground. Note blue wheel is still attached to the storm water valve.

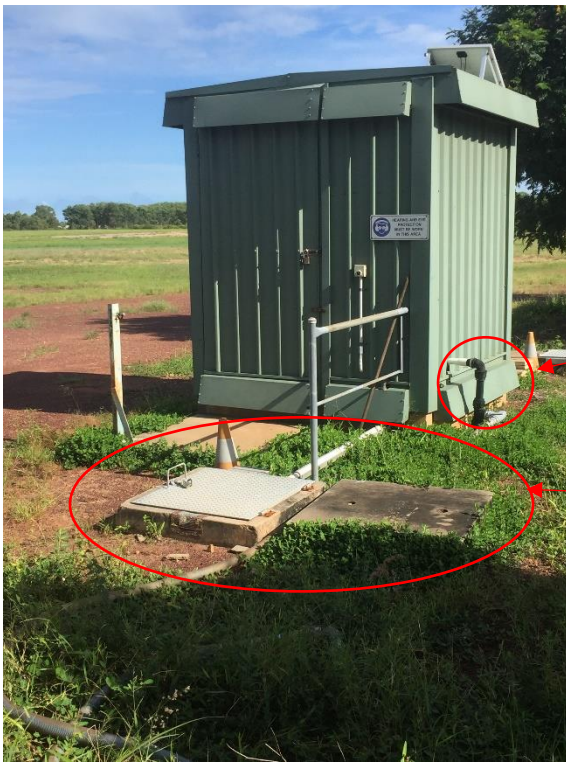


**Photo 8.** View from south corner of open shed. Note the water separator.



**Photo 10.** An electrical conduit with wiring was sticking up out of the ground in the tree lined north east corner of the LMU training ground.





Pipe exiting  
eastern wall

Location of underground  
storage tanks (USTs)

**Photo 15.** View looking north west at the small green shed that is located east of the open shed. Note the two concrete squares at the front of the picture. This is the location of two underground storage pits.



Location of southern  
underground storage pits

**Photo 16.** View looking south west at the small green shed. Note the location of storage tanks south of the shed.



Irrigation line with tap removed

**Photo 17.** View of irrigation line located in southern corner of the LMU training ground. Note no tap is connected to the line.



**Photo 20.** View north west of wet patch at training ground. Note this wet patch was not observed anywhere else, suggesting an incident involving water may have occurred here.





**Photo 21.** View taken from south east corner of the LMU training ground full of water.

Site Inspection 24.03.2018 at ARFFS station and training ground located on civilian side of the airport. Present [REDACTED] (Perth Airport Environmental Officer), [REDACTED] (Darwin Airport Environmental Officer), [REDACTED] (Airservices Government Relations Manager) and [REDACTED] (Airservices Darwin ARFFS chief fire commander).

As part of the investigation, the AEO requested a site inspection of a number of areas related to the allegations by former Airservices' employee, [REDACTED]. The points below were noted in the inspection:

- **Rescue Road**
  - **Photo 22:** Daily morning checks of the tenders are undertaken on Rescue Road. This location was where the accidental release of foam had occurred during the morning check.
  - **Photo 23:** A small driveway is on the eastern side of Rescue Road.
  - **Photo 24:** A small side road into substation 3 is on the eastern side of Rescue Road.
  - **Photo 25, 26:** There is a storm water drain on both the western and eastern side of the road.
  - **Photo 27:** Rescue Road ends with a storm water outlet drain that enters into the main storm water drain.
- **Wash Bay Area**
  - **Photo 29:** The wash bay is bunded and is where the tenders go to be washed out after an incident had occurred. This procedure has now been changed so that the tenders are taken to the LMU to be washed out.
  - **Photo 31:** The wash bay area has a central drain that wash water drains into.
  - **Photo 34, 35:** The wash bay area is connected to a triple interceptor which is connected to sewer. Note the location of the triple interceptor is under the rectangular concrete lid.
- **Darwin ARFFS station training ground**
  - **Photo 36** at the northern end of the ARFFS training ground is the smoke hut located next to the retention pond referred to as the 'swimming pool'.

- **Photo 37, 42, 44, 45, 46 and 47:** At the southern end of the training ground is the hot fire training area. There is a metal platform with steps either side in the center of the training area. In the south west corner is a brick pad with a fuel line that is connected to a jet.
- **Photo 43:** The drain for the hot fire training area is located in the south west corner. This water drains into the retention pond. At the time the photo was taken, the drain was blocked.
- **Photo 49:** A second drain for the fire training area is located in the south west corner. This drain is connected to the retention pond.
- **Photo 50:** A third drain was located in the north east corner of the training area. This also drains into the retention pond.
- **Photos 38-41:** East of the training ground are 3 yellow bounded shipping containers, each of these containers contains empty or full totes of AFFF. One of the containers has a curtain to prevent any spillage from overflowing from the bund. The remaining 2 containers will have curtains fitted.
- **Photo 48, 51:** The retention pond is located next to the smoke hut and at the northern end of the training area. The retention pond receives all waste water from the training area. A fabric grid wall lines it with a concrete base. The water from training runs into the retention pond and left to evaporate.
- **Photos 53, 54:** The retention pond has two valves - the first valve is for opening up and releasing to storm water, the second valve is to release the waste water to an underground storage tank.
- **Photos 55, 56:** The retention pond is connected to an underground storage tank which is then connected to a separator. The separator is connected to a line that has two valves. One valve diverts the water to a line that goes to the wash bay triple interceptor and then to sewer. The second valve is connected to storm water.
- **Photos 57, 58:** The storm water is released into a drainage line that travels through an open dirt drain that travels under the road and into the main large storm water drain.

- **Bulk foam tank**

- **Photos 59, 60, 61:** The Darwin ARFFS station stores all of its Ansulite foam in a bulk storage tank. This tank has a brick wall that surrounds it to ensure that any overflow or spills are retained. The Perth AEO noted that the brick wall had a water leak seeping out of it at the base.

- **Tender**

- **Photos 62-67:** The tenders are checked daily with a test on the hoses, the spray below the tenders and above the tenders. It is a requirement to leave the foam switch in the on position. Some incidents have occurred where the switch has not been turned off for these daily checks and foam is released from the lines. The foam switch is located inside the tender in the center panel (**Photo 71**).



**Photo 22.** View north of Rescue Road.



**Photo 23.** View of driveways on east side of Rescue Road.



**Photo 24.** View north east of substation on Rescue Road.



**Photo 25.** View of first storm water drain on west side of Rescue Road.





**Photo 26.** View of storm water drain on east side of Rescue Road.



**Photo 27.** View of end of road storm water drain entering large storm water drain.



**Photo 29.** View south east of wash bay area. Note bunds all around.



**Photo 31.** View south of wash bay with centre drain.





**Photo 34.** View of triple interceptor location.



**Photo 35.** Close up view of triple interceptor.

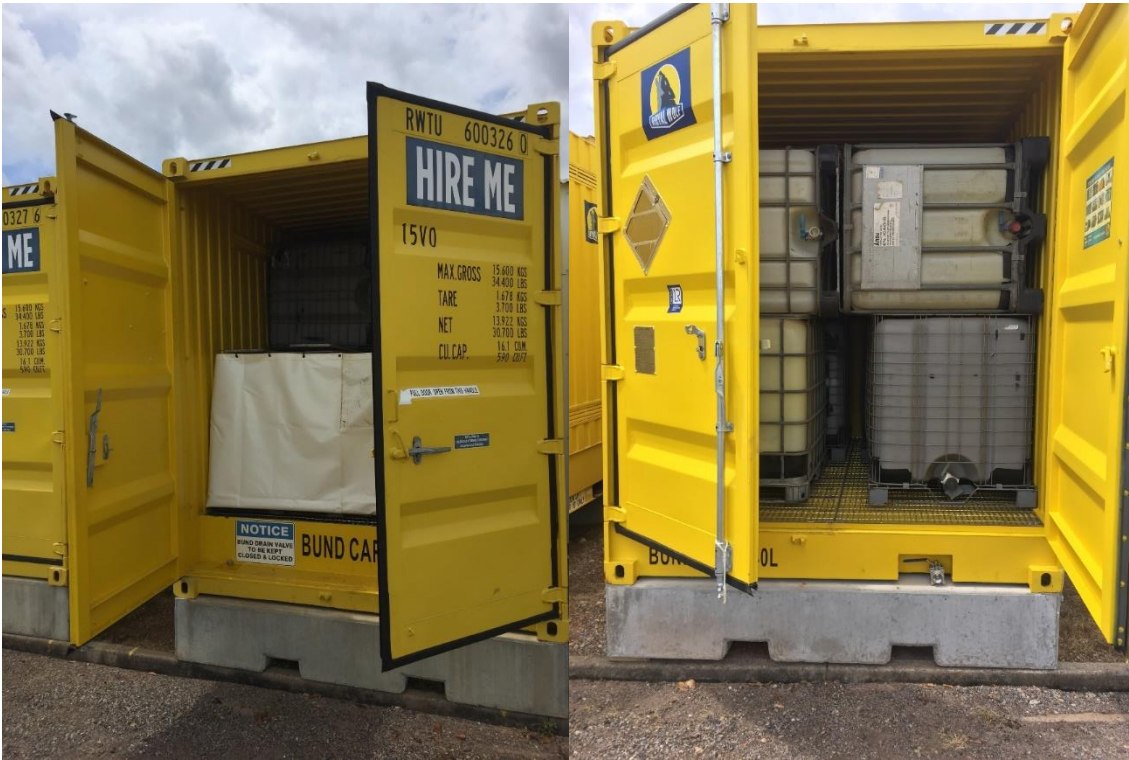


**Photo 36.** View of north end of training area.



**Photo 37.** View of southern end of training ground, taken from north east corner of ARFFS station training ground.





**Photo 38.** View facing east of centre container. Three containers are located on the east boundary of the ARFFS station training ground.

**Photo 39.** View facing east of the southern container with empty totes. Note the container is bunded and has a bund capacity of 1700L.



**Photo 40.** View of center container with curtain. **Photo 41.** View of northern container.





**Photo 42.** View of south east corner of south end of training ground.



**Photo 43.** Close up view of south east corner storm water drain.



**Photo 44, 45.** View looking north east from south west corner of ARFFS station training ground.





**Photo 46.** View looking north from south west corner of ARFFS station training.



**Photo 47.** View looking east from south east corner of ARFFS station training ground.



**Photo 48.** View looking north at ARFFS station retention pond.



**Photo 49.** View of storm water drain in north west corner of ARFFS infrastructure training ground.





**Photo 50.** View of storm water drain in north east corner of ARFFS infrastructure training ground.



**Photo 51.** View of the fabric wall lining the retention pond.



**Photo 53.** View of valves for ARFFS station retention pond. One valve is for storm water and the other is for diversion to the Underground Storage Tank (UST). Photo taken at northern end of the retention pond looking south.



**Photo 54.** View of UST located between the separator storage area and the retention pond.





**Photo 55.** View of ARFFS station separator containment area with bund.



**Photo 56.** View of ARFFS station separator with storm water and sewer valve options.



**Photo 57.** View looking north west at storm water outlet from retention pond.



**Photo 58.** View looking north at drainage line from storm water drain. Note the drain goes under the road and enters the main storm water drain.





**Photo 59.** View south of ARFFS station bulk tank.    **Photo 60.** Overall view of foam storage tank with retention wall.



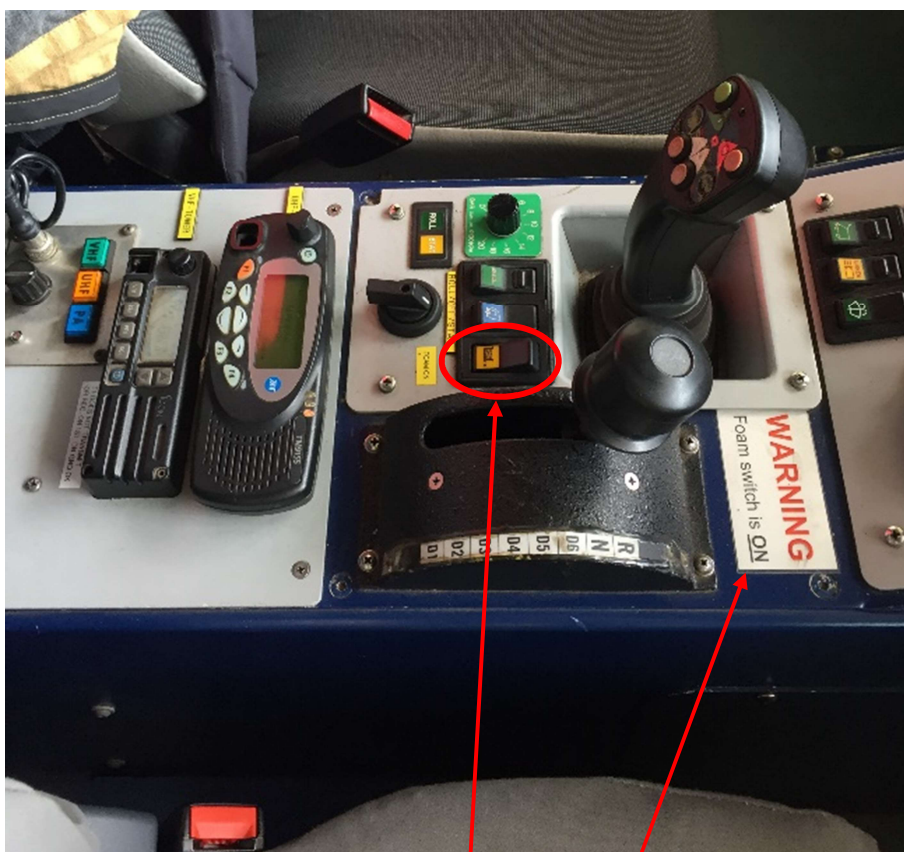
**Photo 61.** View of internal area surrounding the tank behind the retention wall.    **Photo 62.** View of hoses in tender that are tested in the daily checks.



**Photo 63.** Overall view of fire tender.



**Photo 64.** Foam switch location in the fire tender located near the gear stick.



**Photo 65.** Close up view of the foam switch and warning sign.





Site Inspection 24.03.2018 at ARFFS station and LMU training ground located on Defence land. Present [REDACTED] (Perth Airport Environmental Officer), [REDACTED] (Darwin Airport Environmental Officer), [REDACTED] (Airservices Government Relations Officer) and [REDACTED] (Airservices Darwin ARFFS chief fire commander.)

As part of the investigation, the AEO requested a site inspection of a number of areas related to the allegations provided by former Airservices employee, [REDACTED]. The points below were noted in the inspection:

Two sheds are located to the east of the LMU training ground.

#### Open shed

- **Photos 74, 75:** The first shed is an open shed that has a water separator in it. The hose for the water separator is exiting the shed on north east corner. The shed also has a fuel pump panel in it with fuel lines exiting the shed on the west side.

#### Underground Storage Tanks

- **Photo 77:** To the north of the open shed is a small green shed. Between the two sheds is two concrete squares indicating the location of the underground storage tanks.
- **Photo 82:** Two concrete squares, one with a lid, are located near the north wall of the green shed. One metal lid with lock is on one of the concrete squares.

#### Small Green Shed

- **Photos 80, 81:** Inside the green shed is a hose exiting the shed in the south east corner. The hose is not connected to anything in the shed.  
Note: this is different to the movie provided by [REDACTED] where the pipeline was connected to a small pump. There is an irrigation control panel located on the south wall.

#### LMU training ground

- **Photo 83:** The storm water drain is located on the northern edge of the bunded LMU training ground. It can be identified by two white vertical pipes positioned in the ground either side of the drain.
- **Photo 84:** There are two switches located on the northern side of the LMU training ground. There are two inground cylinders with metal lids, with the labels "process tank" and "storm water" respectively. The lid was taken off the storm water diversion to prove that the handle had been removed, so the diversion to storm water could no longer occur. This is a recent development. When the AEO undertook her inspection on 3.03.2018, the handle was still in place (**Photo 7**). The handle was also still in place in [REDACTED] video dated September 2017.
- **Photo 85:** The bunded LMU training ground was filled with water at the time with bubbles floating on the top.
- **Photo 87:** The irrigation pipe as was noted in the 3.03.2018 AEO inspection. An irrigation pipe was sticking up out of the long grass area located in the south east corner of the training ground near the line of trees. No tap was attached to the pipe. The tap was attached to the pipe in the movie supplied by [REDACTED].



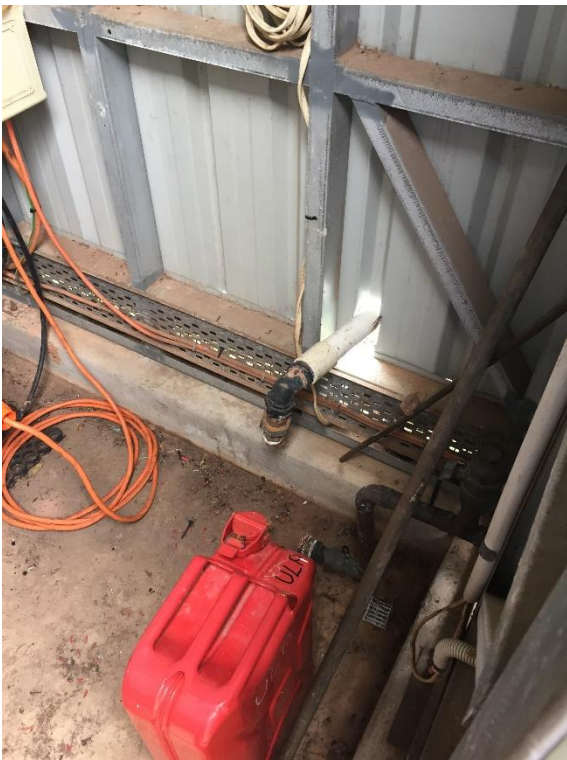
**Photo 74.** View north west of ARFFS LMU Defence training ground bunded storage area of separator.



**Photo 75.** ARFFS LMU Defence training ground close up view of fuel pump panel and fuel lines exiting storage shed.



**Photo 77.** ARFFS LMU Defence training ground view of two UST's and small shed.



**Photo 80.** LMU Defence training ground - inside of small shed with disconnected pipe.





**Photo 81.** Irrigation control panel located within the small shed at the ARFFS LMU Defence training ground.



**Photo 82.** ARFFS LMU training ground Defence site.



**Photo 83.** ARFFS LMU Defence training ground storm water outlet.



**Photo 84.** ARFFS LMU Defence training ground valves to storm water and process tank.





**Photo 86.** ARFFS LMU Defence training ground looking from east corner. Note the training ground is filled with water.



**Photo 87.** ARFFS LMU training ground Defence. View north west of irrigation pipe with the handle removed.

## **APPENDIX 2**

### **Review of Airservices Foam Stock Records and Foam Stocktake Emails**



## Appendix 2

**Table 12: Tote usage vs empty containers on site**

Date incident occurred	Volume incident use (L)	Volume ordered (L)	Volume stored (L)	Purpose for use	Number of totes Each tote carries 1000L of foam
22.03.2010	330			Brazillia incident	
22.03.2010	413			Brazillia incident	
19.04.2011	35			Maintenance top up	
19.08.2011	1400			Bring T23 on line (new vehicle) for station	
2012-2013				Totes transferred from Alice Springs to Darwin	3-4 full totes
13.11.2012 received 4 full totes		4000			
5.02.2013 Darwin station stocktake			8000 in totes		8 full totes 14 empty totes
5.02.2013 Darwin station stocktake			8000 in bulk tank		
25.11.2014 ARFFS weekly stocktake		250			
25.08.2015 ARFFS weekly stocktake order receipt		50			
<b>Total</b>	<b>2178L</b>	<b>4300L</b>	<b>16000L</b>		<b>8 full totes</b>
12.04.2018 Waste receipt			8000 in bulk tank		5 totes taken away
8.05.2018 stocktake for AEO request			8000 in totes		8 full totes with foam 9 empty totes
<b>Total</b>			<b>16000L</b>		<b>22 totes</b>



# Task Request

ARFF Services



## Stocktake of AFFF

### Actioning details

**Position:** Station Commanders

**Cc:**

██████████, Manager National Operations

Superintendent ██████████, Manager Central Region

Superintendent ██████████, Manager Northern Region

**Location:** Darwin and Townsville

**Date Sent:** 04/02/13

**Reference:** MQAC 01/13

### Context

Airservices has agreed with Defence that ARFF operations at Darwin and Townsville will not transition to Solberg RF6 foam in the near future. In both locations AFFF will continue to be used as the fire fighting foam.

To facilitate this change in planning it is necessary to confirm the quantity and condition of all holdings of AFFF at Darwin and Townsville. AFFF stock held at these locations are planned to be sampled by a Contractor for laboratory analysis. Consequently, it is important to identify individual AFFF storage containers (including on-site location), including bulk storage tanks, totes, drums etc and if possible their unique identifier name, number etc. This is to ensure the Contractor taking the samples can locate a specific tank, tote, drum etc from your inventory entry.

### Purpose

To complete a stocktake of all AFFF held at Darwin and Townsville.

### Quantity

Each location is to complete the relevant entries in the attached 'AFFF' tables.

### Quality

Complete all relevant information for each location in the table. Where information is unknown, please specify 'Unknown'.

**Resources**

Station Staff

**Time**

No later than 1200 on Thursday 21 February 2013

MQAC [REDACTED]

**Manager Quality Assurance and Capability**



### AFFF Stock take - Darwin

Total AFFF held in bulk storage (litres)	8,000
Location of bulk storage tank	Adjacent the vehicle washdown/refill bay
Age of AFFF	Unknown
Date of last test	5 Feb 2013
Nature of last test	Conductivity
Results of last test	5680 Micro siemen @ 26 degrees celsius.
Total AFFF held in totes etc(litres)	8,000 litres
Batch Number	327LY9
Number of totes/drums/containers (Please itemise)	4
Location	Within Smokehouse bund
Unique Identifier	Marked as #1 to #4
Age of AFFF	11/8/2009
Date of last test	29/11/2012
Nature of last test	Conductivity
Results of last test	5531 micro siemen
Batch Number	unknown
Number of totes/drums/containers (Please itemise)	4
Location	Within Smokehouse bund
Unique Identifier	Marked as #5 to #8
Age of AFFF	Unknown
Date of last test	20/09/2011
Nature of last test	Conductivity

### AFFF Stock take - Townsville

Total AFFF held in bulk storage (litres)	NIL
Location of bulk storage tank	N/A
Age of AFFF	N/A
Date of last test	N/A
Nature of last test	N/A
Results of last test	N/A
Total AFFF held in totes etc(litres)	10730
Batch Number	91391AG6AB
Number of totes/drums/containers (Please itemise)	4 Totes (4000ltrs)
Location	Storage container
Unique Identifier	Unknown
Age of AFFF	17/02/06
Date of last test	Unknown (from HM)
Nature of last test	Unknown
Results of last test	Unknown
Batch Number	91291AG5AC
Number of totes/drums/containers (Please itemise)	8 Drums (1600ltrs)
Location	Storage container
Unique Identifier	Unknown
Age of AFFF	2005
Date of last test	28/11/05
Nature of last test	Conductivity
Results of last test	5273 uSiemen
Batch Number	91174AG5AC
Number of totes/drums/containers (Please itemise)	5 drums (1000ltrs)
Location	Storage container
Unique Identifier	Unknown

Age of AFFF	2005
Date of last test	10/08/05
Nature of last test	Conductivity
Results of last test	5130 uSeimen
Batch Number	92113AG8AC
Number of totes/drums/containers (Please itemise)	2 drums (400lts)
Location	Storage container
Unique Identifier	Unknown
Age of AFFF	06/03/2008
Date of last test	25/08/2008
Nature of last test	Conductivity
Results of last test	5529 uSiemen
Batch Number	00147LY9
Number of totes/drums/containers (Please itemise)	3 drums (400lts)
Location	Storage container
Unique Identifier	Unknown
Age of AFFF	09/04/2009
Date of last test	unknown
Nature of last test	unknown
Results of last test	unknown
Batch Number	Unknown
Number of totes/drums/containers (Please itemise)	2 drums (400lts)
Location	Storage Container
Unique Identifier	unknown
Age of AFFF	2006
Date of last test	03/06
Nature of last test	unknown
Results of last test	unknown



Batch Number	92034AG7AB
Number of totes/drums/containers (Please itemise)	1 Tote (1000ltrs)
Location	Storage container
Unique Identifier	Unknown
Age of AFFF	31/12/2007
Date of last test	26/03/2012
Nature of last test	Conductivity
Results of last test	5649USeimen
Batch Number	91720AG7AR
Number of totes/drums/containers (Please itemise)	1 Tote (930ltrs)
Location	Storage Container
Unique Identifier	Unknown
Age of AFFF	15/01/2007
Date of last test	23/03/2012
Nature of last test	Conductivity
Results of last test	5485 uSiemen

**Subject:** FW: Darwin ARFF investigation additional queries [SEC=UNCLASSIFIED]  
**Attachments:** AU1-2435498-Darwin SSR 2017.pdf; DN-APT-SSR-001\_Rev0.pdf; MQAC Stocktake of AFFF v4.1.doc; FW: HOLD ALL FOAM CONTAINERS [SEC=UNCLASSIFIED]; env-guide-0021.pdf

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**From:** [REDACTED]  
**Sent:** Monday, 4 June 2018 3:23 PM  
**To:** [REDACTED]  
[REDACTED]  
[REDACTED]

**Subject:** FW: Darwin ARFF investigation additional queries [SEC=UNCLASSIFIED]

Hi [REDACTED]

Responses below and attached.

Grateful if you could give an indication of when we might see a final investigation report?

Regards  
[REDACTED]

---

**From:** F [REDACTED]  
**Sent:** Tuesday, 29 May 2018 3:04 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
[REDACTED]

**Subject:** Darwin ARFF investigation additional queries [SEC=UNCLASSIFIED]

Good afternoon [REDACTED],

Thank you for providing documentation requested in our email dated Monday 21.05.2018.

I have completed the review of the waste disposal certificates and maintenance work orders for both Darwin ARFF training grounds, related pits and the internal environmental assurance reports. The reviews raised several additional questions regarding Airservices and Darwin ARFF procedures and records. To assist us with the report, could you please address the below questions and if possible provide the requested documents.

1. In the audit dated 5.02.2013, it was listed as an action in section 3.1 that Water quality monitoring was to be undertaken:
  - At the outlet to storm water from the Hot Fire Training Grounds during “Non Training Session” including the testing of PFOS/PFOA levels and
  - At the outlet from station treatment system to Darwin Airports sewer connection

Could you please provide any water sampling results undertaken as a result of this action. Or any water testing results you have on record in relation to the Darwin ARFF training grounds.

BECA undertake annual water quality monitoring at Darwin and we have sampling reports for 2015-17. I have attached 2015 and 2017, 2016 is 10mb so can provide separately if required.

2. I recall in the interview undertaken on the 13<sup>th</sup> of April with [REDACTED] and yourself that [REDACTED] mentioned when the stations around Australia transferred to Solberg RF6 foam, a lot of the empty Ansulite empty totes were sent to be stored at the Darwin station. Is there a record of how many totes were sent to the station?

As a point of clarification, no empty totes were redistributed from other ARFFS sites to Darwin. When AFFF concentrate was removed from other ARFFS sites in 2012-13, foam in totes held at Alice Springs and Ayers Rock was shipped to Darwin to be held as part of the reserve foam stockholding. From memory there were three or four totes of foam involved. I have enclosed a 2013 audit of the foam held at Darwin and Townsville which confirms that Darwin held 8 totes of AFFF foam concentrate.

3. [REDACTED] also mentioned that there was a standard direction to not sell totes sent out to all stations in 2009, do you have a record of this instruction?

Email enclosed that was issued on 23 September 2009 by the then ARFFS Operations & Compliance Manager placing an embargo on the sale of AFFF totes or drums.

4. Could you please provide a copy of the ENV guide 021 Water quality monitoring guidelines for waste water and rainfall runoff.

Attached.

5. I noted in the internal environmental assurance review, that a number of actions were noted and repeated in each audit. Could you please explain the internal process for tracking audit actions and completion of actions.

Our Assurance Program approach in 2013 was more advisory than directive with responsibility for any actions placed on the receiving party/business group to manage findings and observations. This meant that actions were not required to be tracked in the internal actions database (CIRRIS system) at that time.

From 2015 onwards, assurance audits and assessments have taken a more directive approach whereby findings and observations are raised in CIRRIS for tracking and to be acquitted by the accountable business group.

6. If an environmental incident is noted in an internal environmental assurance report, what is the internal process for :
  - a. Notifying stakeholders and;
  - b. Determining if further investigation is required.

Our approach to (a) and (b) above is described in our National Operating Standard – ‘Environmental Occurrence Management, Emergency Preparedness and Response (AA-NOS-ENV-0002)’. Any incident (or occurrence) observed during an assurance assessment, is entered in CIRRIS and reported to stakeholders as required (depending on the nature of what occurred – e.g. quantities and location of a spill). Generally , ARFFS staff would enter the occurrences (as the responsible party) in CIRRIS.

The process for investigations is also described in AA-NOS-ENV-0002, which effectively requires that:

- review and initial investigation is handled by the business group Environment SME, and
- an external ‘investigation’ may be undertaken by the Environmental Systems and Assurance Unit, through consideration of the ‘investigation commencement criteria’ (described in AA-NOS-ENV-0002).

Any help in answering the above queries would be greatly appreciated and will help greatly with my investigation.



Thank you for your ongoing assistance with the enquiry and if you have any queries please don't hesitate to give me a call.

Regards

[REDACTED]

[REDACTED]  
Airport Environmental Officer Adelaide , Parafield and Darwin Airport | Aviation and Airports  
Airports | Airport Infrastructure Regulation  
Department of Infrastructure, Regional Development and Cities  
GPO Box 594, Canberra ACT 2601

t [REDACTED] | m [REDACTED]  
e [REDACTED] w [www.infrastructure.gov.au](http://www.infrastructure.gov.au)



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[REDACTED]

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**From:** [REDACTED]  
**Sent:** Tuesday, 8 May 2018 9:20 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: Darwin ARFF investigation request fro additional information [SEC=UNCLASSIFIED]  
**Attachments:** 20158177ExecutedContract.pdf

A copy of the National Waste Management contract

---

**From:** [REDACTED]  
**Sent:** Tuesday, 8 May 2018 9:46 AM  
**To:** [REDACTED]  
[REDACTED]  
[REDACTED]  
**Subject:** Re: Darwin ARFF investigation request fro additional information [SEC=UNCLASSIFIED]

Hi [REDACTED]

As requested, please find the following:

- ENV-001 (v16) (we have a draft v17 which includes recent improvements which we could share if of interest).
- Darwin Local Instructions (LIs). There is a new local instruction which is being updated to include vehicle foam flushing procedure. That procedure was given to you in Darwin. As previously flagged, the LI's will be updated again later this year to include refined procedures for the pits at the LMU and the retention pond at the rear of the station.
- Document DNL1 Part 04-07 is the local instruction from late 2010 for water management at the drill grounds.
- Photos of the banded shipping containers holding full and empty totes. Two containers have four totes each (eight totes in total). Each tote has 1000L of foam. One of those containers also has one empty tote. The third container has eight empty totes. [REDACTED] gave you the reserve stock report showing how much foam we have on station at Darwin in April. That report showed nil foam usage as we haven't had to replenish the vehicles since the plane crash in 2010.
- The National Waste Management contract with Transpacific Waste (now Cleanaway) and Deed of Variation #1. (I will send contract separately, the file is too big)
- Environmental assurance reports for 2010, 2013, 2015, 2018
- CASA audits of foam stock – advice received is that these are CASA documents and they would be best placed to provide them. Hopefully the reserve stock reports we provided coupled with tote info answers these questions but if not, we can potentially find a CASA contact for you to contact and request relevant documents. Let me know.
- Our assurance area advises they are not aware of any other incidents other than the ones that have been reported and recorded. They are unable to confirm or guarantee whether there may have been other incidents but would be surprised as there is a strong reporting culture within ARFFS.

We are checking with internal audit if there are any other audit reports for the period requested. If we find any, we will send through. In the interests of time, we thought we would send through what we have readily available and will chase up anything else.

I will be in contact shortly to arrange a telecon with [REDACTED]. Let me know if I have missed something or you require further info.

Regards

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Tuesday, 1 May 2018 1:40 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Darwin ARFF investigation request for additional information [SEC=UNCLASSIFIED]

Good Afternoon [REDACTED]

I have completed my transcription of the Airservices interview that we undertook on Friday the 13<sup>th</sup> of April from the interview there were a number of actions, which I have listed below. I have also completed my review of the documentation provided by [REDACTED] and have identified some additional information and requests required to progress the investigation:

It would be appreciated if you could arrange for the following to be scheduled and/or provided,

- The national procedure ENV-001;
- Darwin local instructions for the release or removal of waste water from both training grounds, current and past;
- A current stocktake of all totes empty and full with accompanying photo to confirm numbers;
- Environmental assurance reports and audits for Darwin ARFF from 2008 to 2018
- Please request copies of CASA audits of foam stock held by Darwin ARFF and if provided, forward copies.
- The trade waste agreement for Darwin ARFF and copies of communication advising ARFF to cease disposal of PFAS into the municipal sewer.

I have some additional technical questions regarding how ARFF undertakes environmental risk assessments at Darwin once a foam incident has occurred. To assist, it would be appreciated if you could arrange for a teleconference to be held at a mutually convenient time, with yourself and [REDACTED] so that we can clarify some technical questions regarding this issue. I imagine this will take about 20 minutes.

Additionally, for the record please confirm that all environmental incidents and reports from the Darwin Airport facility are captured and displayed on Airservices national database and whether this answer applies for the full period, 2008 to 2018.

Thanks

[REDACTED]

Airport Environmental Officer | Adelaide, Darwin and Parafield Airport  
Aviation and Airports  
Department of Infrastructure Regional Development and Cities  
GPO Box 594, Canberra ACT 2601  
t [REDACTED] | m [REDACTED]  
e [REDACTED] | w [www.infrastructure.gov.au](http://www.infrastructure.gov.au)





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[REDACTED]

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**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 9:17 AM  
**To:** [REDACTED]  
**Subject:** FW: HOLD ALL FOAM CONTAINERS [SEC=UNCLASSIFIED]

Hello [REDACTED],  
I discovered this in my archives.  
Regards,  
[REDACTED]

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

**From:** [REDACTED]  
**Sent:** Wednesday, 23 September 2009 2:39 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** HOLD ALL FOAM CONTAINERS

Hello All

Until further notice, do not dispose of or recycle empty foam totes or drums. Please instruct your staff that they are to hold these containers on station.

Regards [REDACTED]

[REDACTED]  
Operations & Compliance Manager  
Aviation Rescue & Fire Fighting  
Airservices Australia Canberra  
Phone [REDACTED]  
Fax [REDACTED]

[REDACTED]  
25 Constitution Ave Canberra ACT 2601  
GPO Box 367 Canberra ACT 2601

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**APPENDIX 3**

**Historical Reports Summary  
for Hot Fire Training Ground  
and Darwin ARFFS Station**



## **Appendix 3 Additional Investigations Summary**

### **Department of Defence RAAF Base Darwin Detailed Site Investigation – Per and Poly-flouroalkyl Substances (PFAS) November 2017**

#### **Section 5.1.15 Current Fire Training Ground (NT0243)**

The current fire training ground, which is also referred to as the Hot Fire Training Ground, is on RAAF Base Darwin on the boundary of the Darwin International Airport lease. The site is operated by Airservices Australia (ASA) and commenced use in 2002.

#### **Existing Information**

The site has been used as a testing and training ground for fire services operating on the site, which has predominantly been Airservices, but included RAAF up until approximately 2008, and from time to time also included visiting military.

3M Light water was used in training at the site until 2003, when Airservices transitioned to Ansulite. Airservices notified Defence on 21 July 2010 that training activities using AFFF had ceased and that Airservices would train using water only until a suitable replacement was found.

A schematic of the waste water collection system at the training ground (Beca 2016), showed collection of liquids from the centre of the pad, directed to a separator to remove fuel/oil contaminants. The “treated” wastewater was then directed to a holding tank. In 2008, water from the holding tank was collected for irrigation on the ARFF lease area (GHD 2008). It is understood, the water was used on trees along the boundary road and continued until approximately early 2010, when the practice was ceased. Subsequent practices for the management of wastewater involved collection for disposal to sewer at the Airservices Fire Station.

Soil, groundwater and wastewater sampling has previously been conducted across the area in various investigations (GHD 2008 and Beca (2016) for Airservices, and GHD 2011, GHD 2012a for Defence). Soil sampling has been conducted on an approximate 20 m grid over an area of approximately 150 m x 150 m around the training pad. Previous results indicated residual PFOS concentrations up to a maximum of 16,000 ug/kg, but typically between 50 ug/kg and 1,000 ug/kg across the area investigated. Depth profiles conducted by GHD (2011) generally indicated a reduction in concentrations from the surface to 0.5 m depth.

Sediment sampling had also been conducted in 2008, 2010, 2012 and 2016. The highest concentrations were consistently reported in surface sediment samples taken from the drain that runs from the edge of the pad, to the north. The maximum concentration of 39,000 ug/kg was reported by GHD (2012a) immediately adjacent to the pad, with concentrations of approximately 300 ug/kg reported in the most northerly sample, which was approximately 170 m north of the pad (GHD 2011 and 2008).

Waste water samples were collected and analysed by Beca (2016) as part of annual monitoring for Airservices, and reported concentrations of 97.4 to 83.5 ug/L of PFOS and 80.8 to 58.2 ug/L PFOA in the waste water holding tanks. Similar concentrations of PFHxA, PFHpA, PFNA and 8:2 FTS were also reported.

The maximum concentration of PFOS reported in groundwater adjacent to the training ground in 2012 was 5.9 ug/L, with similar concentrations of PFOA.

#### **Conceptual site model**

PFAS compounds have entered the soil and surface water in the area of the site as a result of direct spray of AFFF during training activities and migrated with stormwater flow. Some migration to groundwater has occurred most likely through surface infiltration and leaching from soil, with some potential for leaks from wastewater tanks and pipelines to have occurred.

The area of the site is at the edge of a groundwater ridge, and groundwater most likely flows to the northwest, discharging to Rapid Creek and entering the freshwater ecosystem.

The potentially relevant receptors from contamination from the current fire training ground are:

- Site personnel and terrestrial flora and fauna in contact with surface soils, wastewater and sediments in the area of the training ground.
- Aquatic flora and fauna, recreational users and people consuming fish, crustacea or molluscs from Rapid Creek.
- Potential users of extracted groundwater down-gradient of the source area.

## **Investigation Objective**

Further investigation was undertaken in this area to delineate soil impact vertically, and sediment impact laterally and to assess the nature and extent of residual contamination that may be presenting an ongoing source of PFAS contamination.

Soil and sediment testing was conducted to delineate impacts and assess leachability. Groundwater monitoring wells were installed in the inferred down gradient direction to confirm flow directions and assess contaminant transport. Hydraulic conductivity testing and vertical profile testing was used to inform the contaminant migration assessment, along with groundwater level measurements and creek invert survey.

## **7.4 Site Infrastructure Investigation**

### **7.4.1 Wastewater in Current Fire Training Ground**

The site has been used as a testing and training ground for fire services operating on the site. 3M Lightwater was used in training at the site until 2003. Airservices notified Defence on 21 July 2010 that training activities using AFFF had ceased.

Based on the reported concentrations and anticipated migration pathway, the potentially relevant receptors from contamination from the current fire training ground include sediments and wastewater.

Waste water samples were collected from the following locations:

- Stormwater drain release located to the north of current fire training sealed bunded area.
- Stormwater drain located within the sealed bunded zone of the current fire training area.
- Underground tank containing water located to the North West corner of the sealed bunded zone of the current fire training area.
- Sump pit located to the south of the pump system at current fire training area.
- Sump pit located to the north of the pump system at current fire training area.

Two sediment samples were collected from:

- An area of potential surface water runoff from non bunded areas
- Stormwater drain runoff down gradient of drain located to the north of current fire training bunded area.

## **8 Discussion**

### **8.1 Nature and Extent of Contamination**

#### **8.1.1 Soil**

##### **Current Fire Training Ground (AEC 17)**

PFOS was detected in soils during this (and previous) environmental assessments within and surrounding the current fire training ground. Concentrations ranged from <0.5 µg/kg to 39,000 µg/kg in soils and sediments. PFOA and

PFHxS were also measured in soils ranging from <0.5 to 64µg/kg and <5 to 81 µg/kg (respectively). Delineation of PFAS at this site was generally not achieved, although relative concentrations suggest an impacted area of approximately 300 m x 200 m around the fire training ground and associated drain to the north.

The measured concentrations of PFOS exceeded the sensitive ecological criteria in all samples with the exception of some vertical delineation samples at location BH162. Samples of sediment from east of the training pad and in the associated infrastructure also exceeded the direct toxicity ecological screening value, which indicates a potential for adverse impact to local terrestrial fauna.

Measured concentrations of PFOS also exceeded the human health screening criteria adopted for this AEC (recreational – 1,200 µg/kg) in the area of the fire training infrastructure. PFOS was typically vertically delineated (below the human health screening criteria) within the soil profile at all locations (with the exception of location BH165) with the majority of the impacts within the upper 0.5m of soils at the site, or within sediment samples from adjacent drainage areas (GHD 2012a).

The beneficial uses of land of human health and ecosystem protection are potentially precluded by the PFOS contamination in soils in this AEC through direct contact with soils or sediments and via leaching to surface waters and groundwater ultimately discharging to aquatic environments.

Figures 22a to 22d show the extent of PFOS and PFOA in soils within this AEC.

### 8.1.2 Groundwater

#### Current Fire Training Ground (NT0243)

The current fire training ground commenced use in 2002. Groundwater levels in the dry season indicate that groundwater flow from the area is primarily to the northeast, toward Rapid Creek. The area is on a groundwater high, and there is also PFAS impact associated with the surface water drain extending to the north, therefore some PFAS impacted groundwater may also be flowing to the north and northwest.

The maximum PFAS concentration in the dry season sampling event was detected in 1302\_243\_MW02 (48µg/L PFOS, 90 µg/L of total PFAS). The reported concentrations were approximately double those reported at the end of wet in April 2017, and the PFOS (but not PFOA) concentration is an order of magnitude higher than reported in March 2012. PFAS concentrations decrease with distance from the training area (**Error! Reference source not found.**), with plumelines appearing to extend to the northeast toward 1302\_MW191 (adjacent to Rapid Creek), and 1302\_222\_MW01 to the northwest. The PFAS impact migrating from the area is delineated to the west and north, and does not extend beyond the site boundary.

The mix of PFAS compounds in 1302\_243\_MW02 differs from elsewhere onsite (**Error! Reference source not found.**), and PFOA and fluorotelomers are relatively abundant consistent with Ansulite having been used at the training ground. The presence of non-PFOS/PFHxS compounds decreases with distance from the source area (**Error! Reference source not found.**), although PFHxA is still relatively high compared to elsewhere in groundwater at the base.

The PFAS discharge offsite due to this source area will be estimated for the Supplementary report based on groundwater concentrations in 1302\_MW189, 1302\_MW191 and 1302\_MW196, as these points are considered to be downgradient of 1302\_243\_MW02.

#### 8.1.4 Infrastructure Sampling

Sampling of sediments, concrete or waste waters from selected infrastructure identified elevated concentrations in waste waters from the current fire training area. Concentrations in sediment collected from pits and concrete samples were not highly contaminated, although leaching may result in contribution to local surface water or groundwater contamination.

Several samples from the current fire training area (AEC17) waste water storage tank and pits reported concentrations of PFOS (0.83 to 210µg/L), PFOS + PFHxS (0.87 to 241µg/L), and PFOA (0.2 to 95µg/L). The liquids within these areas were all contained within the waste water training area fluid capture system of the waste storage tank and there is not a direct exposure pathway. Inappropriate handling and disposal of this waste water that leads to spills or environmental release, has the potential to lead to risks to human health or the environment.

The activities undertaken as a part of this detailed site investigation were to assist Defence in developing an understanding of the nature and extent of per- and poly-fluoroalkylated substances (PFAS) contamination at the site from the historic use, storage and disposal of aqueous film forming foams. The principal objectives of the investigation were to identify known and potential sources of PFAS contamination at the site, to characterise the site setting in sufficient details so as to describe likely contaminant behaviours, and to identify receptors of the contamination and associated exposure concentrations.

### **Sources of PFAS**

A number of known and potential sources of PFAS contamination were identified during the investigation of the site (which also built on previous environmental assessments undertaken) and included areas where fire training occurred, waste storage areas, fuel farms (which had fire-suppressions systems), vehicle storage and maintenance areas and an air crash site. These key areas of environmental concern were investigated in more detail to further characterise the magnitude of PFAS within soils and groundwater at these locations.

Key areas of environmental concern that contained significant concentrations of PFAS included:

- Former Fire Training Grounds 1 & 2 (AECs 1 and 16)
- Current Fire Training Ground (AEC 17)
- Former fuel farms 5, 4 & 6 (AECs 3, 4 and 11)
- Former RAAF Fire station (AEC 13); and
- Hanger 31 and Fuel Farm 1 (AEC 10)

Other areas of environmental concern also contained PFAS concentrations within soils, however the concentrations measured and distributions were not considered to represent significant sources of contamination.



## **Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 May 2018**

The Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAs (HHRA) has been extremely beneficial to this investigation as it has contributed to the lines of evidence in determining if the appropriate waste disposal procedures were followed by Airservices and if the requirements of the Airport (Environment Protection) Regulations 1997 were followed.

The Darwin RAAF base HHRA has been written based upon the National Environmental Protection Measure 2013 and has also been independently audited which provides certainty to the evidence provided in the report. This summary is an interpretation of the results that are applicable to this investigation. It needs to be noted that the HHRA did not include investigation of the Darwin ARFFS station site and training ground located on Infrastructure land. The HHRA only mentions PFAS exceedances at source sites on Defence Land. However the Risk assessment of all surrounding human health and ecological receptors has proven beneficial to this investigations findings and recommendations.

### **Investigation of PFAS at the Darwin ARFFS Hot Fire Training Ground training ground located on Defence land**

Refer: Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 may 2018 section 3.3 Areas of Environmental Concern pp 22

#### **3.3.1 PFAS source areas**

##### **AEC 17: Current Fire Training Ground (NT0243)**

The current fire training ground, which is also referred to as the Hot Fire Training Ground, is on RAAF Base Darwin on the boundary of the DIA lease. The site is operated by Airservices and commenced use in 2002.

The site has been used as a testing and training ground for fire services operating on the site, which has predominantly been Airservices, but included RAAF up until approximately 2008, and from time to time also included visiting military.

3M Light water was used in training at the site until 2003, when Airservices transitioned to Ansulite. Airservices notified Defence on 21 July 2010 that training activities using AFFF had ceased and that Airservices would train using water only until a suitable replacement was found.

A schematic of the waste water collection system at the training ground (Beca 2016), showed collection of liquids from the centre of the pad, directed to a separator to remove fuel/oil contaminants. The “treated” wastewater was then directed to a holding tank. In 2008, water from the holding tank was collected for irrigation on the ARFF lease area (GHD 2008). It is understood, the water was used on trees along the boundary road and continued until approximately early 2010, when the practice was ceased. Subsequent practices for the management of wastewater involved collection for disposal to sewer at the Airservices Fire Station.

The area is in open grassland, with bushland to the east and Rapid Creek approximately 800 m to the north east.

## **5.3 Soil**

### **5.3.1 Nature and extent of impact**

Refer: Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 may 2018 section 5.3 Soil 5.3.1 Nature and extent of Impact

#### **AEC 17: Current Fire Training Ground**

PFOS was detected in soils during this (and previous) environmental assessments within and surrounding the current fire training ground. Concentrations ranged from <0.5 µg/kg to 39,000 µg/kg in soils and sediments. PFOA and PFHxS were also measured in soils ranging from <0.5 to 64µg/kg and <5 to 81 µg/kg (respectively). Delineation of PFAS at this site was achieved generally not achieved, although relative concentrations suggest an impacted area of approximately 300 m x 200 m around the fire training ground an associated drain to the north.

Measured concentrations of PFOS exceeded the human health screening criteria adopted for this AEC (recreational – 1,000 µg/kg) in the area of the fire training infrastructure. PFOS was typically vertically delineated (below the human health screening criteria) within the soil profile at all locations (with the exception of location BH165) with the majority of the impacts within the upper 0.5m of soils at the site, or within sediment samples from adjacent drainage areas (GHD 2012).

**Figure 8g** shows the extent of PFOS + PFHxS in soils within this AEC.

Refer Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 May 2018 Appendix A figure 8G

The Figure highlights soil sediment testing at the SW outlet point and along the drainage line. On average the highest PFOS/PFHxS levels displayed as >1000µg/kg are along the storm water drainage line. The figure highlights that around the two small sheds the PFOS PFHxS levels were within the range of >9-600µg/kg. The levels within the tree line and the potential area of irrigation has PFOS +PFHxS levels within the range >9-600µg/kg.

The Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS has provided exact analysis results, the sample location and analysis result for soil on the LMU training ground, with regards to the locations that are identified in the accusations are summarized below:

**Table 13: Soil analysis results - Darwin ARFFS Hot Fire Training Ground located on Defence land**

Data in this table was sourced from the Darwin RAAF Base Detailed Site Investigation PFAS Assessment (Table 1n) and the Darwin RAAF Base Human health Risk Assessment (Figure 8g).

|                                                                           |                |                  |             |          | Perflouro-n-octanoate acid (PFOA) | Perflouro-n-octane sulfonic acid (PFOS) | Sum of PFOS + PFHxS |
|---------------------------------------------------------------------------|----------------|------------------|-------------|----------|-----------------------------------|-----------------------------------------|---------------------|
|                                                                           |                |                  |             |          | µg/kg                             | µg/kg                                   | µg/kg               |
| LOR                                                                       |                |                  |             |          | 5                                 | 5                                       | 5                   |
| Human Health Recreational <sup>2</sup>                                    |                |                  |             |          | 10000 <sup>3</sup>                |                                         | 1000 <sup>3</sup>   |
| Human Health Residential <sup>2</sup>                                     |                |                  |             |          | 4800 <sup>4</sup>                 |                                         | 600 <sup>4</sup>    |
| Maintenance of Ecosystems – Areas of Ecological Significance <sup>1</sup> |                |                  |             |          | 650 <sup>5</sup>                  | 10 <sup>5</sup>                         |                     |
| Maintenance of Ecosystems – Residential /Public Open Space <sup>1</sup>   |                |                  |             |          | 17000 <sup>6</sup>                | 32000 <sup>6</sup>                      |                     |
| Location                                                                  | Soil sample id | Sample Depth (m) | Sample Date | Source   |                                   |                                         |                     |
| Stormwater drain                                                          | 1302_SD265     | Drain sediment   | 7.09.2017   | coffey   | 8.3                               | 1200                                    | 1205                |
| Drainage line                                                             | 243_SED01      | 0.0              | 2.08.2012   | GHD2012a | 42                                | 39000                                   | 39000               |
|                                                                           | 243_TP04       | 0.0              | 2.08.2012   | GHD2012a | 40                                | 46                                      | 46                  |
|                                                                           | 243_SED02      | 0.0              | 2.08.2012   | GHD2012a | 21                                | 34000                                   | 34000               |
|                                                                           | 243_SED03      | 0.0              | 2.08.2012   | GHD2012a | 22                                | 35000                                   | 35000               |
|                                                                           | 1302_SD266     | 0.0              | 7.09.2017   | coffey   | 7.5                               | 1100                                    | 1127                |
|                                                                           | ATP 13         | 0.1              | 28.05.2010  | GHD2012a | 11.3                              | 28.95                                   | 28.95               |
|                                                                           | ATP 13         | 0.5              | 28.05.2010  | GHD2012a | <0.5                              | <0.7                                    | <0.7                |
|                                                                           | 243_SED04      | 0.0              | 2.08.2012   | GHD2012a | 7.8                               | 2400                                    | 2400                |
|                                                                           | 243_SED05      | 0.0              | 2.08.2012   | GHD2012a | 4.8                               | 430                                     | 430                 |
|                                                                           | 243_SED07      | 0.0              | 2.08.2012   | GHD2012a | 1.9                               | 150                                     | 150                 |
|                                                                           | 243_SED09      | 0.0              | 2.08.2012   | GHD2012a | 3.3                               | 140                                     | 140                 |
|                                                                           | 243_SED11      | 0.0              | 2.08.2012   | GHD2012a | 15                                | 4300                                    | 4300                |
| West side of small green shed                                             | 243 TP07       | 0.2              | 2.07.2012   | GHD2012a | 42                                | 230                                     | 230                 |
| West side of open caged shed                                              | 1302_BH166     | 0.2              | 14.07.2017  | coffey   | <5                                | 110                                     | 110                 |
|                                                                           | 1302_BH166     | 1.0              | 14.07.2017  | coffey   | <5                                | 110                                     | 110                 |
|                                                                           | 1302_BH166     | 3.0              | 14.07.2017  | coffey   | <5                                | 20                                      | 25.9                |
| South side of open caged shed                                             | 243 TP 12      | 0.1-0.2          | 7.03.2012   | GHD2012a | 5.6                               | 1400                                    | 1400                |
| Irrigation line of trees                                                  | ATP17          | 0.1              | 27.05.2010  | GHD2012a | <0.5                              | 254.5                                   | 254.5               |
| Irrigation line of trees                                                  | ATP17          | 0.5              | 27.05.2010  | GHD2012a | 5.7                               | 15                                      | 15                  |
| Irrigation line of trees                                                  | ATP17          | 1.0              | 27.05.2010  | GHD2012a | 1.4                               | 3.2                                     | 3.2                 |
| Irrigation line of trees                                                  | ATP18          | 0.1              | 27.05.2010  | GHD2012a | 9.5                               | 150.6                                   | 150.6               |
| Irrigation line of trees                                                  | ATP04          | 0.1              | 27.05.2010  | GHD2012a | 26.9                              | 38.9                                    | 38.9                |
| Irrigation line of trees                                                  | 1302_SD267     | 0.1              | 17.08.2017  | coffey   | <5                                | 38                                      | 38                  |
| Irrigation line of trees                                                  | ATP05          | 0.1              | 27.05.2010  | GHD2012a | 18.4                              | 21.1                                    | 21.1                |
| Irrigation line of trees                                                  | ATP06          | 0.1              | 27.05.2010  | GHD2012a | <0.5                              | 68.2                                    | 68.2                |
| Irrigation line of trees                                                  | ATP07          | 0.1              | 27.05.2010  | GHD2012a | <0.5                              | 18.6                                    | 18.6                |

Refer Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 May 2018table 5-6 Summary of soil analytical results. The table highlights that the concentrations of PFOS + PFHxS are the second highest source site out of all the 17 Defence source sites.

## 5.4 Groundwater

### 5.4.1 Nature and extent of impact

Refer Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 May 2018 section 5.4 Groundwater, 5.4.1 Nature and extent of impact AEC 17 Current fire training ground

#### AEC 17: Current Fire Training Ground

The maximum PFAS concentration in the area was detected in 1302\_243\_MW02 in January 2018 (99 µg/L PFOS + PFHxS and 10 µg/L of PFOA). The concentrations reported by Coffey in 2017 and 2018 are higher than those previously reported in 2012. The concentrations reported through 2017 and 2018 are consistent with some variability by season, and the cause of the discrepancy with previous data is potentially the depth of sampling. Coffey sampling targeted the shallow groundwater, whereas some previous assessments collected samples from deeper within the aquifer. The mix of PFAS compounds in 1302\_243\_MW02 differs from elsewhere on-base, and PFOA and fluorotelomers are relatively abundant, consistent with Ansulite having been used at the training ground.

The Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS has provided exact analysis results, the sample location and analysis result for groundwater on the LMU training ground, with regards to the locations that are identified in the accusations are summarized below:

Refer Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 May 2018 section 5.4 Groundwater, 5.4.2 Screening Assessment Table 5-7 Summary of **April 2017 GME outcomes**

Out of the 10 source sites the groundwater exceedances at the Hot Fire Training Ground was the highest for PFOS concentrations in the range of 18-23µg/Lt , The highest for PFHxS in the range of 5.3-6.7µg/Lt and the highest for PFOA 3.2-3.7µg/Lt.

Refer Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 May 2018 section 5.4 Groundwater, 5.4.2 Screening Assessment Table 5-8 Summary of **September 2017 GME outcomes**

Out of the 10 source sites the groundwater exceedances at the Hot Fire Training Ground was the third highest for PFOS concentrations in the range of <0.01-48µg/Lt , The fourth highest for PFHxS in the range of <0.01-11µg/Lt and the highest for PFOA in the range of <0.01-5.5µg/Lt.

Refer Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 May 2018 section 5.4 Groundwater, 5.4.2 Screening Assessment Table 5-11 Summary of **January 2018 GME outcomes**

Out of the 10 source sites the groundwater exceedances at the Hot Fire Training Ground was the second highest for PFOS concentrations in the range of 23-82µg/Lt , The second highest for PFHxS in the range of 5.5-17µg/Lt and the highest for PFOA in the range of 2.9-10µg/Lt.

Refer Department of Defence RAAF base Darwin Human Health Risk Assessment for PFAS 16 May 2018 section 5.4 Groundwater, 5.4.2 Screening Assessment Table 5-11 Summary of **March 2018 GME outcomes**

Out of the 10 source sites the groundwater exceedances at the Hot Fire Training Ground was the third highest for PFOS concentrations in the range of 17-29µg/Lt , The fourth highest for PFHxS in the range of 6.7-10µg/Lt and the highest for PFOA in the range of 3.6-5.1µg/Lt.

**GHD September 2008 Airservices Australia Report ARFF National Testing Program** Preliminary Contaminated Site Investigation Assessment – Darwin ARFF Drill Ground, Darwin Airport

#### Refer Section 2.0 Site Information

### 2.1 Site location and Details

Table 1 Site Identification



Site Name: Darwin ARFF Drill ground

Site Location: RAAF base Darwin

Site Investigation Area: 8500m<sup>2</sup>

## **2.6 Potentially Sensitive Receptors**

- Reichardt Creek located approximately 5.5km southeast of the site;
- Ludmilla creek, located approximately 2.5km south west of the site ;
- Rapid Creek, located approximately 1km North east of the site ; and
- Marrara swamp located 4km southeast of the site.

## **Refer Section 3.0 Site History**

### **3.3 Anecdotal evidence**

Bill Harrison

Bill Harrison was a current employee of ASA at the time of the interview (conducted on 25 June 2008) he was the Darwin ARFFS Fire Station Manager. Mr Harrison has worked for ASA for eight years and was there when the current drill ground was constructed in 2001. It should be noted that the aerial photography review has indicated that the current drill pad was not constructed until at least 2002.

#### **3.3.1 Anecdotal Evidence Summary**

The site was established in 2002 and has been historically used by both ARFF and the RAAF base Darwin personnel. Live Fire drills are undertaken at a minimum of twice to three times a week, for approximately 40 weeks of the year. The current training activities on the site generally consist of:

- Filling the mock plane with hay;
- Dousing the entire area in kerosene;
- Lighting the saturated area; and
- Extinguishing the fire with hand held hoses and vehicle mounted cannons using , a mixture of AFFF (3 and 6%) and water (2000-4000 L of water)

The facilities at the site include a 32 by 22 metre bunded concrete slab, a mock up plane, underground kerosene distribution pipes form the temporary 120L kerosene AST connected to the mock up plane , waste water UST and associated underground infrastructure, oil – water separator and an overflow discharge open drainage line. The concrete pad is bunded on all four sides.

3M lightwater was used at the site until 2003. Ansul is now used on the site (3% or 6% for training activities). Water is brought onto the site during each training exercise by vehicle. Runoff from the pad includes water, kerosene and AFFF. Remnant water, kerosene and AFFF is drained from the south eastern drain on the pad to a waste water tank. Water is pumped into a separator then into a separator settling pit. Water from the settling pit is then extracted and used for irrigation on site. The separator is cleaned four times a year and liquid waste truck pumps waste product out of the second settling pit once a month. During the wet season training operations are minimized to reduce contamination of the surrounding area. An overflow discharge line is located on the eastern end of the pad and the drainage line flows north to an area of slightly depressed elevation where it settles.

Site B is located adjacent to the fire station to the south of Site A. This site is comprised of a concrete pad (approximately 10 by 5 metres), mock up burn pipes, kerosene pipes and a wastewater treatment system inclusive of an evaporation pond, equivalent in size to the overlying concrete pad. Staff onsite advised that 3M light water products had also been used in this site prior to its decommissioning in 2003. Overspray was also noted to have occurred during many training exercises, which was attributed to the close location to the runway and passing aircrafts, with resultant strong winds in areas of little protection. This site was not assessed as part of this investigation, in line with the project objectives detailed in Section 1.1.

## **Refer Section 5.0 Investigation Thresholds**

### **5.1 Soil Investigation Thresholds**

- Accepted Level for soil within: Airports Regulation 1997, Schedule 3, section 1.02, Table 2 – areas of environmental significance. These guideline represent the accepted limits of pollutant substances for areas of environmental concern.

The above adopted investigation levels have been included in the analytical results summary table provided in Appendix J.

## **5.2 Adopted PFOS and PFOA Guidelines**

### **5.2.1 Soil Criteria**

For this assessment, the Health Consultation prepared by the Minnesota Department of Health (February 2005) Interim Soil Reference Values (SRV) – Industrial Soil Screen Criteria have been adopted for PFOS and PFOA in soil at the drill ground site. The Minnesota Department of Health developed the interim SRV for both PFOA and PFOS, which are adopted as soil evaluation criteria for the protection of people from direct contact with contaminate soil through ingestion, skin contact and inhalation of vapors and /or contaminated soil particles. Soil concentrations at or below the SRV are considered to be safe by the MDH for industrial land use only.

#### ***SRV industrial Soil Screen Criteria***

- *PFOS – 40 mg/kg; and*
- *PFOA – 200 mg/kg.*

In regards to the abovementioned soil guidelines, it is also understood that according the MDH, soil type was not considered when developing the criteria. It was also noted that MDH was unaware of a soil type that would play a significant effect of the absorption of PFOS.

The results for this investigation are highlighted in table no above.

### **Refer Section 11.0 Recommendations**

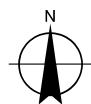
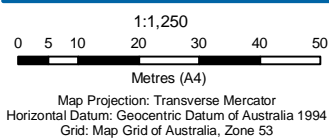
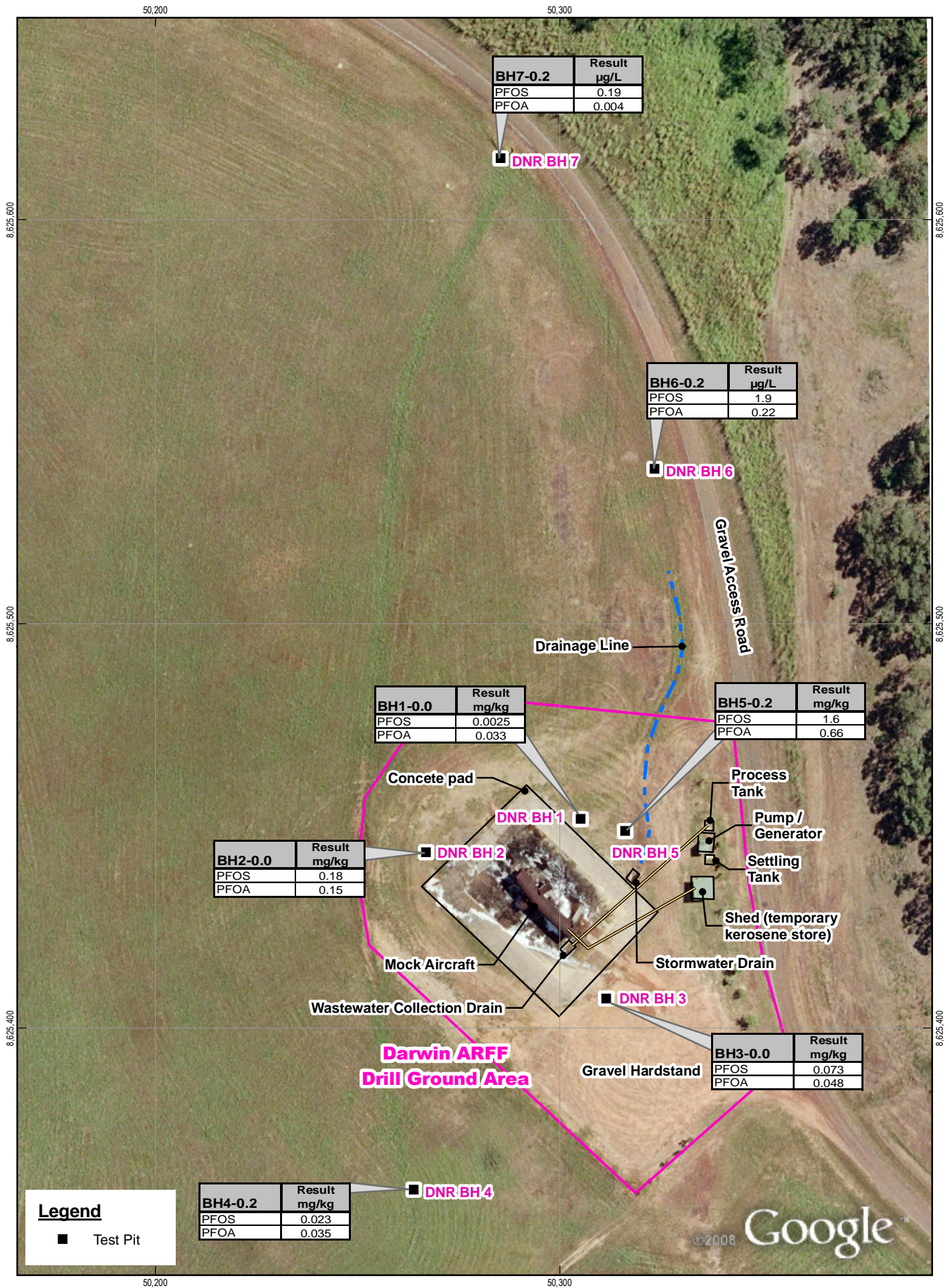
To provide further confidence regarding the presence and extent of contamination identified, the following recommendations are made:

- Conduct additional targeted site investigation works in the areas of AEC identified by the site history and walk over assessment that were not investigated or only partially investigated as part of this scope of work. These areas include:
  - Training Area (including beneath the existing concrete pad area);
  - Drainage Channel located to the south of the site;
  - Areas irrigated by waste water from separator system;
  - Kerosene AST Area;
  - Oil /water Separator and Shed (including settling tank, processing tank and pump/generator);
  - Potential importation of filling material of unknown origin ( in areas not investigated);and
  - Sites B,C,D and their surrounding areas.

Potential contaminants associated with these areas included TPH, PAHs, heavy metals, VOCs, OC / OP Pesticides, PFOS/PFOA.

- Conduct further site investigations to delineate the full horizontal and vertical extent of PFOS/PFOA concentrations identified by this assessment.
- Conduct further site investigations to determine if PAH and TPH contaminations exists in other areas of the site not investigated as part of this assessment.
- Install and survey three groundwater bores within the drill ground site and adjacent areas to evaluate groundwater.
- Conduct integrity testing of the waste water holding tanks (settling and processing tanks) of the oil separation system.
- Determine site-specific human health and/or ecological risks associated with the PFOS and PFOA present in soil and/or groundwater at the site by site specific risk assessment including management action if required.
- Upgrade training and environmental management procedures to reduce possible contamination to the surrounding environment.





AIRSERVICES AUSTRALIA  
ARFF National Testing Project  
Preliminary Site Contamination Assessment  
Darwin ARFF Drill Ground  
SITE DETAIL and SAMPLING

Job Number 41-20219  
Revision A  
Date 10 September 2008

Figure 3

## **APPENDIX 4**

### **Complainant's Emails**



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:17 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 1  
**Attachments:** IMG\_0239.jpg

Dear [REDACTED],

I'm going to send you a bunch of pictures (about 19) of Airservices' CIRRIIS reports. In some of them, the detail supports what I am stating.

If you have any questions, please ask.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:07 PM  
**To:** [REDACTED]  
**Subject:** Airservices

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:17 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 2  
**Attachments:** IMG\_0240.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:08 PM  
**To:** [REDACTED]  
**Subject:** Airservices 2

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:18 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 3  
**Attachments:** IMG\_0241.jpg

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:09 PM  
**To:** [REDACTED]  
**Subject:** Airservices 3

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:18 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 4  
**Attachments:** IMG\_0243.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:09 PM  
**To:** [REDACTED]  
**Subject:** Airservices 4



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:18 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 5  
**Attachments:** IMG\_0244.jpg

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:11 PM  
**To:** [REDACTED]  
**Subject:** Airservices 5

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:18 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 7  
**Attachments:** IMG\_0246.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:12 PM  
**To:** [REDACTED]  
**Subject:** Airservices 7

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:18 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 6  
**Attachments:** IMG\_0245.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:11 PM  
**To:** [REDACTED]  
**Subject:** Airservices 6

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:18 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 8  
**Attachments:** IMG\_0247.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:12 PM  
**To:** [REDACTED]  
**Subject:** Airservices 8



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:19 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 9  
**Attachments:** IMG\_0248.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:13 PM  
**To:** [REDACTED]  
**Subject:** Airservices 9

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:19 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 10  
**Attachments:** IMG\_0250.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:25 PM  
**To:** [REDACTED]  
**Subject:** Airservices 10

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:19 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 11  
**Attachments:** IMG\_0251.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:25 PM  
**To:** [REDACTED]  
**Subject:** Airservices 11

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:19 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 12  
**Attachments:** IMG\_0252.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:26 PM  
**To:** [REDACTED]  
**Subject:** Airservices 12



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:19 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 13  
**Attachments:** IMG\_0253.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:27 PM  
**To:** [REDACTED]  
**Subject:** Airservices 13

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:20 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 14  
**Attachments:** IMG\_0254.jpg

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:27 PM  
**To:** [REDACTED]  
**Subject:** Airservices 14

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:20 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 15  
**Attachments:** IMG\_0256.jpg

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:29 PM  
**To:** [REDACTED]  
**Subject:** Airservices 15

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:20 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 16  
**Attachments:** IMG\_0257.jpg

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:30 PM  
**To:** [REDACTED]  
**Subject:** Airservices 16

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:20 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 17  
**Attachments:** IMG\_0258.jpg

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:30 PM  
**To:** [REDACTED]  
**Subject:** Airservices 17



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:21 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 18  
**Attachments:** IMG\_0259.jpg

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:32 PM  
**To:** [REDACTED]  
**Subject:** Airservices 18

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:21 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices 19  
**Attachments:** IMG\_0260.jpg

Finally, this is the last one.

---

**From:** [REDACTED]  
**Sent:** Thursday, 15 February 2018 3:32 PM  
**To:** [REDACTED]  
**Subject:** Airservices 19

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:09 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices Darwin Environmental Abuse 2  
**Attachments:** IMG\_0155.PNG

Dear [REDACTED],

This is the large mock up at the training ground with the drain at the front of it. From the drain the effluent runs to either stormwater or the pit at the control room. This is dependent on what wheel is opened.

[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:09 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices Darwin Environmental Abuse 1  
**Attachments:** Airservices 5.pdf

Dear [REDACTED],

Thank you for taking the time to talk with me today. I hope what I told you made some kind of sense. I have about nine or ten pictures with explanations I will send you. I hope they help to explain what I am disclosing.

The attached is a picture of the training pad where some of the environmental vandalism by Airservices has taken place, there is also a brief of where things are and how it works.

Any questions, just ask.

[REDACTED]

[REDACTED]

---

**From:**

**Sent:**

[REDACTED]  
Friday, 23 February 2018 7:10 PM

**To:**

**Subject:**

[REDACTED]  
Fw: Airservices Darwin Environmental Abuse 4

**Attachments:**

IMG\_0154.PNG

Dear [REDACTED],

This is the outlet from the large mock up pad to stormwater. You can see the effluent that has recently been released. These pictures were taken on 17 September, 2017, the back end of the dry season in Darwin, and there had been no notable rain.



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:10 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices Darwin Environmental Abuse 3  
**Attachments:** IMG\_0153.PNG

Dear [REDACTED],

These are the 2 wheels that control the flow of effluent. They are located at the side of the large mock up pad between it and the control rooms.

[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:10 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices Darwin Environmental Abuse 5  
**Attachments:** IMG\_0156.PNG

Dear [REDACTED],

This is the control panel that when the generator is running you can control the flow of effluent from the pits to either the processor or to irrigation. If the pits are too low there will be no flow. There may be another step involved in directing the flow of effluent to the tap, I am unsure, further investigation will find it.

It is this control panel that I have grave concerns about. Once the word is out, there is a good chance this will disappear. People do stupid things in a panic, including attempting to cover up their crime, i.e. dispose of evidence.

[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:11 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices Darwin Environmental Abuse 6  
**Attachments:** IMG\_0158.PNG; IMG\_0159.PNG

Dear [REDACTED],

These 2 pictures are of the oil separation plant. The 0158 picture shows the outlet pipe and the 0159 picture shows the flow of effluent from the oil separation plant. On watching the video you will see it in its entirety.

[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:11 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices Darwin Environmental Abuse 7  
**Attachments:** IMG\_0151.PNG; IMG\_0161.PNG

Dear [REDACTED],

These 2 pictures show the taps location which will help in understanding the bigger picture from email number 1. You can see the large mock up in the background.

[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:12 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices Darwin Environmental Abuse 8  
**Attachments:** Airseviles 6.pdf

Dear [REDACTED],

The attached explains what takes place from the station area.

[REDACTED]



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:12 PM  
**To:** [REDACTED]  
**Subject:** Fw: Airservices Darwin Environmental Abuse 9  
**Attachments:** Airservices 7.pdf

Dear [REDACTED],

The attached is a broader picture with an explanation.

[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:17 PM  
**To:** [REDACTED]  
**Subject:** Fw: Drill ground Generator U/S [SEC=UNOFFICIAL]

Dear [REDACTED],

Just another email stating what we have all been involved in. Every crew has carted the effluent to the station and have dumped it into the wash down bay. The NT EPA has stated that there is no licence in place for the effluent to be dumped into sewer (if that is where it goes).

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, 18 January 2018 11:35 AM  
**To:** [REDACTED]  
**Subject:** FW: Drill ground Generator U/S [SEC=UNOFFICIAL]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
T [REDACTED] | F [REDACTED]  
E [REDACTED]

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

**From:** [REDACTED]  
**Sent:** Monday, 26 October 2015 7:35 AM  
**To:** [REDACTED]  
**Subject:** Drill ground Generator U/S

Guys,

The generator at the Drill ground is not working. A fault has been raised by the mechanics and a tech has been working on it.

Be aware that because of this we cannot pump water out of the pits or pump fuel to engines or wheels.

Cheers

[REDACTED]  
Acting Fire Commander  
ARFF Services, Darwin  
Airservices Australia

Ph: [REDACTED]  
Fax: [REDACTED]

Email: [REDACTED]

PO Box 42594, Casuarina NT 0811

~~~~~

CAUTION: This e-mail is confidential. If you are not the intended recipient, you must not disclose or use the information contained in it. If you have received this e-mail in error, please tell us immediately by return e-mail and delete the document.

Airservices Australia does not represent, warrant or guarantee that the integrity of this communication is free of errors, virus or interference.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:13 PM  
**To:** [REDACTED]  
**Subject:** Fw: FAOM SWITCHES FIRE VEHICLES [SEC=UNOFFICIAL]

Dear [REDACTED],

August 2015, the instruction to change the procedure of the foam switch position came through just prior. Safe to say this email was sent after another accidental discharge of foam.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Monday, 4 December 2017 8:33 AM  
**To:** [REDACTED]  
**Subject:** FW: FAOM SWITCHES FIRE VEHICLES [SEC=UNOFFICIAL]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811

T [REDACTED] | F [REDACTED]  
E [REDACTED]

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

**From:** [REDACTED]  
**Sent:** Monday, 10 August 2015 10:33 AM  
**To:** [REDACTED] >  
**Subject:** FAOM SWITCHES FIRE VEHICLES

ALL STAFF

As you are all aware it is NOW a requirement to have the foam switches on the vehicles in the ON position at all times.

When water only is to be pumped the foam switch is to be turned to the OFF position.

Over the weekend Tender 3 was found to possibly have foam in the water tank.

On investigation it was found that the hose reel switch had been left in the ON position.

As you all are aware when the pump is operated and the hose reel is in the ON position the excess pressure is vented into the watertank. If the foam valve is on then foam is induced into the water tank.

Drivers/ Operators are to ENSURE that the hose reel on/ off switch is in the OFF position at all times when daily etc. inspections are completed and after training has been completed.

[www.airservicesaustralia.com](http://www.airservicesaustralia.com)

[illegible]

Airservices

[www.airservicesaustralia.com](http://www.airservicesaustralia.com)

Aims to provide safe and environmentally sound air traffic control management and related airside services to the aviation industry.

"So That Others May Live"  
"The Guardian"

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[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:13 PM  
**To:** [REDACTED]  
**Subject:** Fw: Fire Vehicles and foam switches URGENT!! [SEC=UNCLASSIFIED]

Dear [REDACTED],

The below email stream relates to ways we can come up with to try and prevent accidental discharges of foam. In the starting email, the 'events' is reference to accidental discharges of foam. There has only been 2 accidental discharges reported via Airservices CIRRIS system. All of the other discharges, as many as maybe 20-30 have been covered up. "Fire Commanders are to engage with their teams to work out strategies and procedures to overcome this continually happening."

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Monday, 4 December 2017 8:53 AM  
**To:** [REDACTED]  
**Subject:** FW: Fire Vehicles and foam switches URGENT!! [SEC=UNCLASSIFIED]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
T [REDACTED] | F [REDACTED]  
E [REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, 1 September 2016 2:07 PM  
**To:** [REDACTED]  
**Subject:** RE: Fire Vehicles and foam switches URGENT!! [SEC=UNCLASSIFIED]

[REDACTED],

A Team had a discussion about the below and came up with the following.

Follow procedure.

Change the procedure to the Foam Switch being left in the OFF position.

Have a cover engineered for the % switch.



Have a tone and/or bright flashing light to alert the Operators.

SO's and SSO's conduct spot checks following vehicle checks at the commencement of shift and before/after exercises to check for compliance.

That's all we have...

[REDACTED]

[REDACTED]

Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811

T [REDACTED] | F [REDACTED]  
E [REDACTED]

---

**From:** [REDACTED]  
**Sent:** Sunday, 28 August 2016 9:16 AM  
**To:** [REDACTED]

**Subject:** RE: Fire Vehicles and foam switches URGENT!! [SEC=UNCLASSIFIED]

Gents

I have had one reply for this to date.

Get on with it and get me a reply

Regards

[REDACTED]

Sent with Good ([www.good.com](http://www.good.com))

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

**From:** [REDACTED]  
**Sent:** Monday, August 22, 2016 04:22 PM AUS Eastern Standard Time  
**To:** [REDACTED]

**Subject:** Fire Vehicles and foam switches URGENT!! [SEC=UNCLASSIFIED]

Gents

In recent times Darwin has had a series of events where foam switches have been left in the wrong positions for the operation being conducted.

This includes 1. Foam Percentage switch being left on the wrong percentage.

2. Foam valve opening due incorrect operating procedure following shutdown of hose reel and resetting of foam switch with ignition on.

3. Foam switch not being turned off in preparation for training.

These events have consequences either environmentally or operationally that we must overcome.

Fire Commanders are to engage with their teams to work out strategies and procedures to overcome this continually happening.

These strategies are to be either enhanced procedures or spot checking requirements or combinations of both.

The strategies devised are to be sent to me by the end of your next block of shifts.

Once collated a unified strategy will be implemented as station policy.

Should you have any questions do not hesitate to ask

[REDACTED]  
**Operations Manager**  
Airservices Australia  
ARFF Darwin Airport  
PO Box 42594, Casuarina, NT, 0811  
t 08 [REDACTED] | f 08 [REDACTED] | m [REDACTED]  
e [REDACTED]



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:12 PM  
**To:** [REDACTED]  
**Subject:** Fw: Foam, Hose Reel and FCC Log checks [SEC=UNCLASSIFIED]

Dear [REDACTED],

The below email was sent while I was on Admin Leave. Fair chance it is on the back of an accidental discharge of foam...

I do understand that there may be 'plausible deniability', but this type of circumstantial evidence when coupled with witness testimony and other evidence begins to paint a picture.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Monday, 4 December 2017 8:57 AM  
**To:** [REDACTED]  
**Subject:** FW: Foam, Hose Reel and FCC Log checks [SEC=UNCLASSIFIED]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811

T [REDACTED] | F [REDACTED]  
E [REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, 18 May 2017 12:14 PM  
**To:** [REDACTED]

**Subject:** Foam, Hose Reel and FCC Log checks [SEC=UNCLASSIFIED]

Gents

The instruction is for you (Fire Commanders) to personally conduct a physical check of the foam Percentage settings and hose reel positioning of operational vehicles and is an important part to us not accidentally discharging foam or not discharging it when it is needed.

The requirement is for the check to be completed after the Daily Inspection has been completed and after any use of the vehicle where settings are likely to be altered.

The reporting to me is to be directly AFTER the check is done not at the end of the shift.

The FCC log check is to be completed and reported prior to cessation of shift

You are all directed to comply with this instruction

Regards

[REDACTED]

**Operations Manager**

Airservices Australia

ARFF Darwin Airport

PO Box 42594, Casuarina, NT, 0811

t [REDACTED] | f [REDACTED] | m [REDACTED]

e [REDACTED]



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:14 PM  
**To:** [REDACTED]  
**Subject:** Fw: Foam [SEC=UNCLASSIFIED]  
**Attachments:** Vehicle after foam use procedures Li.docx

Dear [REDACTED],

The attached document is long over due. Finally a waste removal provider is being utilised to stop the contamination of Rapid Creek. This would be as a direct result of the reporting of the incident from early Sept. Could this have something to do with the media coverage and focus on PFAS?

Again, it was just after this email was sent that the instruction was given by the Operations Manager, [REDACTED], to continue with the cover ups.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, 30 November 2017 12:42 PM  
**To:** [REDACTED]  
**Subject:** FW: Foam [SEC=UNCLASSIFIED]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
T [REDACTED] | F [REDACTED] 1  
E [REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 15 September 2017 11:10 AM  
**To:** [REDACTED]  
**Subject:** Foam [SEC=UNCLASSIFIED]

FYI The Darwin Local Instructions will be updated in the coming weeks to have the attached document added to outline our procedures for the vehicles after foam use. This applies for when foam is used at an incident or accidentally. Any questions, just ask.

Regards

[REDACTED]  
Darwin Operations Manager  
Airservices Australia

Darwin Airport  
PO Box 42594 Casuarina NT 0811

t [REDACTED] f [REDACTED]  
mob [REDACTED]  
e [REDACTED]





[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:17 PM  
**To:** [REDACTED]  
**Subject:** Fw: Foam [SEC=UNOFFICIAL]  
**Attachments:** oab\_15-006.pdf; oab\_15-007.pdf; oab\_16-004.pdf

Dear [REDACTED],

The attached are the notices from higher up the chain regarding the switches. When I give the instruction to have the foam switch in the "on" position some thought, this is like telling a soldier or a constable of police to always do their patrols with their weapons at instant, or with the safety switch off. It's actually quite reckless.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, 14 December 2017 8:12 AM  
**To:** [REDACTED]  
**Subject:** Foam [SEC=UNOFFICIAL]

[REDACTED]  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811

T [REDACTED] | F [REDACTED]  
E [REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:15 PM  
**To:** [REDACTED]  
**Subject:** Fw: LMU training Ground Diesel pump and controls [SEC=UNOFFICIAL]

Dear [REDACTED],

Another email I found. At the bottom of the email there is a comment of the irrigation pumps.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Wednesday, 7 February 2018 11:04 AM  
**To:** [REDACTED]  
**Subject:** FW: LMU training Ground Diesel pump and controls [SEC=UNOFFICIAL]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
T 0 [REDACTED] | F 0 [REDACTED]  
E [REDACTED]

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

**From:** [REDACTED]  
**Sent:** Thursday, 22 May 2014 4:25 PM  
**To:** [REDACTED]

**Cc:** [REDACTED]  
**Subject:** LMU training Ground Diesel pump and controls

ALL OFFICERS

A new Diesel generator has been installed in the pump house at the LMU training ground to replace the old u/s one!

The company doing the install have not as yet been able to work out how the timer controls the stop of the generator after 2 hrs running!

They will be working on it to fix the issue.

In the meantime operation will be as the following.

The generator starts on turning the key.

On the front of the generator is a sliding run to stop lever. Push to run before starting generator. And stop to stop it.

The pumps operate on plugging the lead into the power outlet of the generator.

Do not worry about the flashing horn symbol.

Ensure you unplug the power lead after you have finished with the generator.

Ensure you turn the key to OFF after stopping the generator.

The generator will run the separator and irrigation pumps for water and the fuel pump for the wheel and engine fire in the other shed.

When planning to use the generator remember to ensure that the Diesel tank is filled or it will stop and not start!!!!

Any questions please ask.

[REDACTED]  
Fire Station Manager

ARFF Darwin Airport

E-mail: [REDACTED]  
~~~~~

Airservices Australia

Ph +61 [REDACTED]

Fax +61 [REDACTED]

Mobile [REDACTED]

[www.airservicesaustralia.com](http://www.airservicesaustralia.com)



Airservices

[www.airservicesaustralia.com](http://www.airservicesaustralia.com)

Airservices is Australia's air navigation service provider - we provide air traffic control, aviation rescue and fire fighting and air navigation services.

"A hero is a man who does what he can"

"Ronain Rolland"  
~~~~~

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[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:16 PM  
**To:** [REDACTED]  
**Subject:** Fw: Notification of Occurrence OCC-0005587 [SEC=UNOFFICIAL]

Dear [REDACTED],

This is another report which doesn't have much to do with this, but this and the other one I believe are big factors in why I don't work at the station anymore...

Basically, on both occasions I got my teeth kicked in (so to speak) for making the CIRRIS reports.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, 18 January 2018 10:47 AM  
**To:** [REDACTED]  
**Subject:** FW: Notification of Occurrence OCC-0005587 [SEC=UNOFFICIAL]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
T [REDACTED] F 08 [REDACTED]  
E [REDACTED]

---

**From:** [REDACTED]  
**Sent:** Saturday, 1 August 2015 7:54 AM  
**To:** [REDACTED]  
**Subject:** RE: Notification of Occurrence OCC-0005587

Hi [REDACTED],

To answer your 1st dot point, I do not know if a spill kit was utilised. And if one was, I am unaware of how Darwin International Airport (DIA) dispose of them. As this was a Special Service provided by ARFF on Darwin's main Runway, ARFF's involvement was minimal, this being the supply of water. ARFF did not witness any pre or post activity.

Regarding your 2nd dot point, I did not make any record of the name of the Safety Officer. He is unknown to me. The Safety Officer is employed by Darwin International Airport. Contact can be made with DIA via the detail on their web site.

And to answer your 3rd dot point, No. Not from me. I would suggest you make contact with my superiors for that one...

Hopefully the above response satisfies your enquiry.

I am on day shift next Thursday and Friday if you would like to speak with me.

Regards,

[REDACTED]

[REDACTED]

Fire Commander

Aviation Rescue Fire Fighting Service, Darwin

E-mail: [REDACTED]

Phone: [REDACTED]

Fax: [REDACTED]

~~~~~  
Airservices Australia

Ph 1300 301 120 (within Australia)

Ph +61 2 6268 4111 (outside Australia)

Fax +61 2 6268 5683

**Error! Hyperlink reference not valid.**

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**From:** [REDACTED]

**Sent:** Friday, 31 July 2015 3:06 PM

**To:** [REDACTED]

**Subject:** FW: Notification of Occurrence OCC-0005587

Hi [REDACTED],

I have been tasked with reviewing Occurrence 5587 which you reported on 30/7/2015. Firstly I would like to thank you for reporting the occurrence. Would you be able to provide further information on the Occurrence which will help me to determine if there has been any environmental impact? Could you provide any further information on the following:

- Was a spill kit used to soak up any hydraulic fluid? If a spill kit was used how was it disposed?
- Who was the Safety Officer who requested the hydraulic fluid to be washed off the runway? Could you please provide the Name of the Safety officer? I believe the Safety officer was from Darwin International Airport, is this correct?
- Is it possible to get a copy of ORS Report 6693?

I had a telephone conversation with one of the Fire Fighters at the Darwin Station this afternoon and he explained the following:

The Safety office From Darwin International Airport is responsible for using a spill kit to soak up hydraulic fluid. They then apply a detergent to the affected area. ARFF is then called to wash the detergent and hydraulic fluid off the runway? Could you confirm that the above process was followed in this instance?

Please feel free to contact me if you would like me to clarify anything further.

Regards,

[REDACTED]



[REDACTED]  
Ph 02 6268 4104

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

From: [REDACTED]

Sent: Friday, 31 July 2015 6:00 AM

To: [REDACTED]

Cc: [REDACTED]

Subject: Notification of Occurrence OCC-0005587

Please be advised that an Occurrence has occurred and needs to be reviewed.

-----  
Reported Date: 30/07/2015

Reported Time: 17:50:00

Reported By: [REDACTED]

-----  
Occurrence Date: 30/07/2015

Occurrence Time: 5:55:00

-----  
Location: /AIRSERVICES AUSTRALIA/NT/DARWIN AIRPORT

Group/Branch (SDL)/Unit : Darwin - A Crew

-----  
Classification: Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.)

Occurrence Summary: Request from Safety Officer to wash hydraulic fluid from Rwy surface.

-----  
To review the occurrence click on the link below.

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:15 PM  
**To:** [REDACTED]  
**Subject:** Fw: Notification of Occurrence OCC-0005655 [SEC=UNOFFICIAL]  
**Attachments:** 20150918040158.pdf

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**From:** [REDACTED]  
**Sent:** Tuesday, 9 January 2018 10:15 AM  
**To:** [REDACTED]  
**Subject:** FW: Notification of Occurrence OCC-0005655 [SEC=UNOFFICIAL]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
T [REDACTED] | F [REDACTED]  
E [REDACTED]

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

**From:** [REDACTED]  
**Sent:** Friday, 18 September 2015 4:17 AM  
**To:** [REDACTED]  
**Subject:** RE: Notification of Occurrence OCC-0005655

[REDACTED],

I've attached maps of the area affected by fire, and where ARFF water was discharged.

The amount of water ARFF discharged on Airport was approximately 25,000 lt.

Off airport was approx 7,000 lt.

Decanted into NTFRS Tenders approx 37,000 lt.

Total used, approx 69,000 lt.

Further info - Looking at the map you will see the dark green area which is shaped like a big C. This big C area is the tributaries I spoke of. Very thick and inaccessible by vehicle. You will see this area trails off in a north westerly direction, away from the Airport. This is Rapid Creek. In the main part, all ARFF water was used to defend structures and Nav aids, both landside and airside. Thankfully no structure or Nav aid was damaged by fire. Again, looking at the map the section coloured red extending north west away from the 'International' is the landside section (off Airport).

[REDACTED], if my CFO, [REDACTED] will not give you access to ORS, I'm afraid I cannot give you a copy of the reports contained within. I hope the information I have provided you will suffice.

If you have any further questions just ask. I am working on Saturday and Sunday, and Wednesday and Thursday next week.

Regards,

[REDACTED]

P.S. I managed to do the maps myself as well...

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

From: [REDACTED]  
Sent: Wednesday, 16 September 2015 1:11 PM  
To: [REDACTED]  
Subject: RE: Notification of Occurrence OCC-0005655

Hi [REDACTED],

Thank you for your time on the telephone earlier today.

As stated on the telephone, please see the attached map of Darwin Airport. Please let me know if you need any further maps, I am happy to help where I can.

Furthermore, as we discussed on the telephone I would appreciate answers to the following questions:

The amount of water, which ARFF discharge on Airport?

The amount of water, which ARFF discharge off Airport?

The amount of water, which ARFF decanted in to the NT Fire Brigade Tenders?

In addition, any further information, which could you, provide which may help me to make a determination of environmental impact.

Would it be possible for you to send me a copy of the ORS report as [REDACTED] got back to me and he will not give me access to ORS, he stated the quickest way was to contact the local Fire Station Manager.

Thank you for your time.

Regards,

[REDACTED]

[REDACTED]

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

From: [REDACTED]

Sent: Tuesday, 15 September 2015 11:16 AM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: RE: Notification of Occurrence OCC-0005655

Hi [REDACTED],

Thanks for your email, however I need some things clarified further.

I do not have access to ORS, so I could not get that information from ORS. In addition, there is no ORS number in the CIRRIS entry, so I was not aware that there was an ORS report for this operations response. If possible, could you please add the ORS number to the CIRRIS entry?

You stated that 69,000 litres of water was discharged by ARFF, but I am unsure if these 69,000 litres was directly applied to the fire by ARFF or a portion of the 69,000 Litres was used to refill the NT Fire Brigade Tankers. If possible, could you please state below how the 69,000 litres was used? I understand that you may not have exact number as ARFF focus was on putting the fire out, so if you do not have exact number could you please estimate much water was used by ARFF for the different scenarios below.

The amount of water, which was used to refill NT Fire Brigade Tankers?

The amount of water, which ARFF directly applied to the fire?

Thank you outlining the times that ARFF attended the fire. I will update this information in the CIRRIS entry.

I will give you call on Wednesday after you have sent me a map indicating the areas where ARFF discharged water.

Could you please keep the occurrence open until I have had a chance to determine if there was any environmental impact.

I will also get Occurrence 5656 deleted so there is no duplication.

Regards,

[REDACTED]

[REDACTED]  
Ph [REDACTED]

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

From: [REDACTED]  
Sent: Monday, 14 September 2015 7:40 PM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: RE: Notification of Occurrence OCC-0005655

Hi [REDACTED],

1st question - No idea why 2 were generated. I'm not in the business of doubling my workload. My suggestion for 2 entries is user error or some type of a computer glitch.

2nd question - As I previously stated I am not in the business of doubling my work load, although it would appear at the moment I am!

3rd question - (timings are UTC), Initial dispatch time 11/09/2015 05:05:23. Final end time 13/09/2015 02:15:09.

4th question - From ARFF's ORS reports - 69,000 litres.

5th question - 1st dot point - A map? I'm working O/T on Wednesday, I will endeavour to sort something then. 2nd dot point - I refer you to my answer in question 4. 3rd dot point - Yes. 4th dot point - Unknown. Possibly some tributaries that feed Rapid Creek.

Call me on Wednesday to discuss further.

Regards,

[REDACTED]

[REDACTED]

Fire Commander

Aviation Rescue Fire Fighting Service, Darwin

E-mail: [REDACTED]

Phone: [REDACTED]

Fax: [REDACTED]

~~~~~  
Airservices Australia

Ph 1300 301 120 (within Australia)

Ph +61 2 6268 4111 (outside Australia)

Fax +61 2 6268 5683

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Airservices

[www.airservicesaustralia.com](http://www.airservicesaustralia.com)

Airservices is Australia's air navigation service provider - we provide air traffic control, aviation rescue and fire fighting and air navigation services.

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

From: [REDACTED]

Sent: Monday, 14 September 2015 2:03 PM

To: [REDACTED]

Cc: [REDACTED]

Subject: FW: Notification of Occurrence OCC-0005655

Hi [REDACTED],

Thank you for reporting the use for water in occurrences 5655 and 5656; I have been tasked with reviewing both environmental occurrences. Could you please outline why two entries were placed in to CIRRIIS? From my review both occurrences, seem to have the same occurrence date and time. They also appear to be reporting the same operational response that is a fire of "Bushland and grassland between Eastern helipad and Amy Johnson Rd, airside and landside". Could you outline why two entries were created into CIRRIIS?

I tried to ring you but in your absence, I had a conversation with [REDACTED] and he stated that ARFF attended this fire for the majority of the weekend. If this is correct could you outline the date and time ARFF when first responded and the date and time when Airservices stopped providing services to this fire.

[REDACTED] also reported that Airservices decanted water from our tenders to the NT Fire Brigade Tenders, could you advise the total quantity of water, which was decanted from Airservices Tenders to the NT Fire Brigade Tenders?

Furthermore, the information you have provided in both occurrence does not provide me with sufficient information to determine if the environment was impacted in an adverse way. To help me with my determination could you please provide the following information?

- \* A map showing where the fire was and the areas where ARFF discharge water?
- \* The total quantity of water, which was discharge by ARFF on the fire
- \* Did ARFF discharge any water outside the Airport boundary?
- \* From your knowledge of where the fire occurred, were there any drainage lines/water bodies, within 50 metres of the Fire?

If you would like to discuss the matter further I can be contacted on [REDACTED]

Regards,

[REDACTED]

[REDACTED]  
Ph [REDACTED]

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

From: [REDACTED]  
Sent: Monday, 14 September 2015 1:39 AM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: Notification of Occurrence OCC-0005655

Please be advised that an Environmental Occurrence or Hazard has been reported and a Notification has been completed.

-----  
Reported Date: 14/09/2015

Reported Time: 01:23

Reported By: [REDACTED]  
-----

Occurrence Date: 11/09/2015

Occurrence Time: 05:03



-----  
Location: AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT\GLIDE PATH 29

Group/Branch(SDL)/Unit: Airservices Australia\Aviation Rescue & Fire Fighting\National Operations\Northern Region\Darwin - Station Management\Darwin - C Crew

-----  
Occurrence Summary: Bush fire Operations

-----  
Click on the link below to view the Notification.

[http://cirris/Cintellate/jsf/main.jsp?command=view&workflowid=AFBWuQAdOGBGaQjSuHZK\\_Wfl&bpid=ABNylGGXMjQ2ODk2MDI0MzM4&workspaceid=ABNylGGXMjQ2ODk2MDI0MzM4&title=WHS%2fARFF%2fENV+Occurrence+Management](http://cirris/Cintellate/jsf/main.jsp?command=view&workflowid=AFBWuQAdOGBGaQjSuHZK_Wfl&bpid=ABNylGGXMjQ2ODk2MDI0MzM4&workspaceid=ABNylGGXMjQ2ODk2MDI0MzM4&title=WHS%2fARFF%2fENV+Occurrence+Management)

\_\_\_\_\_

Dear [REDACTED] and [REDACTED]

Darwin is/was one of the stations, I am sure, causing the compliance issues.

**From:** [REDACTED]

Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
T [REDACTED] | F [REDACTED]  
[REDACTED]

**From:** [REDACTED]

## Gents

This is very self explanatory.

ALL instances of use of foam or water operationally except for training is to have the procedures followed.

Any questions just ask. I will be discussing this with all of you.

Regards

[REDACTED]  
Inspector/Fire Station Manager  
ARFF Darwin Airport  
E-mail: [REDACTED]

Ph +61 [REDACTED]  
Mobile [REDACTED]  
[www.airservicesaustralia.com](http://www.airservicesaustralia.com)

**From:** [REDACTED]  
**Sent:** Wednesday, 29 June 2016 10:13 AM  
**To:** [REDACTED]

**Subject:** FW: ORS and CIRRIIS reporting [SEC=UNCLASSIFIED]

Gents

Please see below and team brief ASAP.

I need you to sit down with your officers and discuss the importance of this.

Please let me know once you have completed the discussion.

Give me a call if you have any questions.

Regards

[REDACTED]  
A/Chief Superintendant  
A/Manager Northern Region ARFF  
E-mail: [REDACTED]

~~~~~  
Airservices Australia

[REDACTED]  
Ph 07 4050 5383 (within Australia)  
Ph +61 7 4050 5383 (outside Australia)  
0428 233 192  
[www.airservicesaustralia.com](http://www.airservicesaustralia.com)  
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**From:** [REDACTED]  
**Sent:** Tuesday, 28 June 2016 9:55 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** ORS and CIRRIIS reporting [SEC=UNCLASSIFIED]

All,

It has become apparent inconsistencies exist between locations when reporting operational responses within ORS and CIRRIIS, this is causing compliance issues and requires “urgent” attention for rectification.

Below is a copy of a clause from within ENV 001 and is required to be adhered to by all locations for the stated activities.

You are to ensure that all staff entering ORS reports complete all the required steps, including, the NOC notifications, all entries and attachments into CIRRIIS, I have also included the definitions stated within ENV 001 that define an “Operational Response”.

There is currently a longer term plan to review and enhance ORS to simplify this reporting requirement.

Please discuss this requirement with your FSM as a priority and ensure this information/requirement is relayed to staff completing ORS entries, **do not just pass on this email.**

## **7.2 Reporting an operational response**

*All ‘operational responses’ (see Definitions) are to be reported as Environmental Occurrences using CIRRIIS (in accordance with [ENV-PROC-0006](#)) when:*

- *Foam, DCP or water is dispersed from Fire Fighting Vehicles; and/or*
- *Potential environmental impacts may have been caused (e.g. soil disturbance, destruction of vegetation, fauna mortality etc).*

*ARFF has an obligation to report all operational responses as Environmental Occurrences in a timely and complete manner.*

*The duty FC is to advise the NOC of all Environmental Occurrences to ensure:*

- *the ARFF Chain of Command is aware of all reportable situations; and*
- *ESU commence an environmental investigation to determine any necessary reporting obligations to airports, regulators or other stakeholders. Refer to Section [8](#) for further details.*

*Where water is used for operational purposes (e.g. for firefighting purposes including replenishing other fire vehicles) it shall be reported as an Environmental Occurrence in CIRRIIS. The Occurrence title is to include the words ‘Operational use of water’ and the report is to include the information contained in the template at [Appendix D](#).*

*To minimise duplication of effort a copy of the relevant ORS report should be attached to the CIRRIIS.*

*Environmental Occurrences are not to be closed in CIRRIIS until ESU has confirmed that the occurrence can be closed.*

Operational Response	For the purposes of environmental management, the term “Operational Response’ includes all instances where foam or water is used for fighting fires other than in a training situation. This includes support to hazard reduction, mutual aid (including provision of water to other agencies), wild fire fighting and response to fuel spills.
----------------------	--

Thanks and regards,



A/Deputy Chief Fire Officer |A/Manager National Operations | ARFF - AVIATION RESCUE FIRE FIGHTING  
P: [REDACTED] | F: ([REDACTED]) | M: [REDACTED] | E: [REDACTED]

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[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:14 PM  
**To:** [REDACTED]  
**Subject:** Fw: Rapid Creek catchment area  
**Attachments:** rapidcreekcatchment.jpg

Dear [REDACTED] and [REDACTED]

The attached map I downloaded from the Rapid Creek Landcare Groups site. The training ground sits right on the boundary of the creeks catchment area.

Up until about 2010, Airservices at the Darwin Station used the AFFF in its training whilst conducting aviation exercises. I got there in 2008, I don't know for how long prior to my arrival, but I believe always. Prior to my arrival, I have now been told that the effluent from the training was used to "irrigate" the trees at the training ground. It was just released into the environment. The reason for this is that it was deemed to be too expensive to have it removed by a waste removal company! All those years of this AFFF just being dumped into the environment because of cost.

Prior to this training ground being built, I have been led to believe there were 2 other locations on defence land where training was conducted.

It was around 2010 when we stopped using the foam in training. It was around this time the secret tap was installed, and when the effluent was carted to the station wash down bay to be dumped into Rapid Creek. The trees were not growing I was told!!!

Also, we were training on a daily basis. There was a lot of training going on as a result of new fire fighters and promotional training.

I hope this helps...

[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 6:44 PM  
**To:** [REDACTED]  
**Subject:** Fw: Release of AFFF at Darwin ARFFS [SEC=UNCLASSIFIED]  
**Importance:** High

Dear [REDACTED] and [REDACTED]

This is the email stream that followed the surprise reporting of an accidental discharge of foam. It is actually treated as a big deal by the 2 environment departments (Airservices and Darwin Airports). In the email from [REDACTED] to [REDACTED], there is the comment that the washbay interceptor is connected to sewer. This basically means everything ends up in Rapid Creek or sewer, inspections will confirm this.

It was during the week following this that the Acting Local Operations Manager instructed the new Fire Commander to not report an accidental discharge of foam that occurred during the daily inspections. A culture of cover-up and deceit is hard to break.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, 30 November 2017 12:43 PM  
**To:** [REDACTED]  
**Subject:** FW: Release of AFFF at Darwin ARFFS [SEC=UNCLASSIFIED]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
T [REDACTED] | F [REDACTED]  
E [REDACTED]

---

**From:** [REDACTED]  
**Sent:** Wednesday, 6 September 2017 6:32 AM  
**To:** [REDACTED]  
**Subject:** FW: Release of AFFF at Darwin ARFFS [SEC=UNCLASSIFIED]  
**Importance:** High

FYI Guys and Gal,



Please be mindful with our foam switches during training drills and vehicle pre-checks.

Take your time with things and adhere to the below instructions.

Feel free to ask any questions.

Regards,

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Wednesday, 6 September 2017 6:20 AM  
**To:** [REDACTED]  
**Subject:** Release of AFFF at Darwin ARFFS [SEC=UNCLASSIFIED]  
**Importance:** High

All,

A reminder to all staff that if there is an accidental release of AFFF at the station or during training

it is to be discharged into the retention pond near the smoke hut or the pad at the LMU. DO NOT release it into the wash-down bay.

Till further notice the wash-down bay is not to be used apart from refuelling till we have further information from the Senior Environment Officer and/or the Environment Officer from the airport

If you have any questions please ask.

Regards

[REDACTED]  
**Fire Commander**  
Airservices Australia

Darwin Airport  
PO Box 42594 Casuarina NT 0811

t [REDACTED] f 0 [REDACTED] m [REDACTED]  
e [REDACTED]



---

**From:** [REDACTED]

**Sent:** Tuesday, 5 September 2017 5:28 PM

**To:** [REDACTED]

**Cc:** [REDACTED]  
[REDACTED]

**Subject:** RE: Release of AFFF at Darwin ARFFS [SEC=UNCLASSIFIED]

Hi [REDACTED],

Thank you for the email and verbal notification this afternoon regarding the foam release incident.

I have just attended Darwin ARFF Station and spoken with Fire Commander [REDACTED] regarding the details of the incident.

[REDACTED] gave the same details as you have provided below, he also advised that Fire Commander [REDACTED] was on duty at the time of the incident which occurred last night (4/09/2017) after the training exercise took place.

I have advised [REDACTED] to cease use of the vehicle wash bay down area for vehicle washing or any other purpose apart from refuelling/refilling vehicles until further notice.

I am requesting the following additional detail to add to our incident report:

- Time of occurrence
- Amount of foam concentrate used
- Amount of foam produced

For your information I will be notifying the Airport Environment Officer of this incident and I will also notify Power Water Corporation Trade Waste team.

I will advise of further actions in due course.

If you have any questions please don't hesitate to contact me.

Kind Regards,

[REDACTED]  
Environment Manager  
Northern Territory Airports Pty Ltd

Darwin International Airport  
PO Box 40996 Casuarina NT 0811 | 1 Fenton Court, Eaton NT 0820 Australia  
T: + [REDACTED] | M: [REDACTED] | F: [REDACTED]  
E: [REDACTED] | [www.ntairports.com.au](http://www.ntairports.com.au)

---

**From:** [REDACTED]  
**Sent:** Tuesday, 5 September 2017 4:52 PM  
**To:** [REDACTED]  
**Cc:** PFC Comms <[pfccomms@AirservicesAustralia.com](mailto:pfccomms@AirservicesAustralia.com)>  
**Subject:** RE: Release of AFFF at Darwin ARFFS [SEC=UNCLASSIFIED]

[REDACTED]

I have received notification from Darwin ARFFS that one of the vehicles produced AFFF foam during an exercise onto the bunded pad at the large mock up.

The crew then returned to the station parked the vehicle in the wash down bay and ran low pressure water through hose and branch to flush the truck.

This washbay interceptor is connected to sewer.

I spoke to the Fire Commander, who advised that <10 litres of foam and approx. 500L of water to flush.

Please advise what further actions and information you require.

Thanks

[REDACTED]  
**Senior Environment Specialist**  
Airservices Australia  
25 Constitution Ave, Canberra ACT 2600  
t [REDACTED] | f [REDACTED] | m [REDACTED]  
**E-mail:** [REDACTED]



---

**From:** [REDACTED]  
**Sent:** Tuesday, 5 September 2017 5:05 PM  
**To:** [REDACTED]  
**Subject:**

[REDACTED] | Environment Manager | Northern Territory Airports Pty Ltd  
located at  
Darwin International Airport  
PO Box 40996 Casuarina NT 0811 | 1 Fenton Court, Eaton NT 0820 Australia  
T: [REDACTED] | M: [REDACTED] | F: [REDACTED]  
E: [REDACTED] | [www.ntairports.com.au](http://www.ntairports.com.au)



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[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:16 PM  
**To:** [REDACTED]  
**Subject:** Fw: separator pump [SEC=UNOFFICIAL]

Dear [REDACTED] and [REDACTED]

[REDACTED] is across everything, I know he doesn't approve, but he goes along with it. I believe his knowledge of things being a bit off is much greater than most others, [REDACTED] is one of our Technicians.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, 18 January 2018 11:14 AM  
**To:** [REDACTED]  
**Subject:** FW: separator pump [SEC=UNOFFICIAL]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811

T [REDACTED] | F [REDACTED]  
E [REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 21 August 2015 12:57 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]

**Subject:** RE: separator pump

Hi [REDACTED]

The new sepa pump was tested today and after operating for approx 1 hr the pump overheated and stopped. can you please advise [REDACTED]s electrix to come back out and repair

Thanks,

Regards,

[REDACTED]  
Emergency Vehicle Technician  
Airservices  
Aviation Rescue Fire Fighting  
Maintenance & Logistics - Darwin  
Tel: [REDACTED]  
Mobile: [REDACTED]  
[REDACTED]

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~~~~~

---

**From:** [REDACTED]  
**Sent:** Tuesday, 18 August 2015 10:20 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: separator pump

Hi [REDACTED],

We are hoping for today, if not tomorrow

regards  
tom

---

**From:** [REDACTED]  
**Sent:** Tuesday, 18 August 2015 8:13 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** separator pump

Hi [REDACTED],

can you please contact the electrician and ask on an update on replacement of the separator pump motor

Thanks,

Regards,

[REDACTED]  
Emergency Vehicle Technician  
Airservices  
Aviation Rescue Fire Fighting  
Maintenance & Logistics - Darwin  
Tel: [REDACTED]  
Mobile: [REDACTED]  
[REDACTED]

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[www.airservicesaustralia.com](http://www.airservicesaustralia.com)  
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[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:16 PM  
**To:** [REDACTED]  
**Subject:** Fw: Vehicle 3 foam in Tank [SEC=UNOFFICIAL]

Dear [REDACTED] and [REDACTED]

This email was sent by a now retired Fire Commander. Safe to say the way it was found out was through the production of agent.

[REDACTED]

---

**From:** S [REDACTED]  
**Sent:** Tuesday, 9 January 2018 10:02 AM  
**To:** [REDACTED]  
**Subject:** FW: Vehicle 3 foam in Tank [SEC=UNOFFICIAL]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
T [REDACTED] | F [REDACTED]  
E [REDACTED]

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

**From:** [REDACTED]  
**Sent:** Sunday, 9 August 2015 5:16 PM  
**To:** [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**Subject:** Vehicle 3 foam in Tank

Gents it appears T3 has foam in the water tank possibly due to the hose reel switch being found in the on position during the daily on Saturday Morning, [REDACTED] has been advised and will discuss on Monday regarding rectification. T1 is FCC Vehicle

Regards [REDACTED]



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:13 PM  
**To:** [REDACTED]  
**Subject:** Fw: Waste Water Transfer from the LMU training ground [SEC=UNCLASSIFIED]

Dear [REDACTED] and [REDACTED]

The below email is code for dump the waste into the wash down bay drain and what is left on the pad will be released into the environment soon...

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Monday, 4 December 2017 8:56 AM  
**To:** [REDACTED]  
**Subject:** FW: Waste Water Transfer from the LMU training ground [SEC=UNCLASSIFIED]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811

T [REDACTED] | F [REDACTED]  
E [REDACTED]

---

**From:** [REDACTED]  
**Sent:** Wednesday, 26 October 2016 4:21 PM  
**To:** [REDACTED]  
[REDACTED]  
[REDACTED]  
**Subject:** Waste Water Transfer from the LMU training ground [SEC=UNCLASSIFIED]

Gents

The 2 inground tanks at the LMU training ground are both over  $\frac{3}{4}$  full.

You are to immediately program actions to have these emptied. They are to remain that way.

It is noticed that water is on the pad area. This is mainly rainwater and will be reduced in quantity at the appropriate time.

Regards

[REDACTED]  
**Operations Manager**

Airservices Australia

ARFF Darwin Airport

PO Box 42594, Casuarina, NT, 0811

t [REDACTED] | f [REDACTED] | m [REDACTED]  
e [REDACTED]



**From:** [REDACTED]  
**To:** [REDACTED]  
**Subject:** FW: Aircservices [DLM=For-Official-Use-Only]  
**Date:** Monday, 26 February 2018 11:11:23 AM  
**Attachments:** [IMG\\_0161.PNG](#)  
[HOTO.BMP](#)

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---

**From:** [REDACTED]  
**Sent:** Friday, 23 February 2018 7:51 PM  
**To:** [REDACTED]  
[REDACTED]  
**Subject:** Aircservices

Dear [REDACTED] and [REDACTED]

There is another issue, which I believe its concerns are twofold. Up until about 2010, Aircservices was training with the Ansulite AFFF. This foam comes to the station in 1000 litre totes. The 1st attached picture has one of these totes on the back of the ute. They are plastic containers with an alloy cage around them. They are also hazardous waste that should have been disposed of appropriately. Unfortunately, I have been led to believe they were not. These totes, (possibly as many as 50 or even more) were sold by the Station Manager for profit, the money funded the stations tea club. I have been told each tote was sold for \$100 to an acquaintance of the Station Manager, and then they were on sold into the community.

My concern is the fraud of selling property of the government for profit, and also the main concern is what were/are these totes being used for. I hope people aren't drinking water from them, or watering their veggie patches with the contents that has been caught, possibly from their roof tops. Is it fair to say the plastic has absorbed the foam concentrate and then it leaches it out? If this is the case, these totes need to be retrieved asap. I know Aircservices refuses to acknowledge the possible health concerns from PFAS, but the WHO and the USA's EPA and Supreme Courts seem to acknowledge the possible health concerns.

As to the fraud, I believe the station has a budget that includes the provision of tea, coffee, sugar, milk etc. The tea club has funded these items. If the Manager was prepared to sell the totes for profit, what was happening with the budgeted money? Also, there is a bank account that I believe was used to 'launder' the proceeds through. It is still active. I took over the running of the tea club in March, 2011. The fire fighter running it prior to me has a lot more knowledge of this than me. I have attached a picture of our hand-over/take-

over. I'm the one with the cash.

I understand this investigation is about environment abuse, but I do think there is something in the fraud, and it might just be the tip of the iceberg. Just a hunch.

Sincerely,

A solid black rectangular box used to redact the signature of the sender.

From: [REDACTED]  
To: [REDACTED]  
Subject: Fw: Notification of Occurrence OCC-0005655 [SEC=UNOFFICIAL]  
Date: Friday, 23 February 2018 7:14:58 PM

---

Dear [REDACTED] and [REDACTED]

The below email stream we will need to discuss. It goes to how some people try to deceive by understating the facts.

[REDACTED]

---

From: [REDACTED]  
Sent: Thursday, 18 January 2018 10:58 AM  
To: [REDACTED]  
Subject: FW: Notification of Occurrence OCC-0005655 [SEC=UNOFFICIAL]

[REDACTED]  
Fire Commander  
Airservices Australia  
Darwin Airport  
PO Box 42594 Casuarina NT 0811  
[REDACTED]  
[REDACTED]

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

From: [REDACTED]  
Sent: Monday, 21 September 2015 6:00 PM  
To: [REDACTED]  
Subject: RE: Notification of Occurrence OCC-0005655

The 69 comes from a number of reports

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

From: [REDACTED]  
Sent: Monday, 21 September 2015 8:49 AM  
To: [REDACTED]  
Subject: FW: Notification of Occurrence OCC-0005655

[REDACTED]

This is where you need to be a bit more careful with your replies to people. I will be sending him the ORS report where it states you only used 18000l of water which is a bit different to 69000l of water.

[REDACTED]  
Acting Fire Station Manager/ARFF Darwin  
E-mail: [REDACTED]

~~~~~  
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-----Original Message-----

From: [REDACTED]  
Sent: Monday, 21 September 2015 8:20 AM  
To: [REDACTED]  
Subject: FW: Notification of Occurrence OCC-0005655

Hi [REDACTED]

Would you be able to give me a copy of the ORS report relating to the recent Darwin Grass Fire.

Regards,

[REDACTED]

[REDACTED]  
[REDACTED]

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

From: [REDACTED]  
Sent: Friday, 18 September 2015 4:47 AM  
To: [REDACTED]

Subject: RE: Notification of Occurrence OCC-0005655

██████████,

I've attached maps of the area affected by fire, and where ARFF water was discharged.

The amount of water ARFF discharged on Airport was approximately 25,000 lt.

Off airport was approx 7,000 lt.

Decanted into NTFRS Tenders approx 37,000 lt.

Total used, approx 69,000 lt.

Further info - Looking at the map you will see the dark green area which is shaped like a big C. This big C area is the tributaries I spoke of. Very thick and inaccessible by vehicle. You will see this area trails off in a north westerly direction, away from the Airport. This is Rapid Creek. In the main part, all ARFF water was used to defend structures and Navaids, both landside and airside. Thankfully no structure or Navaid was damaged by fire. Again, looking at the map the section coloured red extending north west away from the 'International' is the landside section (off Airport).

██████████, if my CFO, ██████████ will not give you access to ORS, I'm afraid I cannot give you a copy of the reports contained within. I hope the information I have provided you will suffice.

If you have any further questions just ask. I am working on Saturday and Sunday, and Wednesday and Thursday next week.

Regards,

██████████.

P.S. I managed to do the maps myself as well...

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

From: ██████████  
Sent: Wednesday, 16 September 2015 1:11 PM  
To: ██████████  
Subject: RE: Notification of Occurrence OCC-0005655

Hi ██████████,

Thank you for your time on the telephone earlier today.

As stated on the telephone, please see the attached map of Darwin Airport. Please let me know if you need any further maps, I am happy to help where I can.

Furthermore, as we discussed on the telephone I would appreciate answers to the following questions:

The amount of water, which ARFF discharge on Airport?

The amount of water, which ARFF discharge off Airport?

The amount of water, which ARFF decanted in to the NT Fire Brigade Tenders?

In addition, any further information, which could you, provide which may help me to make a determination of environmental impact.

Would it be possible for you to send me a copy of the ORS report as ██████████ got back to me and he will not give me access to ORS, he stated the quickest way was to contact the local Fire Station Manager.

Thank you for your time.

Regards,

██████████

██████████  
██████████

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

From: ██████████  
Sent: Tuesday, 15 September 2015 11:16 AM  
To: ██████████  
Cc: ██████████  
Subject: RE: Notification of Occurrence OCC-0005655

Hi ██████████,

Thanks for your email, however I need some things clarified further.

I do not have access to ORS, so I could not get that information from ORS. In addition, there is no ORS number in the CIRRIIS entry, so I was not aware that there was an ORS report for this operations response. If possible, could you please add the ORS number to the CIRRIIS entry?

You stated that 69,000 litres of water was discharged by ARFF, but I am unsure if these 69,000 litres was directly applied to the fire by ARFF or a portion of the 69,000 Litres was used to refill the NT Fire Brigade Tankers. If possible, could you please state below how the 69,000 litres was used? I understand that you may not have exact number as ARFF focus was on putting the fire out, so if you do not have exact number could you please estimate much water was used by ARFF for the different scenarios below.

The amount of water, which was used to refill NT Fire Brigade Tankers?

The amount of water, which ARFF directly applied to the fire?

Thank you outlining the times that ARFF attended the fire. I will update this information in the CIRRIIS entry.

I will give you call on Wednesday after you have sent me a map indicating the areas where ARFF discharged water.

Could you please keep the occurrence open until I have had a chance to determine if there was any environmental impact.

I will also get Occurrence 5656 deleted so there is no duplication.

Regards,

[REDACTED]

[REDACTED]

Ph [REDACTED]

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

From: [REDACTED]  
Sent: Monday, 14 September 2015 7:40 PM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: RE: Notification of Occurrence OCC-0005655

Hi [REDACTED],

1st question - No idea why 2 were generated. I'm not in the business of doubling my workload. My suggestion for 2 entries is user error or some type of a computer glitch.

2nd question - As I previously stated I am not in the business of doubling my work load, although it would appear at the moment I am!

3rd question - (timings are UTC), Initial dispatch time 11/09/2015 05:05:23. Final end time 13/09/2015 02:15:09.

4th question - From ARFF's ORS reports - 69,000 litres.

5th question - 1st dot point - A map? I'm working O/T on Wednesday, I will endeavour to sort something then. 2nd dot point - I refer you to my answer in question 4. 3rd dot point - Yes. 4th dot point - Unknown. Possibly some tributaries that feed Rapid Creek.

Call me on Wednesday to discuss further.

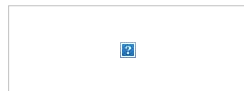
Regards,

[REDACTED]

[REDACTED]

Fire Commander  
Aviation Rescue Fire Fighting Service, Darwin  
E-mail: [REDACTED]  
Phone: [REDACTED]  
Fax: [REDACTED]

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

From: [REDACTED]  
Sent: Monday, 14 September 2015 2:03 PM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: FW: Notification of Occurrence OCC-0005655

Hi [REDACTED],

Thank you for reporting the use for water in occurrences 5655 and 5656; I have been tasked with reviewing both environmental occurrences. Could you please outline why two entries were placed in to CIRRIIS? From my review both occurrences, seem to have the same occurrence date and time. They also appear to be reporting the same operational response that is a fire of "Bushland and grassland between Eastern helipad and Amy Johnson Rd, airside and landside". Could you outline why two entries were created into CIRRIIS?

I tried to ring you but in your absence, I had a conversation with [REDACTED] and he stated that ARFF attended this fire for the majority of the weekend. If this is correct could you outline the date and time ARFF when first responded and the date and time when Airservices stopped providing services to this fire.

[REDACTED] also reported that Airservices decanted water from our tenders to the NT Fire Brigade Tenders, could you advise the total quantity of water, which was decanted from Airservices Tenders to the NT Fire Brigade Tenders?

Furthermore, the information you have provided in both occurrence does not provide me with sufficient information to determine if the environment was impacted in an adverse way. To help me with my determination could you please provide the following information?

- . A map showing where the fire was and the areas where ARFF discharge water?
- . The total quantity of water, which was discharge by ARFF on the fire
- . Did ARFF discharge any water outside the Airport boundary?
- . From your knowledge of where the fire occurred, were there any drainage lines/water bodies, within 50 metres of the Fire?

If you would like to discuss the matter further I can be contacted on [REDACTED]

Regards,

[REDACTED]

[REDACTED]



Ph [REDACTED]

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

From: [REDACTED]

Sent: Monday, 14 September 2015 1:39 AM

To: [REDACTED]

Cc: [REDACTED]

Subject: Notification of Occurrence OCC-0005655

Please be advised that an Environmental Occurrence or Hazard has been reported and a Notification has been completed.

-----  
Reported Date: 14/09/2015

Reported Time: 01:23

Reported By: [REDACTED]

-----  
Occurrence Date: 11/09/2015

Occurrence Time: 05:03

-----  
Location: AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT\GLIDE PATH 29

Group/Branch(SDL)/Unit: Airservices Australia\Aviation Rescue & Fire Fighting\National Operations\Northern Region\Darwin - Station Management\Darwin - C Crew

-----  
Occurrence Summary: Bush fire Operations

-----  
Click on the link below to view the Notification.

<http://cirris/Cintellate/jsf/main.jsp?>

[command=view&workflowid=AFBWuQAdOGBGaQjSuHZK\\_Wfl&bpid=ABNyIGGXMIQ2ODk2MDIOMzM4&workspaceid=ABNyIGGXMIQ2ODk2MDIOMzM4&title=WH5%2fARFF%2fENV+Occurrence+Management](http://cirris/Cintellate/jsf/main.jsp?command=view&workflowid=AFBWuQAdOGBGaQjSuHZK_Wfl&bpid=ABNyIGGXMIQ2ODk2MDIOMzM4&workspaceid=ABNyIGGXMIQ2ODk2MDIOMzM4&title=WH5%2fARFF%2fENV+Occurrence+Management)

## **APPENDIX 5**

**Transcript of Interview on 17 April 2018 with  
the Complainant, [REDACTED], and List  
of Interviews with Airservices' Personnel**



**DEPARTMENT OF INFRASTRUCTURE, REGIONAL DEVELOPMENT & CITIES INTERVIEW FILE  
NOTE**

**Investigation number:**

**Interviewer (s):** [REDACTED]

**Interviewee:** [REDACTED]

**Contact details:**

**Role:**

**Interview location:**

**INTERVIEW TRANSCRIPT: -**

1. [0:00:00]
2. INTERVIEWER 2: I look after a Perth airport in Jandakot and have done for a number of years, and I'm assisting [REDACTED] in this investigation.
3. INTERVIEWEE: Yep.
4. INTERVIEWER 2: I'm just going to step out - step aside and just shut some blinds.
5. INTERVIEWEE: Yeah, no worries.
6. INTERVIEWER 1: And I'm going to shut a door so that there's no other noises coming through.
7. INTERVIEWER 2: Right.
8. INTERVIEWER 1: Okay.
9. INTERVIEWER 2: Hopefully that's a bit better. Please let us know if you're unable to hear us or you have any problems during the interview.
10. INTERVIEWEE: Um, now that you've closed the door I - I can hear you a lot better.
11. INTERVIEWER 2: Oh, that's good.
12. INTERVIEWER 1: Yeah.
13. INTERVIEWER 2: There's no - - -

14. INTERVIEWEE: So I'm hearing you well. And just for your information as well, um, I've got my recording device going on my phone just for my own notes as well.
15. INTERVIEWER 1: No, that's fine.
16. INTERVIEWER 2: Yeah, that's fine. And there's nobody else actually in these offices at the moment anyway, it's only the two of us.
17. INTERVIEWEE: Yep.
18. INTERVIEWER 2: Yep.
19. INTERVIEWER 1: Okay.
20. INTERVIEWEE: Yeah. So you're aware that, um, [REDACTED] is present in this room with me?
21. INTERVIEWER 1: Yes.
22. INTERVIEWER 2: Yep.
23. INTERVIEWER 1: Yep. And - - -
24. INTERVIEWEE: She's sitting outside of the picture shot, and once again, um, [REDACTED] the only other person in here with me as well.
25. INTERVIEWER 1: Yep, and that's a requirement of you being in Home Affairs so you have to be escorted at the whole time. Okay. So, we'll get started. So just for the benefit of the recording the date is 17 April 2018 and the time is 1.25 pm, it's an interview with [REDACTED]. Okay. So, one of the first things - first of all [REDACTED] has already introduced himself, I'm the airport and environmental officer for Darwin, Adelaide and Parafield. This is probably - if you have any questions about our history or our qualifications or anything like that this is the time if you want to ask that before we get started. So I've been the AEO for Darwin Airport for - coming on three and a half years, and I've been the AEO for Adelaide and Parafield coming on five years now, so - and I've also done Jandakot Airport which is in Perth. Okay.
26. INTERVIEWEE: Yep, no, that's fine.
27. INTERVIEWER 1: You're all good?
28. INTERVIEWEE: Yep.
29. INTERVIEWER 1: All right. So now what I'm going to move on into is this investigation and the objectives for us with this investigation. This is a regulatory investigation for us, so we work underneath the Airport (Environment Protection) Regs, which you know, and we are looking for any breaches of those regulations. So this investigation is - that's the main focus of it. We're also looking for - we

understand that there could be human error, we're also looking for people following procedures, or if people, which will be very hard to prove, were deliberately not following procedures which will be a very hard one to prove.

30. INTERVIEWER 2: Yeah. Intent is notoriously difficult to go out and prove in a court of law, which everything we will be looking at, we obviously have to get it to a standard that it could be proved in a court of law, but you should also be mindful that under our regulations everything deals with the operator and undertaking on the airport.
31. INTERVIEWEE: Yep.
32. INTERVIEWER 2: The reason being, not individuals who work for an operator. So while it's very handy that you have provided us with names of other persons who have been involved or may be witnesses to events, what we're primarily looking at is air services as the operator, if you - - -
33. INTERVIEWEE: Yeah, okay.
34. INTERVIEWER 2: The Environmental Airport Protection Regulations, they are about maintaining and improving environmental management on airports 'cause, you know, they started in 1997 where standards may not be as high as they are today, we know they weren't, and where instances of contamination have occurred, where it's reasonable and practical where a mediation will be done, and naturally to do that we want people who have the deepest pockets which is the operator.
35. INTERVIEWEE: Yeah.
36. INTERVIEWER 1: So the design of the investigation is mostly to focus on air services themselves, we can't do like a - we're not looking - - -
37. INTERVIEWEE: Yeah.
38. INTERVIEWER 1: - - - into a separate - - -
39. INTERVIEWEE: So just to pull you up there for a second.
40. INTERVIEWER 1: Yep.
41. INTERVIEWER 2: Sure.
42. INTERVIEWEE: Um, you are starting to come across a little bit garbled.
43. INTERVIEWER 1: Okay.
44. INTERVIEWEE: So I'm not hearing you as well as I would ideally like to be hearing it.
45. INTERVIEWER 1: I'll increase the volume and hopefully - and we'll speak a bit louder. That's probably why it was up. Does that sound better?

46. INTERVIEWEE: Yeah. Um, yeah, that seems to be a bit better. Yeah. It just - it's almost like it comes and goes, um, sometimes when you talk I can hear you and other times when you talk it's just - it's not so much hearing you it's just the clarity I guess.
47. [0:05:00]
48. INTERVIEWER 1: Okay. Just ask us to repeat ourselves if it goes fuzzy on you, okay?
49. INTERVIEWEE: Yeah, that's a lot better now, so - we've just upped the volume on my end, so - - -
50. INTERVIEWER 2: Oh, so we might be able to turn ours down then.
51. INTERVIEWER 1: Do you want it down a little bit?
52. INTERVIEWER 2: Right down.
53. INTERVIEWER 1: Okay. And probably one of the things, especially when we're discussing firefighting foam you're probably already aware that there are lots of sources of firefighting foam on the airport as well as on the RAAF base as well.
54. INTERVIEWEE: Yeah.
55. INTERVIEWER 1: So if it comes down to that we are doing soil and groundwater testing and we're testing in areas that we may think there's been an incident, it - - -
56. INTERVIEWEE: Yeah.
57. INTERVIEWER 1: - - - may be difficult to tie it down to that one incident only because there are so many sources on that airport, so we're just sort of preparing you for that.
58. INTERVIEWEE: Yeah, look, that's - yeah, I'm fully hearing what you're saying - - -
59. INTERVIEWER 1: Yep.
60. INTERVIEWEE: - - - loud and clear, [REDACTED] Um, just on that, have you managed to speak with [REDACTED] [REDACTED] from the NTEPA?
61. INTERVIEWER 1: No. We've got to get this - we've got to do your interview, we've got to do the current air services employees and then that leads us to, okay, yep, we've got to talk to the NTEPA. I've got him - I'll have him scheduled in after all of the interviews to have a chat to him about his - - -
62. INTERVIEWEE: Okay. Are you aware of, um, what the NTEPA has done to date?
63. INTERVIEWER 1: They've told me that they've gone out onto site and they've taken soil samples themselves.
64. INTERVIEWEE: Yeah.

65. INTERVIEWER 1: Only on the defence site.
66. INTERVIEWEE: That's - the um - I've been led to believe that's at the training ground on the defence land.
67. INTERVIEWER 1: Yep, yep.
68. INTERVIEWEE: They haven't been able to access the station site.
69. INTERVIEWER 1: No, no. Because that's our jurisdiction, that's the Department of Infrastructure's jurisdiction and that's where the investigation is for us, so yep. So we're letting the EPA do the investigation for the defence site.
70. INTERVIEWEE: Yeah. So - so with - when you talk about jurisdictions, could you foresee the NTEPA gaining access to the station site?
71. INTERVIEWER 1: That's a question that my manager would have to - that's like a higher up question, that's a legal question that would have to be asked like of the Crown solicitor, they - if it goes that far, if they have - yeah. I'm sorry I can't answer that one for you.
72. INTERVIEWEE: Yeah, okay, yeah.
73. INTERVIEWER 1: Okay.
74. INTERVIEWEE: Yeah. 'Cause, um, I've been made privy to the results of the testing that they've, um, done at the training ground site.
75. INTERVIEWER 1: Yep.
76. INTERVIEWEE: Um, every sample that they took came back positive.
77. INTERVIEWER 1: Yep, okay. Well, I do have – and don't forget also Department of Defence did their detailed site investigation and that detailed site investigation was around that mock-up training ground so that had testing mostly for firefighting foam though around that mock-up training ground, so we have that information as well.
78. INTERVIEWEE: Yeah.
79. INTERVIEWER 1: Okay.
80. INTERVIEWEE: 'Cause um, it was surprising. The highest record that they got was from a sample taking from a tree.
81. INTERVIEWER 1: From a – yeah.
82. INTERVIEWEE: Next to that secret tap that I speak of.
83. INTERVIEWER 1: Yep, yep and that's where defence has also tested around those trees.



84. INTERVIEWEE: I don't know.

85. INTERVIEWER 1: Because in their investigation they did an interview of employees and they stated that in up to 2008 there was irrigating done, so defence did do testing around that area. Okay?

86. INTERVIEWEE: Yeah, well, all – just talking about today is the activities from 2008 until now.

87. INTERVIEWER 1: Yeah.

88. INTERVIEWEE: And I would assert that it's not just up to 2008.

89. INTERVIEWER 1: Okay.

90. INTERVIEWEE: So, I would – I would say I don't know whose been providing the information to defence, but I think there might be a bit of uh, misinformation.

91. INTERVIEWER 1: Well, I'm using the defence's information as well as NTEPA's information.

92. INTERVIEWEE: Yeah. Yeah. Yeah.

93. INTERVIEWER 1: So what we'll do – well, what we'll do today is, if it's okay with you, I've basically designed this investigation around your one big, main email that you sent me just yesterday. That email – I used that to develop a number of accusations. I've got about nine accusations, and this is how I've designed the investigation based upon those accusations. So the questions I will be asking you – we'll just go through each accusation.

94. INTERVIEWEE: Yep.

95. INTERVIEWER 1: And then I'll have some questions for you. I've got annexed on my spreadsheet, your emails that are connected to those accusations. Have you lost me? I've lost him. Signed out.

96. INTERVIEWER 2: Ah, Melbourne signed out.

97. INTERVIEWER 1: Yeah.

98. INTERVIEWER 2: Maybe I can rewind the carpet then. Do you want to ring them? And get her to invite you again?

99. INTERVIEWER 1: Yeah.

100. INTERVIEWER 2: It's probably the easiest way.

101. [0.10.00]

102. INTERVIEWER 1: Got the Dictaphone - - -

103. INTERVIEW SUSPENDED

104. INTERVIEW RESUMED

105. INTERVIEWEE: (indistinct) what I'm doing but um, given that Airservices has sacked me, I'm now looking for employment.
106. INTERVIEWER 1: Okay.
107. INTERVIEWER 2: Okay, so you'll be in Melbourne for the foreseeable future or are you moving around?
108. INTERVIEWEE: No, I – tomorrow I fly out for Brisbane.
109. INTERVIEWER 2: Right.
110. INTERVIEWEE: And then I'll be, at this stage, returning to Darwin probably on Sunday or Monday, but that will depend on what happens with a prospective employer.
111. INTERVIEWER 2: M'hmm.
112. INTERVIEWEE: In um, in Brisbane.
113. INTERVIEWER 2: Oh, we'll keep our fingers crossed for you.
114. INTERVIEWER 1: All right, okay.
115. INTERVIEWER 2: Should we continue?
116. INTERVIEWEE: I think I need as many fingers crossed as I can get.
117. INTERVIEWER 1: All right, so I think basically before I was cut off I was saying the design of the investigation is based around – I've got about nine accusations here from all of your emails and we'll just go through them and you can tell me if you've got – if you think we haven't covered any accusations for you and I've got questions connected to each accusation and there are questions on some of the emails that we needed clarity on? Okay?
118. INTERVIEWEE: Yeah. Yeah.
119. INTERVIEWER 2: [REDACTED], is the recording working?
120. INTERVIEWER 1: We've got – the Dictaphone is on.
121. INTERVIEWER 2: Good. Okay.
122. INTERVIEWER 1: Yep. Yep, it's working.
123. INTERVIEWER 2: Sorry, I believe in Murphy's Law.
124. INTERVIEWEE: Yeah.
125. INTERVIEWER 1: Okay, so the first accusation that I've got was that prior to 2008 waste water from training was used for irrigation. Since 2008, this method was continued to be used. So basically the

accusation is that at the defence training ground water – the waste water from training was used on irrigation? Yep? Used as - - -

126. INTERVIEWEE: That's right.

127. INTERVIEWER 1: Yeah. Okay, so can you give me a brief understanding of the procedure for waste water disposal after training and just before we start on that, let's clarify, did they use foam at all in training or was it just water?

128. INTERVIEWEE: Yeah, okay. Um, yeah, so I commenced my employment at Darwin, um, with Airservices in September of 2008.

129. INTERVIEWER 1: Okay.

130. INTERVIEWEE: Um, when – when I got there um, there were – there were many trainee firefighters before me and certainly after me as well, um, so from a – a training perspective we were training on a daily basis. Um, I would say, you know, look, some of that training's taking place from a structural training perspective, but certainly a lot of it was from an aviation, fire-fighting perspective, so that, you know, large mock-up at the training ground that we talk of on defence land. That was being used, you know, every day or close to every day I would say. Given that there's two shifts.

131. INTERVIEWER 1: Yep.

132. INTERVIEWEE: There's the day shift and there's the night-shift and the night-shift would do training as well. You know generally at the – you know, at the start of the shift. Um, when I started there, we were using foam in training and we continued to use foam in training up until about 2010.

133. INTERVIEWER 1: Okay. Righto.

134. INTERVIEWEE: So, um, and I know that, you know, the foam was being used in training prior to 2008 by way of conversation with everybody and Airservices makes it, you know, abundantly clear that foam was being used in training.

135. INTERVIEWER 1: Yeah.

136. INTERVIEWEE: You know, everybody knows that.

137. INTERVIEWER 1: Yep.

138. INTERVIEWEE: At Darwin, to this day, they're still using the Ansulite product, the AFFF foam. Um, that's the foam of concern. Um, it was probably around the time where I completed my certificate iii which was around that late 2009, early 2010 or thereabouts um, I remember working at – two days of

overtime on a weekend. So the Saturday and Sunday, to dig a trench at the training ground, basically from – it was quite a secretive operation that um, [REDACTED] led.

139. [0.15.06]

140. He was down there, supervising things and myself and another firefighter um, a now retired firefighter. A chap by the name of [REDACTED], [REDACTED]. He and I did the work. Um, and it was with a Dingo. We dug a trench and then we laid some blue line pipe. Now go back to that time, um, from my perspective, you know, I can remember asking a question, what are – you know, what are – why are we doing this? Which I think any reasonable person would ask that question. Um, to which I was told, it's just for some irrigation. And that's all I was really told and my knowledge of what was happening with the waste at that time, no idea and – and – and no idea to have any idea either, I'm a trainee firefighter or just been made a, you know, fire fighter. We do our training, you just expect that things are disposed of appropriately. You don't even think to ask questions. So, that trench was dug, the pipe was laid. Um, I can remember some plastic sheeting going down before the pipe went in. It was either when – the plastic sheeting either went below or on top of the pipe, but it was certainly there. Um, I don't think I was actually involved in the installation of the tap and certainly my involvement around the generator room was non-existent as well. So it was mainly just to do with the trench being dug, and being on the dingo I remember it really distinctly when I cast my mind back to it now, 'cause being on a Dingo for a day and a half basically, your hands vibrate and my hands were still – had that vibrating sensation for a number of days afterwards. Um, so we move on from there and you just completely forgot about it all. Completely forgot about it all.

141. INTERVIEWER 2: Sorry [REDACTED].

142. INTERVIEWEE: Um.

143. INTERVIEWER 2: Sorry, just to interrupt you a second. That's – you were installing a pipe from the training pad, and where was the discharge point?

144. INTERVIEWEE: No, it – so it was from the generator room.

145. INTERVIEWER 2: Yep.

146. INTERVIEWEE: Or thereabouts and you know, look, what I know now, it – there's a pipe that, in some way, attaches to the pits. That stores the effluent from the training ground.

147. INTERVIEWER 1: When you say the pits, you mean the bunded pit around the mock-up training area or do you mean the tanks that are - - -

148. INTERVIEWEE: No.
149. INTERVIEWER 1: - - - under the ground.
150. INTERVIEWEE: The tanks. The underground tanks. In some way it's connected there. I don't know how. You know, that's – that's something I'm just not aware of, but I know it's connected. Um, it uh, where was I going with that? Um. I know when I spoke with Channel 9 um, prior to them doing their story that they did in – in February um, I informed them of what had gone on. Um, the journalist, she did some of her investigations. You know, that's what journalists do, um and, I know that um, she actually spoke with
- ██████████ and he told her that we installed some electricity, some powerlines or something. Now, as far as I know, there's no power at that location. If there was power at that location, there'd be no need to have a generator.
151. INTERVIEWER 1: Okay.
152. INTERVIEWEE: So I don't know if ██████████ was a bit muddled with things. He's now retired um and obviously getting a bit older, um, or what. But certainly what I do know is that that cast a little bit of doubt in the journalist's minds as to what was happening down at that – at that training ground.
153. INTERVIEWER 1: Okay, with – so after you – when you did training, it wasn't – you were a trainee, so you're sort of – so you weren't – because my question was about like the procedure for waste water disposal after training.
154. INTERVIEWEE: Yeah.
155. INTERVIEWER 1: So because you were a trainee you weren't – were you not responsible then for the removal of the waste water and stuff? You didn't get to see that side of the process? Is that what - - -
156. [0.20.06]
157. INTERVIEWEE: Not involved in any way, shape or form.
158. INTERVIEWER 1: Okay.
159. INTERVIEWEE: And I braced – yeah and – and look, you know, from a firey's perspective, you know, um you – you – you – you – you don't even lend a thought, where does the waste go?
160. INTERVIEWER 1: No. Oh, no.
161. INTERVIEWEE: So it – it – it's not you – not part of your roles. It's not part of your responsibilities – it – it's – you go there, you train. You're doing your firefighting stuff. That kind of stuff is left to management of the station.

162. INTERVIEWER 1: Okay.
163. INTERVIEWER 2: Yep, right.
164. INTERVIEWEE: Our – what I do know is as time progressed, and [REDACTED]s – when I started in September of 2008 at the station, [REDACTED] was the acting manager. The person who was managing the station behind him is a gentleman by the name of [REDACTED]. I never met [REDACTED], um, but know that when I applied for my position, my initial communications when it came to a station manager's perspective were with [REDACTED]. I think it was some time around July or thereabouts that [REDACTED] took over from [REDACTED]  
[REDACTED]
165. INTERVIEWER 2: Okay.
166. INTERVIEWEE: So, the whole um, when – when – when we train, obviously there's a lot of foam being laid down to put out fires and everything like that. The ground fuel fires, okay. Um, so we're doing all of that training. The bunded area at the um, LMU that obviously catches the bulk of that foam.
167. INTERVIEWER 1: When you're saying LMU you mean the training ground that's on Infrastructure site?
168. INTERVIEWEE: Yeah.
169. INTERVIEWER 1: Yep.
170. INTERVIEWEE: Yeah. Yep. So the big steel, you know, pretend plane.
171. INTERVIEWER 1: Yep.
172. INTERVIEWEE: That's the large mock-up. LMU.
173. INTERVIEWER 1: That's the mock-up. Yep. Yep.
174. INTERVIEWER 2: Yep.
175. INTERVIEWER 1: Defence land.
176. INTERVIEWEE: So the bunded area catches the bulk of the foam. Um, and it goes somewhere. You know, I now know where it goes. It goes to a holding tank.
177. INTERVIEWER 1: Yep.
178. INTERVIEWER 2: Yeah.
179. INTERVIEWEE: From that holding tank it goes through some, you know, even [REDACTED] told me, this dodgy processor. It basically – all it removes is rocks.

180. INTERVIEWER 1: Okay. Is that the one – I've got image 158 and it shows it in an open cage, sort of, shed, with a pipe coming out. So that's the – yeah, that's a two phase separator. That's that one, that it goes through? Yep. Yep. Yep.
181. INTERVIEWEE: Yeah. So there's that there. So it goes through that, and then it goes back into a second storage tank underground.
182. INTERVIEWER 1: Yep.
183. INTERVIEWEE: Um, and it's removed from there. Um, now, it was – I started um, acting in a – in a station officer's position in about 2013 and it was probably about that time that you start to become a little bit aware of the processes that go on, and back in 2013, the emergency vehicle technicians, I believe, were being utilised by [REDACTED] to cart the waste from the training ground back to the station.
184. INTERVIEWER 1: Okay, and then are you aware of where it went next?
185. INTERVIEWEE: No, at that point in time no idea. You know, not – I wasn't involved. Not my concern. Didn't - - -
186. INTERVIEWER 1: Yep.
187. INTERVIEWEE: You know, just – just – you know, no – no idea of it. Um, just through talking with some of the firey's over the years you could hear of the – you know, them talk about, you know, the irrigation and that would go on down at the um, training ground. Um, I know when I started in 2008 because we were using the foam and we were using it so regularly we were constantly replenishing the trucks and the firey's back then knew that, you know, part of replenishing the trucks you've got to – um, you've got to – a tank in the truck that holds about 1,400 litres of the foam and the foam, you know, when it gets poured in, it foams up a bit.
188. INTERVIEWER 1: Yep.
189. INTERVIEWEE: Now, you want to carry as much of that foam as possible, so to make sure that you're getting that tank full, so it wasn't kind of, half-full of foam, as in the froth.
190. INTERVIEWER 1: Yep.
191. INTERVIEWEE: You want it to be the liquid concentrate, you had to put your hand in the top to feel for it. Now, back as early as 2008, the firey's were telling us, you know, and like, us new blokes getting to the station, you don't want to be doing that, because the stuff's not good for you.
192. [0.25.10]
193. INTERVIEWER 2: M'mm.



194. INTERVIEWEE: But yet, you know, there's that bravado, I guess, I don't know. Blokes were still putting their hand in there.
195. INTERVIEWER 1: Checking it. Yep.
196. INTERVIEWEE: To test to see, you know, that the – the actual liquid concentrate was all the way to the top.
197. INTERVIEWER 1: Yep.
198. INTERVIEWER 2: Look, I haven't heard a - - -
199. INTERVIEWEE: So if the firey's are talking about that, it's something reasonable to believe that management is aware of, you know, the fact that this is possibly harmful.
200. INTERVIEWER 1: Yep. Yes. Yep. Okay, so that was - - -
201. INTERVIEWEE: They've got organisations around the world now saying and actually acknowledging that it is harmful.
202. INTERVIEWER 1: Okay.
203. INTERVIEWEE: Back then you could probably say that it was suspected to be harmful.
204. INTERVIEWER 1: Two thousand and thirteen?
205. INTERVIEWEE: Oh, 2008, that's when you know, when I got there, and I'm - - -
206. INTERVIEWER 1: Yeah.
207. INTERVIEWEE: - - - talking to firey's telling me, you know, this stuff's not good for you.
208. INTERVIEWER 1: Yeah. Okay.
209. INTERVIEWEE: You know, so, you know, the reason I say that is that if the firey's know that, where – where – you know, where do they get that knowledge from? Obviously it comes down from other elements, that, you know management's well aware of it. Airservices is aware of it.
210. INTERVIEWER 1: Yeah, and it's passed down.
211. INTERVIEWEE: So they - - -
212. INTERVIEWER 1: Yeah. Now I - - -
213. INTERVIEWEE: Sorry.
214. INTERVIEWER 1: Oh, sorry, go on. I interrupted you.
215. INTERVIEWEE: So when I started asking questions about things that were going on and – and is – you – you know, you're exposed to bits and pieces but not all of it. And – and – and this is where I think [REDACTED] excels at using people and can only have limited information, is – and – and

██████████, they – after a complaint that I made about him at the end of 2016 um, they conducted an investigation into him and they found a number of my allegations against him to be true and correct. And as a result of that they commissioned – Airservices commissioned an external organisation to conduct a Darwin cultural improvement program. And the result of that investigation by Converge – they spoke to every firefighter and – and Airservices knows that ██████████ the way he goes about his business is based on secrecy and intimidation and lack of communication. These are all very alarming aspects of a person that's actually doing things quite wrong, you know when – when – when you have a look at, you know, matters of fraud and – and things like that. These are all traits of people that should ring alarm bells.

216. INTERVIEWER 2: Yes, certainly, but we're – just to bring you back to the points that we're actually looking at today.

217. INTERVIEWEE: Yeah. Yeah. Yeah, yeah but what - - -

218. INTERVIEWER 2: But my own - - -

219. INTERVIEWEE: The point I'm making is that I know that I digressed a little bit there, but the point I'm making is that the – the – the key offender. The person that has come up with this whole regime of deliberately contaminating the environment uses people in a way that one person may have a little bit of knowledge, another person may have some other knowledge, but not many people have that whole broad spectrum of knowledge.

220. INTERVIEWER 2: Yeah, and that's why we appreciate what you're telling us today. My understanding is ██████████ no longer works for Airservices?

221. INTERVIEWEE: He's transitioning into retirement from my understanding before I was sacked by them. That's Airservices. He's still on their books, he's just on leave.

222. INTERVIEWER 1: Okay, and which is why you've provided us a lot of people's names because you believe that they have those different pieces of information to help us - - -

223. INTERVIEWEE: Yes.

224. INTERVIEWER 1: - - - with the investigation.

225. INTERVIEWEE: That's exactly right. Um, you know, as I go through those – those years that I mentioned, you – you kind of – you're exposed to different bits of information at different times. Um, you know, and when you actually sit down and you examine what you know, that's when, all of a sudden, and this is like what I've provided you, it's – it's – it's – it was after the um, you know, the Katherine story by

Four Corners that all of a sudden

the – the light came on.

226. [0:29:55]

227. INTERVIEWER 1: Okay.

228. INTERVIEWEE: You know - you - you start to put the pieces together as, you know, it - it's like, "My goodness, this has been happening right before my very eyes and I haven't really given it two thoughts".

229. INTERVIEWER 1: Okay. All right, so, well, what I've got to focus on is get those lines of evidence to prove or disprove those accusations, that's what this - - -

230. INTERVIEWEE: Yeah. So, so will that be - - -

231. INTERVIEWER 1: - - - and just connect up to the regulations.

232. INTERVIEWEE: You know, down at the training ground, you - you - you'll see the tap.

233. INTERVIEWER 1: Yep.

234. INTERVIEWEE: You'll see the tap has a blue line pipe attached to it. Now, if you have a look around the Defence base, there will be other taps, they don't have blue line pipes attached to them.

235. INTERVIEWER 1: Yeah, I've seen the - yeah.

236. INTERVIEWEE: It's - it's a regular kind of thing. So - so, why is this tap so different? You know, if - if you actually, you know, for example, somebody um, said to me the other week um, "If you do the testing, you actually put a - a - a - a coloured liquid in there and - and you run that generator and - and you do the right procedure, you'll see that that colour liquid, out of the pits" - - -

237. INTERVIEWER 1: Come out.

238. INTERVIEWEE: - - - "will be pumped through and out of that tap".

239. INTERVIEWER 1: Okay.

240. INTERVIEWEE: Yeah. There - there's your evidence, very plain to see, that, "Why on earth is that hooked up in that fashion?"

241. INTERVIEWER 1: And that's what we're, you know - part of this accusation will be investigating - - -

242. INTERVIEWEE: Yeah, yeah, so, that's what I'm detailing for you.

243. INTERVIEWER 1: Yes, thank you.

244. INTERVIEWEE: You know, so, I - you know, I'm spelling that out.

245. INTERVIEWER 1: Yep.

246. INTERVIEWEE: You know, in - in very basic terms, so - so everybody is fully aware that there is a tap with a pipe connected to a pit that effluent, by law, is required to be removed appropriately and it is not.

247. INTERVIEWER 1: Yep.

248. INTERVIEWEE: "Why is that tap connected?"

249. INTERVIEWER 1: Yeah.

250. INTERVIEWEE: I think a four year old could tell you why it's connected. It's so that can run out of it.

251. INTERVIEWER 1: Yeah.

252. INTERVIEWER 2: And we're very grateful that you're advising us about it and we'll be going out on site tomorrow and we'll be having a look at that and the other facilities on site. And that is one of the reasons why we're doing this investigation, to find out if there are structural issues within the Airservices facilities which would allow deliberate or accidental discharges to the environment and, if there is, well, obviously, Airservices are going to have to address those, and whether there has been non-compliance with air procedures, bearing in mind some of them are historical.

253. INTERVIEWEE: Yes.

254. INTERVIEWER 2: So, we've got to look back at the ones that were appropriate at the time, not today's standards, because now we know more and a higher standard is expected.

255. INTERVIEWEE: Yep.

256. INTERVIEWER 2: And bearing in mind that, regardless of what we find, if there's contamination on the site that's going to have to be addressed by Airservices.

257. INTERVIEWEE: Yeah. And that's good.

258. INTERVIEWER 2: Okay. That's overriding and that has always been the case before you complained.

259. INTERVIEWEE: Yep.

260. INTERVIEWER 2: And I know, certainly, at every other airport in Australia and Perth Airport is one of those, we are waiting for Airservices to come and finish their detailed site - examinations so that we can then move on to what would be the remediation phase if there are reasonable and practical ways of going about it and that can sometimes be a question mark.

261. INTERVIEWEE: Yeah.

262. INTERVIEWER 2: And it depends on the concentration that is found.

263. INTERVIEWER 1: Okay.

264. INTERVIEWEE: Yeah. Look - and - and, look, I - I do - I understand what you're saying um, you know, um, but I might note that, you know, the Brisbane Airport Corporation, I think, in November last year commenced legal proceedings against Airservices.

265. INTERVIEWER 2: Yep.

266. INTERVIEWEE: For its practices at the Brisbane airport.

267. INTERVIEWER 2: Yep. And certainly people - - -

268. INTERVIEWEE: My - my - my recruit course that I was a part of in 2008 was in fact the last recruit course at Brisbane.

269. INTERVIEWER 2: Yep.

270. INTERVIEWEE: All right. But the - the course after me was down in Melbourne and it's been down in Melbourne ever since. Now, if you have a look at Melbourne and their training ground that they have set up down there, it's - it's actually a very good and appropriate facility.

271. INTERVIEWER 2: Yep.

272. INTERVIEWEE: Now, they don't kerosene for fires down there, they're using gases.

273. INTERVIEWER 1: Gas.

274. INTERVIEWEE: And they're not freelancers so there's no - you know, the only runoff that they need to worry about is the washing liquid or whatever it is that they use to imitate the foam that we use in training.

275. INTERVIEWER 1: Yep.

276. INTERVIEWER 2: Yep.

277. INTERVIEWEE: You know, so it's well done, the - it - it's - it's - it's an appropriate facility for training. Now, certainly in Brisbane, knowing what I know, that the training that we did there was no different to the one in which we would've had our business in Darwin um, and you know, the Brisbane Airport Corporation is litigating. So, you know, it - it - it's - what I know about the practices in Darwin, I would be asserting that there's good cause for organisations to be thinking long and hard about Airservices' practices at that Darwin site.

278. [0:35:00]

279. INTERVIEWER 2: Yep.

280. INTERVIEWER 1: Yep.

281. INTERVIEWER 2: Can we get back to going through the allegations?

282. INTERVIEWEE: Yep. Yeah, this time, yeah.

283. INTERVIEWER 2: 'Cause we've obviously got to provide it, at this time, a detailed - - -

284. INTERVIEWER 1: Yep.

285. INTERVIEWEE: So, um, with - with, you know, just - just to move on, um, it was in about 2015 um, and it was around that late 2015 or, you know, mid to late that Fire Commander [REDACTED] was retiring. Now, Fire Commander [REDACTED] um, was employed as a day shift Fire Commander Monday to Friday, nine to five um, and part of his duties, probably from around - and I'm guessing here, but I'm assuming probably around 2012 or 13, was to cart the effluent from the training ground pits back to the station to dump it into the wash down bay.

286. INTERVIEWER 1: And into the wash down, right.

287. INTERVIEWEE: Yeah. Now, I've spoken with [REDACTED] um, it would've been in late - mid-late 2016, I spoke to him um, about this secret tap, I recall when I was training one of my firefighters and in 2016 I was a fire commander at that station um, I was training one of my firefighters and I remember seeing what I thought was water coming out of that tap. I had completely forgotten about the activities from 2009 or 10, you know, the installation of it, and I can remember telling my fire control centre by radio to contact the Defence Force to let them know that they've got a tap running.

288. INTERVIEWER 2: Yep.

289. INTERVIEWEE: And I remember that because I'm thinking - I'm saying, "If there's a tap there why can't we install a - a um, a fire hydrant to replenish our trucks down there?"

290. INTERVIEWER 2: Yep.

291. INTERVIEWEE: You know, I just wasn't putting two and two together.

292. INTERVIEWER 1: Was there anyone else with you at the time when you saw the tap running?

293. INTERVIEWEE: Ah, look, there would've been two other firefighters um, I don't know who it was.

294. INTERVIEWER 1: Okay.

295. INTERVIEWEE: Would be in the truck with me at the time, it would've been one of my - trainees, possibly um, 2016 um, maybe [REDACTED] ah, maybe [REDACTED] um, maybe ah, [REDACTED]

296. INTERVIEWER 1: Okay.

297. INTERVIEWEE: Um, he may have been doing his driver training at that time, um, which I could've been doing, I've forgotten now.

298. INTERVIEWER 1: Yep.

299. INTERVIEWEE: Um, but I - I - I remember seeing it running and later I can remember talking to [REDACTED] about it and he says, "Yes, we still use that tap to dump the effluent".

300. INTERVIEWER 1: Can you remember if it was the wet or the dry? What was that? So, that was 2016, do you think it was about June 2016? Is that what you said?

301. INTERVIEWEE: I - I - I think it would've - you - you - you would've been talking June, July-ish. You know - you know, around mid-year.

302. INTERVIEWER 1: Right.

303. INTERVIEWEE: So, it was certainly dry season. Um, I do know in August of 2016 - - -

304. INTERVIEWER 1: Yep.

305. INTERVIEWEE: - - - um, when ah, we had a checks and standards officer up checking the station um, Inspector um, [REDACTED]. Um, in the kitchen I remember talking to - you know, there's a bunch of firey's in the kitchen, you know, we were having breakfast or whatever it is, talking with [REDACTED], [REDACTED] was there and I can remember um, and I - and I remember this quite distinctly by the look on [REDACTED] face, he couldn't believe what he was hearing, and what he was hearing was [REDACTED] instructing me on how to contaminate the environment.

306. INTERVIEWER 1: So, what was his instructions?

307. INTERVIEWEE: He was telling me how to - this wasn't to do with the tap, it was to do with the valves.

308. INTERVIEWER 1: Yep.

309. INTERVIEWEE: Just next to the um, to the training pad.

310. INTERVIEWER 1: Yep.

311. INTERVIEWEE: Um, there's a valve that you can open up that goes to stormwater.

312. INTERVIEWER 1: Yep.

313. INTERVIEWEE: And there's a valve that you can open up that goes to the processing tanks, I've - you've got a picture of those.

314. INTERVIEWER 1: Yeah, I've seen those and I've walked out on site to have a look, yep.

315. INTERVIEWER 2: Yeah, that's - that's fairly standard as well at a number of airports around Australia.

316. INTERVIEWEE: Yeah, yep. Now, you know, what we were um, instructed to do on a general basis at the station was, in a wet season, when, you know, we're not training with the hydrocarbon fuels and everything like that - - -

317. [0:40:00]

318. INTERVIEWER 2: Yep.

319. INTERVIEWEE: - - - you know, and the valve up to stormwater, so, the water that is, you know, falling on the pad if you've got some training to do, you can release it.

320. INTERVIEWER 1: Yep. And is that - that release to stormwater, is that connected to the two phase interceptor at all or is just automatically release that?

321. INTERVIEWEE: No, it just - it just goes straight into the ground.

322. INTERVIEWER 1: Yep.

323. INTERVIEWEE: When you're at the site tomorrow, if you're going there, you'll see where it runs - runs out.

324. INTERVIEWER 1: No, I - I - I know that site, I go past it every month.

325. INTERVIEWEE: Yeah.

326. INTERVIEWER 1: Yep.

327. INTERVIEWEE: So, um, during the dry season, when we're doing our training, it's closed off.

328. INTERVIEWER 1: Okay.

329. INTERVIEWEE: And everything is supposed to go to the processing plants, and the reason for that is because of the kerosene and the dry chemical power and the unleaded petrol and whatever else, you know, pre-2010, the fire - it would go to the processing tanks.

330. INTERVIEWER 1: Yep.

331. INTERVIEWEE: Now, they were installed, obviously, for - for whatever reason, you know, if - if - if I look at our Cairns station, they've probably got a similar setup and I know that, on a weekly basis, and quite often twice or three times a week, that effluent from their training ground, they have a waste management company come in and remove it.

332. INTERVIEWER 1: Yep.

333. INTERVIEWER 2: Yep.

334. INTERVIEWEE: Darwin commenced that activity in September of last year.

335. INTERVIEWER 1: Yes, I can recall you putting that in your email.

336. INTERVIEWEE: Yeah, yeah. And it's in fact emails that go to the veracity of what I'm saying.

337. INTERVIEWER 2: Yep.

338. INTERVIEWEE: That there was no waste removal company involved in removing waste pre-September of last year.



339. INTERVIEWER 1: Yep.

340. INTERVIEWEE: And - and we'll get to the other aspect of that as we go through the interview.

341. INTERVIEWER 1: As I'm going through the accusations, I mean, I've moved on to the secondary - accusation now, which - let me just check with the first one, though. With the - so, I've answered a lot of the questions from the first accusation, with - about the irrigation.

342. INTERVIEWEE: Yep.

343. INTERVIEWER 1: 'Cause you covered that, but then when you move to the stormwater, the second accusation that I've got is, "Waste water from that mock-up training ground was released into the stormwater", so, I've been answering a lot of questions of you - as you've been just talking there.

344. INTERVIEWEE: Yes.

345. INTERVIEWER 1: Okay? So, you've just answered - I - I had a query about high rainfall.

346. INTERVIEWEE: Now, just - just while we're on that stormwater.

347. INTERVIEWER 1: Yep.

348. INTERVIEWEE: In - in September of last year um - that's where those pictures were taken that you have.

349. INTERVIEWER 1: Yep. Yes, yep, I saw that.

350. INTERVIEWEE: Yeah, have you got a copy of the video?

351. INTERVIEWER 1: Yes, I do have a copy of the video.

352. INTERVIEWEE: Okay, yeah.

353. INTERVIEWER 1: No, when was that video taken?

354. INTERVIEWEE: Yeah, that was in September of last year.

355. INTERVIEWER 1: Last year, after that incident?

356. INTERVIEWEE: Yes.

357. INTERVIEWER 1: Yes, okay.

358. INTERVIEWEE: So, um - and that was not by anything other than just coincidence, you know, the - the reason why I took that - that video um, my - just, you know, I'm digressing a little bit here, my wife is employed by the YMCA. Um, the YMCA ah, manages the swimming pool of Catherine um, it was earlier that year that the YMCA was told they had to shut the pool down and the water had to be dumped out of the swimming pool because of the concerns about the water - - -

359. INTERVIEWER 1: Because they used bore water to fill up the - yep, yep, gotcha.

360. INTERVIEWEE: As a result of the Tindal Airport and everything.

361. INTERVIEWER 1: Yes, yep.

362. INTERVIEWEE: So, um, it was probably through July, August of last year I was communicating with my union um, and they shared with me um, their involvement with the Four Corners reporter to do with the Katherine story.

363. INTERVIEWER 1: Yep.

364. INTERVIEWEE: Um, and they were trying to get that story to encompass Airservices activities as well.

365. INTERVIEWER 1: Okay.

366. INTERVIEWEE: Um, so, I - I say that because the Four Corners story I don't think ran until - I - I think it might've been early October.

367. INTERVIEWER 1: Later, yeah, yep.

368. INTERVIEWEE: But I was aware that it was coming out. So, it was in September, you know, it's why all of a sudden I'm putting all of this information together and it's like that penny drops and - and it's like, "I've got to get to that training ground before somebody else does and removes the evidence or tampers with the evidence".

369. INTERVIEWER 1: Yeah, so - - -

370. INTERVIEWEE: You know, we - we - - -

371. INTERVIEWER 1: - - - 'cause that video - - -

372. INTERVIEWEE: I - I - you know, you - you look at what's - what's happening around the country and the way in which the Defence Force is being hung out to dry for all this - this whole PFAS issue um, you know, the Defence Force, what's happened in Darwin, er I don't know, but I will go so far as to say that if there's been any releases by Defence it's been either operationally or systems failures that's caused those releases.

373. [0:45:00]

374. INTERVIEWER 1: And it also has to do with not having the knowledge that PFAS was a contaminant until around about 2007, was it?

375. INTERVIEWEE: Yeah.

376. INTERVIEWER 1: And, so, they would've used it - - -

377. INTERVIEWEE: Was there anybody from Defence that was actually deliberately releasing the PFAS into the environment?

378. INTERVIEWER 1: I couldn't answer that one, no.

379. INTERVIEWER 2: Yeah, we can't - can answer that one, and that, again, is it comes down to intent.

380. INTERVIEWEE: Yeah.

381. INTERVIEWER 1: Yep.

382. INTERVIEWEE: Yeah. What I'm saying here is that Airservices through a - manager of the station was deliberately - - -

383. INTERVIEWER 1: Releasing.

384. INTERVIEWEE: - - - knowingly and deliberately contaminating the environment through these systems.

385. INTERVIEWER 2: Yep, yeah. And, you know, that's good background information for us to have a look at while we're conducting this investigation, because, you know, we will discuss that within our report.

386. INTERVIEWEE: Yeah.

387. INTERVIEWER 2: But what we're really interested in is to continue going through your allegations.

388. INTERVIEWEE: Yep, yep.

389. INTERVIEWER 2: So that we can look at the lines of evidence to see whether - obviously there's been breakdowns in Airservices procedures, which is really what you're indicating, that there's been breakdowns in their procedures and people haven't been following their procedures, and we're going to get copies of their historical procedures tomorrow.

390. INTERVIEWEE: Yep.

391. INTERVIEWER 2: And, obviously, these will be - will come out as part of the recommendations of the report, for Airservices to do that and there may be other reporting requirements that, moving forward, Airservices will have to do - - -

392. INTERVIEWEE: Yes.

393. INTERVIEWER 2: - - - or will be recommended that they do, bearing in mind that the hierarchy on airports is for the operator of - on an airport, whether it's Airservices or whether it's, in my case, let's say it's a gold refinery, I haven't had one of those - - -

394. INTERVIEWEE: Yep.

395. INTERVIEWER 2: - - - that they have to report to the airport and their environment team any impact from their operations and anyone - - -

396. INTERVIEWEE: Yes.

397. INTERVIEWER 2: - - - they may contract onto their site. And that needs to be done in a timely manner and via an annual report, and each operation is different.

398. INTERVIEWEE: Yeah, yep.

399. INTERVIEWER 2: So, we do need to know what's going on and, ultimately, whether contamination has occurred and whether remediation is required, and that's where we're moving to and, certainly, Airservices is moving towards that - identification of the extended contamination. You're talking about Northern Territory and Department of Environment.

400. INTERVIEWEE: Yep.

401. INTERVIEWER 2: Correct me if I get the name wrong. I can tell you that I think every state's Department of Environment is very interested in PFAS coming from any site that has Airservices operations on it.

402. INTERVIEWEE: Yes.

403. INTERVIEWER 2: Speaking from Perth and, you know, my experience.

404. INTERVIEWEE: Yeah.

405. INTERVIEWER 2: And it's something that is getting a lot more scrutiny as time goes by.

406. INTERVIEWEE: Yeah, yep.

407. INTERVIEWER 2: So, we're taking - - -

408. INTERVIEWEE: Yeah, no, I'm hearing what you're saying. So, yeah, they're - look, you know, yeah, let's - let's press on.

409. INTERVIEWER 2: Yeah, yeah, yeah. We're taking a lot of your time and we really don't want to take up the whole of your time in Melbourne, 'cause I'm sure you're a busy man.

410. INTERVIEWER 1: All right.

411. INTERVIEWER 2: Yeah, where would you like to go next, [REDACTED]?

412. INTERVIEWER 1: I'm just checking the images that were connected to that accusation 'cause your - I've got an open cage image with the two phase interceptor and I've also got a - a car with a palacon on the back of it, I've also got the - - -

413. INTERVIEWEE: Yeah. Just - just on that - that picture that I - that you've got - - -

414. INTERVIEWER 1: Yep.

415. INTERVIEWEE: - - - of that um, ah, that pit where the ah, well, not pit, but the outlet - - -

416. INTERVIEWER 1: Yep.

417. INTERVIEWEE: - - - where the valve to stormwater goes from, you'll see that there's water in there.

418. INTERVIEWER 1: Yes, I saw that, I did (Indistinct) - - -

419. INTERVIEWEE: The pictures - the pictures were taken in September of 2017, I think it - might've been around the 17th or 18th.

420. INTERVIEWER 1: Yep.

421. INTERVIEWEE: Um, there was no notable rain during that period, check with the BOM, you'll see there's no notable rain um, if you actually have a look at the um, so, the video.

422. INTERVIEWER 1: Yep.

423. INTERVIEWEE: I move from the training pad - - -

424. INTERVIEWER 1: And you show the stormwater drain?

425. INTERVIEWEE: And I - and I move onto that stormwater drain. The training pad is as dry as a bone.

426. INTERVIEWER 1: Yep.

427. INTERVIEWEE: Um, I say that because I don't know what some people might say as to how that water got there, the point I'm making is that in September there would've been a lot of training taking place on that pad, the appropriate procedure would be for that - you know, the water, the effluent from the training pad to be cut - going into the pits, but for some reason there's water sitting - - -

428. INTERVIEWER 1: In the stormwater.

429. [0:50:00]

430. INTERVIEWEE: - - - at the outlet of that valve.

431. INTERVIEWER 1: I actually have a - a monthly investigation that I did where I have photos of the DCP and the water coming out of the stormwater drain and it was February in 2017.

432. INTERVIEWEE: Yeah.

433. INTERVIEWER 1: So, yes, I do have information like that before (Indistinct) - - -

434. INTERVIEWEE: Yeah. So, you know, my point being is that, okay, [REDACTED] um, is transitioning to retirement um, he'd pretty much finished up managing that station through the course of, you know, maybe the middle of last year um, maybe as early as - as May or thereabouts. Um, September, there's effluent sitting in that outlet.

435. INTERVIEWER 1: Yep.

436. INTERVIEWEE: Um, what I'm saying is those practices are still ongoing, even though the architect of it all, [REDACTED], is not there, those practices are still ongoing.

437. INTERVIEWER 1: Yep. Sorry, I'm just writing it all down.

438. INTERVIEWEE: Yep.
439. INTERVIEWER 1: Okay, that really helped me with that accusation, that - the accusation is that it's releasing to stormwater, so, thank you. But - - -
440. INTERVIEWEE: But I say that, as well, because if [REDACTED] was, you know, in - in ah, August of 2016 so openly instructing me, as a new fire commander, on how to contaminate the environment, I just wonder, who else was he giving instruction to?
441. INTERVIEWER 1: Yep.
442. INTERVIEWER 2: Yep. Yeah, and that points been taken on board, so, [REDACTED] does do regular inspections, as do the airport environment officers, so, that's something that they can keep an eye on.
443. INTERVIEWEE: Yeah.
444. INTERVIEWER 2: Whenever they come out, and I would imagine that they don't give notice prior to an inspection.
445. INTERVIEWER 1: No. No.
446. INTERVIEWEE: Yeah.
447. INTERVIEWER 1: I do my monthly inspections, you don't - you don't get - - -
448. INTERVIEWEE: And that's - and - and that - and that - that's good, because, certainly, um, you know, um, what's going on there, the - you know, there's - there's clearly been some breaches, I would say deliberate breaches um, and um, you know, um, it's been identified, it needs to now be monitored to ensure that those breaches don't go on, and what you're saying is good to hear.
449. INTERVIEWER 1: Okay. But also be aware that it is on Defence land.
450. INTERVIEWEE: Yeah.
451. INTERVIEWER 1: So what - when I am doing my drive arounds and stuff it's mostly driving past the firefighting station itself and past the Defence once, but Defence land is Defence's responsibility as well, so, I'm not the regulator for that Defence land as well.
452. INTERVIEWEE: Yeah. Yeah, and - and look, I - I - I appreciate that, [REDACTED] um, no doubt Defence is aware of it, though.
453. INTERVIEWER 1: Yep, hopefully.
454. INTERVIEWEE: Yeah.
455. INTERVIEWER 1: And I - yeah, and one of my actions from my - - -

456. INTERVIEWEE: So - so, one would assume that, you know, if I owned some land and I knew a, I don't know, a tenant, you could say, ah, was doing the wrong thing, and it was borne out that they're doing the wrong thing, I'd be concerned about my land and I would certainly be doing my checks as well.

457. INTERVIEWER 1: Yeah, yep.

458. INTERVIEWEE: Um, so, I think, you know, um, you know, whether the airport can monitor that or not is neither here nor there, one would certainly think Defence would be monitoring that - that site.

459. INTERVIEWER 1: Yep.

460. INTERVIEWER 2: I think they probably (Indistinct) - - -

461. INTERVIEWEE: I think isn't that a reasonable expectation?

462. INTERVIEWER 1: Well, I think it's more a of a reasonable expectation, as well, that the AEO is making sure that the tenant who is on AEO land and is a Department of Infrastructure tenant is following the right procedures and processes, so, that's where my role sits in that.

463. INTERVIEWEE: Yeah.

464. INTERVIEWER 1: Okay. So, that answered a lot of my questions for the deliberate releases of waste water from the stormwater at the mock-up training ground. I am pretty sure - the only - there was one - an email that you sent me from [REDACTED] about the pump breaking down, and I - - -

465. INTERVIEWEE: Yeah.

466. INTERVIEWER 1: Yeah, I just - can you give me some clarity on that - on that one?

467. INTERVIEWEE: Yeah.

468. INTERVIEWER 1: Because I can't tie that - that one doesn't seem to be tied to an accusation.

469. INTERVIEWEE: With - yeah, just with that, I think the reason why I sent that is, you know - um, the EVTs ah, Emergency Vehicle Team he says, which [REDACTED] - - -

470. INTERVIEWER 1: Yep.

471. INTERVIEWEE: - - - um, you know, he's the manager at um, at the station in charge of the ah, ah, the EVTs um, they were utilised um, to cart this effluent, you know, for a number of years, I can't name for how long. You know, [REDACTED] could certainly answer those questions.

472. INTERVIEWER 1: Okay.

473. INTERVIEWEE: That email that talks about this, you know, pump or processor, I don't know if that's at the station or if it's down at the training ground or, you know, once again, you know, in speaking with

■■■■, he's still employed by Airservices as far as I know um, he'll be able to give you some more information on that.

474. [0:55:00]

475. INTERVIEWER 1: Okay.

476. INTERVIEWEE: Um, one - one thing I know is that the way in which ■■■■ goes about or went about his business at that station, a big part of it was intimidation um, I know that um, in talking to a retired fire commander ah, ■■■■ um, he's well aware of the activities that have gone on at that station over the years um, and when I spoke to him at the start of last year, he said to me that I was a damned fool to take on a position of fire commander at that station, given that I didn't have any dirt on anyone.

477. INTERVIEWER 1: Yeah, okay. Right.

478. INTERVIEWEE: That - that's - that's how that station ran. There were a lot of secrets, a lot of skeletons in the closet, and the way to protect yourself is to have dirt on people.

479. INTERVIEWER 1: Okay.

480. INTERVIEWEE: I don't operate like that, but that's how people set about their business there, and that's how ■■■■ goes about his business. Now, I think ■■■■ would be very, very aware of how um, inappropriate some of the ah, waste management activities have been at that station um, I think some questions need to be asked of him and I think he'll answer them and I just wonder - because I know ■■■■ is very concerned about the environment, as we all should be.

481. INTERVIEWER 1: Okay.

482. INTERVIEWEE: Um, I just wonder why he would participate in these practices and I just wonder, maybe, what kind of dirt did ■■■■s have on ■■■■?

483. INTERVIEWER 1: Okay.

484. INTERVIEWER 2: Yeah.

485. INTERVIEWEE: All right.

486. INTERVIEWER 2: For the purposes of our interview and our examination we really don't need to go into that level of detail.

487. INTERVIEWEE: Yeah, okay.



488. INTERVIEWER 2: What we're interested in is the actual allegations and things that we can prove or observe on site so that we can - so, again, we can go and look at Airservices procedures and whether they've complied with their procedures or failed to comply with their procedures.

489. INTERVIEWEE: Yeah.

490. INTERVIEWER 2: Really with a view to improving things, 'cause it sounds like that's what you're after as well.

491. INTERVIEWEE: Absolutely. Absolutely, look, what - what - what's been going on - and this is why I'm detailing this stuff, what's been going on, yes, there needs to be improvement, procedures need to be put in place - - -

492. INTERVIEWER 2: Yep.

493. INTERVIEWEE: - - - and followed, but what's been happening is criminal.

494. INTERVIEWER 2: Yeah.

495. INTERVIEWEE: Now, I don't know about you but when a crime is committed - - -

496. INTERVIEWER 2: Yep.

497. INTERVIEWEE: - - - justice needs to be done and it needs to be seen to be done. So, the reason why I'm saying this kind of stuff in this opportunity is um, I am left to wonder if the Department of Infrastructure and Regional Development actually going to conduct an investigation into crimes that have been committed on airport land and possibly even Defence land.

498. INTERVIEWER 1: At the moment this is a regulatory investigation. The - if the regulations are perceived to have been breached then we move to the change of the investigation.

499. INTERVIEWEE: Yeah. Yep, and, you know, look, I - yeah, I'm - I'm going to answer the questions but I'm going to throw detail in because my fear - - -

500. INTERVIEWER 2: Yep.

501. INTERVIEWEE: - - - is that there won't be a criminal investigation, and I - and I appreciate what you're doing and I understand that it needs to be done.

502. INTERVIEWER 2: Yep.

503. INTERVIEWEE: But at some point in time, you know, I want to use this to force the hand of the Department to actually hold these offenders to account.

504. INTERVIEWER 2: As I discussed earlier, we can only enforce our regulations and our regulations, they specify the operator of an undertaking on the airport, so - - -

505. INTERVIEWER 1: So, the operator would - Airservices themselves.

506. INTERVIEWER 2: Is Airservices.

507. INTERVIEWER 1: Would be Airservices themselves.

508. INTERVIEWEE: Yep.

509. INTERVIEWER 2: Yeah.

510. INTERVIEWER 1: And they would be held accountable.

511. INTERVIEWER 2: So - - -

512. INTERVIEWER 1: For what their employees do.

513. INTERVIEWER 2: So, we're not looking at their staff, we're obviously mindful of staff and their actions which may lead up to failures by Airservices.

514. INTERVIEWEE: Yep.

515. INTERVIEWER 2: So, we're - - -

516. INTERVIEWEE: And - and, you know, and the employees are the agents of Airservices.

517. INTERVIEWER 1: That's right, that's - - -

518. INTERVIEWER 2: Absolutely, and any contractors that they may bring on site.

519. INTERVIEWEE: Yeah.

520. INTERVIEWER 1: That's right.

521. INTERVIEWER 2: And Airservices is liable for any of their failures, which is why we're looking at their procedures.

522. INTERVIEWEE: Yeah.

523. INTERVIEWER 2: Their operations and the facilities they have on site.

524. INTERVIEWEE: Yeah.

525. INTERVIEWER 1: So - - -

526. INTERVIEWEE: Yeah, so, yeah, so, you know, look, um, you know, um, that email about the processor from, you know, ■■■, um, I - I don't know if that's about the training ground or if it's about at the station site.

527. [1:00:00]

528. INTERVIEWER 1: Okay and you've sent that email because you sort of want us to understand that ■■■ was responsible for a lot of the maintenance and the waste removal process and procedure. That was the purpose of - - -

529. INTERVIEWEE: I think it's speaking with [REDACTED] and asking questions of him. You'll get bigger picture of what goes on. I only know so much.

530. INTERVIEWER 1: Yep, yep.

531. INTERVIEWEE: I don't know it all.

532. INTERVIEWER 1: No.

533. INTERVIEWEE: And I know there's a lot that I don't know. I know there's a lot that I don't know.

534. INTERVIEWER 1: Well, I'm just setting up the basics at the moment, connecting those emails to those accusations and then we're getting from you a lot of questions that we can ask as well.

535. INTERVIEWEE: Yeah.

536. INTERVIEWER 1: Okay. So the next accusation was deliberate releases of waste water from the retention dam at the end of the station.

537. INTERVIEWEE: Yes.

538. INTERVIEWER 1: Before September, that September incident in 2017, I know that after the September incident because that incident was reported to me.

539. INTERVIEWEE: Yes.

540. INTERVIEWER 1: And it was reported to me that the process now would no longer be removing of waste into the wash bay area to sewer, that they would have a contractor come and empty that dam on site.

541. INTERVIEWEE: Yeah.

542. INTERVIEWER 1: To your knowledge before the September incident do you have any knowledge of what the process was for removing the waste from that retention dam? Do you know what the process was?

543. INTERVIEWEE: Um, yeah, there's a processor at that retention dam that's on the north, north-eastern corner of it.

544. INTERVIEWER 1: That's right.

545. INTERVIEWEE: When you inspect the site you'll see it there.

546. INTERVIEWER 1: Yep.

547. INTERVIEWEE: There's a number of valves where it can be released to storm water or go in through a processor.

548. INTERVIEWER 1: Yep.

549. INTERVIEWEE: How good that processor is at that site I don't know. I would say it's probably about as good down at the training ground. It removes rocks and that's about it. Um, I don't know. Um but what I do know is that I was promoted to fire commander at the end of 2014. As a fire commander you're supposed to be part of the management team. As we went through 2015 I guess I started to get inducted into how that station was managed. For a number of years it's really been a two man management team, that being [REDACTED] and [REDACTED]. The other fire commanders involved I think pretty much didn't want to know about the practices that we going on, whether it was the environmental practices or any other one. They just kind of stuck their head in the sand.
550. INTERVIEWER 1: Okay.
551. INTERVIEWEE: Knowing what I know now I can understand that doing that look at retiring fire commanders like [REDACTED] and [REDACTED] and [REDACTED]. All the knowledge they have they just didn't want to rock the boat.
552. INTERVIEWER 1: Okay.
553. INTERVIEWEE: So through 2015 I'm starting to get inducted into how this you know, management team operated and I really didn't like what I was seeing or hearing. It was in the middle of 2015 or thereabouts I remember being turned out to a job where we had to assist the safety officers with some hydraulic fluid that had been dropped on the runway.
554. INTERVIEWER 1: Yep.
555. INTERVIEWEE: Um, it was somewhere leading up to that, that I became aware of part of our reporting procedures was to create a CIRRIIS report, which encompasses environmental concerns and I created one on the back of that, together with the incident report.
556. INTERVIEWEE: The Airservices environment officer, I think his name was [REDACTED] - - -
557. INTERVIEWER 1: Yes, yep.
558. INTERVIEWEE: Was very appreciative of me doing that.
559. INTERVIEWER 1: He's the person, so obviously [REDACTED] is in Canberra and is he the person - - -
560. INTERVIEWEE: I think so. Yeah.
561. INTERVIEWER 1: Yeah and so he reviews your CIRRIIS report?

562. INTERVIEWEE: Yep.
563. INTERVIEWER 1: Yep, yep.
564. INTERVIEWEE: So at the time, you know, I've done it, he's asked some questions and I've responded. I - you know, to be perfectly honest, [REDACTED] a, as we were going through that period, you know, 2015, my focus is on fire fighting activities.
565. INTERVIEWER 1: Yes, yep.
566. INTERVIEWEE: Airservices drums it into you, people, property and a very distant third environment.
567. INTERVIEWER 1: Yes, yep.
568. INTERVIEWEE: Right. The environment is always - you know, the way we were trained and everything is, it's a consideration but it's out there. The priority is people and property.
569. INTERVIEWER 2: Yeah.
570. INTERVIEWER: So you know, that's how I was going about my business. In hindsight I - and then some of those training there was that mindset that I've had, you know, the environment is very important. Um but nonetheless, I created that report and I remember the berating I received from [REDACTED] [REDACTED] for having created that report and the reason why I was berated, because all it was was the use of water on the runway.
571. INTERVIEWER 2: Yep.
572. INTERVIEWEE: But he did not want Airservices environment people being alerted to the practices that were happening at the station. Don't draw their attention to us if we fly under the radar we'll remain under the radar. Why didn't he want that to be known? The reason is because of the inappropriate activities that were being conducted, the reason why we're speaking today.
573. INTERVIEWER 1: Okay and that's why you sent that email as well, which answers that question.
574. INTERVIEWEE: All right. So we then go onto the grass fires or the scrub fires that we had later that year in 2015.
575. INTERVIEWER 1: Could you just hold on before you do? We'll close off on the storm water questions about the retention dam.
576. INTERVIEWEE: Yeah.
577. INTERVIEWER 1: Because I do actually have each of those, the hydraulic one and the fire one as an accusation.
578. INTERVIEWEE: Yeah. Righto.

579. INTERVIEWER 1: Okay. So the next accusation, let's have a look at what we've got is discussing 30  
accidental discharges of foam into the environment that had not been reported. So I did - - -

580. INTERVIEWEE: Yep.

581. INTERVIEWER 1: I had a look at the CIRRIIS reports you've sent me.

582. INTERVIEWEE: Yep.

583. INTERVIEWER 1: Are you aware of you were the only person that has written up incident reports for  
those - for the incidents that have occurred. Are you the only person that writes up reports? Are you  
aware of any other employee there that's written up incident reports whilst you were there?

584. INTERVIEWEE: Incident reports for what, the accidental (indistinct) charges?

585. INTERVIEWER 1: Foam - accidental discharges of foam. Yep.

586. INTERVIEWEE: Yeah. I've never created a report for an accidental discharge of foam.

587. INTERVIEWER 1: Okay.

588. INTERVIEWEE: I've never created one.

589. INTERVIEWER 1: Yep.

590. INTERVIEWEE: The problem that I can see and what I've learnt Airservices indicated that there was an  
accidental discharge in February of this year.

591. INTERVIEWER 1: Yes.

592. INTERVIEWEE: Prior to that there were only two accidental discharges that have been reported through  
the CIRRIIS system.

593. INTERVIEWER 1: Yes, which you provided, yep.

594. INTERVIEWEE: Okay. The first one was when the checks and standards officer was there in August of  
2016.

595. INTERVIEWER 1: Yep.

596. INTERVIEWEE: The second one was in September of last year, which led to the new procedure being  
that a, you know, external waste management company would remove the waste.

597. INTERVIEWER 1: Yep.

598. INTERVIEWEE: I might add probably some 17 years too late. Um and then of course, there's the one in  
February, which I'm not aware of or haven't seen. On my shift - when was it? It was 20 - around August  
or so, you know, mid 2015 when we became aware of this change in procedure that Airservices had  
instructed the stations.

599. INTERVIEWER 1: With the switch? You mean a change of visit, yep.

600. INTERVIEWEE: Yeah. So you know, look that safety switch, it was always in the off position from my perspective. It's a safety switch. It's so - it's there so you don't accidentally discharge the foam. There was a lot of people, myself included, there were just alarmed that all of a sudden they're being told to run with that switch in the on position.

601. INTERVIEWER 1: Yeah.

602. INTERVIEWEE: And that's what brought about all these accidental discharges.

603. INTERVIEWER 1: Yep.

604. INTERVIEWEE: The many emails that I've forwarded to you.

605. INTERVIEWER 1: Yeah, yep, that I have - - -

606. INTERVIEWEE: Right go to - you know, it's obviously been occurring but it's not being reported.

607. INTERVIEWER 1: Yep.

608. INTERVIEWEE: The reason, well, from my perspective on my shift I think through late 2015 and through 2016 while I was there, on my shift I would say there were probably four or five accidental discharges that myself and my subordinate officer did not report.

609. INTERVIEWER 1: Is that per shift or just as you can recall, four or five incidences?

610. INTERVIEWEE: About four or five instances in total, is what I can recall. Um, look, there might have been more. There might have been less. The fire fighters, I might add, I think on every occasion of an accidental discharge, they've done the right thing.

611. [1:10:11]

612. INTERVIEWER 1: Okay.

613. INTERVIEWER 1: They've reported it in line with organisational policy and procedure. They've reported it to their officer.

614. INTERVIEWER 1: When you say the fire fighters are you talking about - what are you referencing when you say the fire fighters? Are you talking about - what are you referencing when you say the fire fighters? Are you talking about the State?

615. INTERVIEWEE: That's the fire fighter ranks. The people who've actually you know, caused the accidental discharge. You know, mainly in testing of the trucks.

616. INTERVIEWER 1: Yep.

617. INTERVIEWEE: You know, a leading fire fighter or a trainee fire fighter that forgotten to, you know, put the safety switch on.
618. INTERVIEWER 1: Yep.
619. INTERVIEWEE: When they've been doing the testing of the trucks. So if there's been an accidental discharge they've either come to the station officer or the fire commander and said, look, we've you know, accidentally discharged it again. Yep. No worries. Okay. Cheers. Um, they've done the right thing. It's at that officer level - - -
620. INTERVIEWER 2: Yep.
621. INTERVIEWEE: Where the reporting hasn't happened. Now I know the reason why I didn't report these things and the reason why I didn't report them was because when I have created CIRRIIS reports in the past I got my teeth kicked in. The berating I received from [REDACTED] for reporting the use of water on the runway, it was unpleasant.
622. INTERVIEWER 1: Okay.
623. INTERVIEWEE: I've seen what he has done to other people that don't comply with his inappropriate instructions. It is unpleasant.
624. INTERVIEWER 1: Okay.
625. INTERVIEWEE: Now I don't know why the other officers didn't report these accidental discharges. I know through talking to them there were other accidental discharges, many accidental discharges.
626. INTERVIEWER 2: So it's - - -
627. INTERVIEWEE: I don't know why they didn't report them but I know the reason why I didn't.
628. INTERVIEWER 2: So the fire - - -
629. INTERVIEWEE: It's because - sorry?
630. INTERVIEWER 2: Yeah, sorry, the firey's, their responsibility is to report any incidents like discharges of foam, to their officers and it's the officers' responsibility to complete the incident report?
631. INTERVIEWEE: That's correct.
632. INTERVIEWER 1: Thank you, [REDACTED].
633. INTERVIEWEE: Yeah. So you know, the second time that I got my teeth kicked in for creating a CIRRIIS report for the use of water was on the back of the bush fires, the grass fires that we had.
634. INTERVIEWER 2: Yep.



635. INTERVIEWEE: In I think it might have been around September or so of 2016. Now at the time the acting station manager was [REDACTED].

636. INTERVIEWER 1: Yeah.

637. INTERVIEWEE: I spoke earlier about the two man management team and you had this - the second person involved in that two man management team.

638. INTERVIEWER 1: Right.

639. INTERVIEWEE: Now when I created the CIRRIIS report for the grass fires that went over the course of about three days, again, I was severely berated for creating that CIRRIIS report. That was by [REDACTED] [REDACTED].

640. INTERVIEWER 1: Is that the copy? So that CIRRIIS report was in November 2017, 25 November 2017. You're referencing that with the water agent used to extinguish?- - -

641. INTERVIEWEE: Yeah. No. That was 2015, sorry. That was when the grass fires were.

642. INTERVIEWER 1: Yep, yep.

643. INTERVIEWEE: In 2015.

644. INTERVIEWER 1: And I've got - - -

645. INTERVIEWER 2: Yeah. It was September 2015.

646. INTERVIEWER 1: Yep.

647. INTERVIEWEE: Yeah, September 2015. So that's, you know, during that 2015 I'm starting, you know, I've only just you know, December 2014 I was promoted to Fire Commander. I'm going through 2015. I'm starting to get an eyes on appreciation of what's going on within the management ranks of those stations, of that station, I'm not liking what I'm seeing. I'm trying to comply with company policy and I'm getting my teeth kicked in when I do.

648. INTERVIEWER 2: Yep.

649. INTERVIEWEE: Not just by [REDACTED] but by his right hand man, [REDACTED], as well. So I kind of think if it's happening to me once again isn't it reasonable to think that it's happening to others as well. Because as we went through 2016 all of a sudden, all of the experienced fire commanders have retired.

650. INTERVIEWER 1: Okay.

651. INTERVIEWEE: I'd only been in the job for six years and I was promoted to fire commander. I was relying on being mentored and learning. The only mentoring I got was on how to run a dodgy business

basically and I didn't like what I was seeing and when I started to push back a bit by complying with company policy and procedure, you get those berating's and I've seen what [REDACTED] does to people who don't comply with his inappropriate ways. You know, the one person, [REDACTED], a young station officer, wanting to progress to fire commander, denied of opportunities. In fact, forced off station. [REDACTED] had to transfer out of that station because of [REDACTED]' conduct.

652. INTERVIEWER 1: Okay.

653. INTERVIEWEE: So this is the reason why I think nobody's reported - - -

654. INTERVIEWER 1: The incident.

655. INTERVIEWEE: These accidental discharges.

656. INTERVIEWER 1: Because they're scared of - right. I've got that.

657. INTERVIEWEE: Yeah.

658. INTERVIEWER 1: And I've written that down as well.

659. INTERVIEWEE: There's that intimidation and it's not just [REDACTED]

660. INTERVIEWER 1: Yes.

661. INTERVIEWEE: It's [REDACTED] as well because I know that first hand from my experiences. To we know through 2016 and there's all these accidental discharges. I can remember talking to [REDACTED] right. He's a commander there now and he was acting in the position back through those years. I can remember [REDACTED] and I, we'd often be talking about things because I was being intimidated and threatened by [REDACTED] [REDACTED] was certainly getting worse treatment from him and I'm talking about a lot of things including these accidental discharges and [REDACTED] would constantly say that you know, the roof top monitors on our fire trucks when we do the testing of the trucks in the morning, is the first outlet that we would use when we're testing the trucks.

662. INTERVIEWER 2: Yep.

663. INTERVIEWEE: Those rooftop monitors produce 80 litres a second of water and [REDACTED] was saying that we should be using the other body sprays first in the testing of the trucks. So if there is an accidental discharge, another one because there's been many of them - - -

664. INTERVIEWER 2: Yep.

665. INTERVIEWEE: That you know, the size of the discharge was small and would be contained to where the truck is.

666. INTERVIEWER 2: Yep.

667. INTERVIEWEE: Very sensible stuff that [REDACTED] was saying.

668. INTERVIEWER 2: Yep.

669. INTERVIEWEE: And it just - nobody was listening. Nobody was complying because we're operational fire fighters. We train, you know, however many times as week that we train, you know. Our No.1 weapon against fire that we use is our roof top monitor.

670. INTERVIEWER 2: Yeah.

671. INTERVIEWEE: So the fire is when they're doing the testing of the truck they want to use it on the move. So that it's the why they use that first.

672. INTERVIEWER 2: Yep. I can understand that.

673. INTERVIEWEE: So you know, this is how I just don't understand why any services would tell us to run our trucks at instant by not engaging that safety switch.

674. INTERVIEWER 2: Yep.

675. INTERVIEWEE: So you've got these operational firey's, they want to be good at their job. We're testing the trucks. We come around the corner. The pumps engaged. The monitor's activated because you want to use your No.1 weapon first and you want good practice on it and doing out dailies was the opportunity where we'd get that extra practice.

676. INTERVIEWER 2: Yep.

677. INTERVIEWEE: And if that switch was left in the on position as we were instructed to by Airservices, that pump's engaged. Foam is produced automatically.

678. INTERVIEWER 1: Yeah.

679. INTERVIEWER 2: Yep.

680. INTERVIEWEE: And there was a lot of accidental discharges.

681. INTERVIEWER 2: Yep.

682. INTERVIEWER 1: Okay.

683. INTERVIEWEE: Okay.

684. INTERVIEWER 1: Thank you.

685. INTERVIEWEE: Now I ceased working at that station, I guess, at the end of, well, 9 December 2016 and you know, we won't go into the detail of that. Now if we go through 2017, I'm trying to get back to work but I'm being kept from work. I'm talking to my colleagues, some of my colleagues at the station and in talking with them they're talking about the goings on of the day and one

chap that I was talking to quite a bit, [REDACTED], he would be, I don't know, feeding me information, for want of a better term and part of what he would be telling me about was the ongoing accidental discharges of foam through the course of 2017.

686. INTERVIEWER 1: Who was that person again? I've got - - -

687. INTERVIEWEE: [REDACTED].

688. INTERVIEWER 1: Thank you.

689. INTERVIEWEE: [REDACTED]

690. INTERVIEWER 1: Yep.

691. INTERVIEWEE: And his surname's [REDACTED] He's a leading fire fighter there.

692. INTERVIEWER 1: Thank you.

693. INTERVIEWER 2: On a separate question, what time do Airservices do their daily training? Do they have a standard time?

694. INTERVIEWEE: Yeah. Um, so the day shift runs from 8 o'clock till 6 o'clock and the nightshift runs from 6 o'clock to 8 o'clock. So it all 10 hours day shift, a 14 hour night shift. We'll do the testing of the trucks in the morning, which is generally between 8.00 and 8.30. Then we'll have - enjoy a bit of brekkie, normally from about just after 8.30 through till about 9, quarter past 9, um and then we'll do our training. And normally the training will take place - you're very mindful of aircraft movements, the large aircraft, the category aircraft. So at Darwin, there's a period probably between that 9 o'clock to about 11, 12 o'clock where there's not many, if any, you know 737s or A320s.

695. [1:20.50]

696. INTERVIEWER 1: Quiet times.

697. INTERVIEWEE: Flying around the skies and they're like category 6, category 7 aircraft. They carry a lot of people.

698. INTERVIEWER 2: Yep.

699. INTERVIEWEE: So it's that morning period where we'll do the training.

700. INTERVIEWER 2: Okay. There's no actual set time where it would happen within a half an hour to a one hour period?

701. INTERVIEWEE: No, no. So what we do is we'll put out a notice to a number of bodies that we're doing the training. We'll record how much kerosene we use and it's a black smoke notification.

702. INTERVIEWER 1: Yes, yes.

703. INTERVIEWER 2: Black smoke, yeah.

704. INTERVIEWEE: So report how much kerosene we use, if there's DCP begin used, how much unleaded fuel that's being used and basically a time that the burn is going to run from.

705. INTERVIEWER 2: Yep.

706. INTERVIEWEE: And the burn only goes for about 3 or 4 minutes.

707. INTERVIEWER 1: Yep.

708. INTERVIEWEE: If that.

709. INTERVIEWER 2: Yep.

710. INTERVIEWEE: You know, you start the fire. You get a big blaze going on the training pad. The fire trucks come in, throw down the agent, put the fire out and then you move on. So that black smoke's present for a - you know, for a period of time.

711. INTERVIEWER 1: Is that - that training's mostly at the mock up that you've referenced.

712. INTERVIEWEE: That's right. Yeah, yeah. Yeah. So, you know, where the real concern lies with the training is, yeah, at the mock up.

713. INTERVIEWER 1: At the mock up, yeah.

714. INTERVIEWEE: Yeah.

715. INTERVIEWER 2: And that's occurring, the dark smoke training every day or - - -

716. INTERVIEWEE: Most days, yeah, absolutely, most days, even during the wet season it's occurring. It's just a matter of how you go about managing the things I guess.

717. INTERVIEWER 2: And that's the time at which you're testing the hose systems on the tenders?

718. INTERVIEWEE: No. The testing of - - -

719. INTERVIEWER 2: Or get the (indistinct) established.

720. INTERVIEWEE: The testing of the trucks takes place from about 8.00 to 8.30

721. INTERVIEWER 2: Okay. Yeah. That's the time - - -

722. INTERVIEWEE: Everyday, 365 days a year those trucks are tested. They're tested on Rescue Road. There's three of them that are tested and yeah, the testing takes place down that at Rescue Road, which is to the east of the station.

723. INTERVIEWER 2: So if there's going to - - -

724. INTERVIEWEE: It's the sensible place from an operational perspective to do the testing. So I think, knowing what we know now, it's probably not the most appropriate place, given the storm water drain that is - that you know, that the drainage pits flow into from Rescue Road.

725. INTERVIEWER 2: Yep. So if there's going to be an accidental discharge of foam that's where it's going to occur?

726. INTERVIEWEE: Yep, absolutely. Yeah, yep. It's - so in that regard when we talk about accidental discharges, the two accidental discharges that were reported that I'm aware of were down at the training ground.

727. INTERVIEWER 1: Yes.

728. INTERVIEWEE: The only one that's been reported on Rescue Road was in February of this year.

729. INTERVIEWER 2: Right.

730. INTERVIEWER 1: Yep.

731. INTERVIEWEE: Now what I'm saying is there's easily I think 15 to 20, quite possibly more, accidental discharges that have occurred on Rescue Road that have not been reported.

732. INTERVIEWER 1: Okay

733. INTERVIEWEE: Now I'll also add that I do know and this came to me only a few weeks ago. One of my trainee or in fact two of my trainee fire fighters, [REDACTED] and [REDACTED]

734. INTERVIEWER 1: Yep.

735. INTERVIEWEE: Now I do recall [REDACTED], after one of the accidental discharges asking me if he could take photos of it, which I say, yeah, no worries, just don't go posting them on Facebook. Now when he asked me that I've got a feeling it would have been early 2016, maybe late 2015. I don't know. But what I do know is he took a number of pictures of the fire truck on Rescue Road with a huge amount of white foam sitting in front of it.

736. INTERVIEWER 1: Okay.

737. INTERVIEWEE: It was like Christmas time in New York.

738. INTERVIEWER 1: That's why he took the photo. Okay. Righto.

739. INTERVIEWEE: Now I don't know if [REDACTED] still has those photos. I don't know if he's game enough to actually talk about them. Because I think if questions are going to be asked of people I know a few other processes that I've gone through. Management certainly have their ways of intimidating people out of

telling the truth and I say that because I fear the same thing will happen here. So if people are going to be asking questions of people I think if you ask again and again you might actually get to the truth.

740. INTERVIEWER 1: Okay.

741. INTERVIEWEE: But I know that with my fire fighters through the other process that I commenced at the end of 2016, um 18 was my um shift. They - we basically said, all we're going to do is tell the truth.

742. INTERVIEWER 2: Yep.

743. INTERVIEWEE: And I hope that if people are spoken to they've got the courage to actually just tell the truth.

744. INTERVIEWER 1: Okay.

745. INTERVIEWEE: But there's photographic evidence out there of foam discharges on Rescue Road but again, it goes to what I'm saying.

746. INTERVIEWER 1: All right.

747. INTERVIEWEE: Though Airservices will contend that there haven't been because their systems only show that there's been two or three reported.

748. INTERVIEWER 2: Well, certainly there will be a difference in volumes of foam and that's one of the things we're intending to look at to see if we can identify a loss of foam.

749. INTERVIEWEE: Yeah. Now just on that, this goes to why I mentioned [REDACTED]

750. INTERVIEWER 1: Yeah.

751. INTERVIEWEE: Talking about using the under bodies first. I know that while I was there the firey's were using the rooftop monitors first. Now, through 2017 from what [REDACTED] was providing me, I would say it was still happening. The firey's were using the monitors first. How things got across to you with regards to the practices of I don't know but all I can go on is what I know, what I'm aware of, what I've seen with my own eyes.

752. INTERVIEWER 2: Yep.

753. INTERVIEWEE: And also what I've spoken to with other firey's and what I'll say is this. You know, if people start to talk about, yeah, okay, there were accidental discharges on Rescue Road and I certainly hope they do because that's the truth.

754. INTERVIEWER 2: Yeah.

755. INTERVIEWEE: Um, what I'd also say is it's not just a couple of litres of the foam concentrate that's been spilt.

756. INTERVIEWER 2: Yep, yep. So then hopefully we'll be able to identify that way. Because as you indicated we may not be able to get any one to confirm these matters but it is of great concern to the department.
757. INTERVIEWEE: Yeah, yeah. So, you know, all you can do is ask the questions. If people aren't confirming, you know, maybe you need to think about how am I putting the question to them and why aren't they confirming it. And what I'm saying is that okay, [REDACTED] is gone. All right, that man that intimidated people into working his way as opposed to the appropriate way. His right hand man is still at that station and I know and I absolutely have no doubt that the regional manager, [REDACTED], is well and truly involved in the intimidation of fire fighters into not telling the truth about what goes on at that station.
758. INTERVIEWER 1: Well, that's one - - -
759. INTERVIEWEE: Now I'll assert that that's not just from an environment perspective. It's also with regards to other processors that I've set about.
760. INTERVIEWER 1: Okay.
761. INTERVIEWEE: I'm not sitting here concocting stories for my own amusement.
762. INTERVIEWEE: Yes and - - -
763. INTERVIEWEE: I've got very real concerns about the wellbeing of the community in Darwin. Rescue Road, those drainage pits I'm sure flow straight into that storm water drain that runs behind that station and that storm water drain goes on into Rapid Creek.
764. [01:29:26:02]
765. INTERVIEWER 1: It goes through three interceptors first, but yes it does end up at eventually - - -
766. INTERVIEWEE: Where are the interceptors?
767. INTERVIEWER 1: There's a Bartlett interceptor, there's one that's under that's just as it exits Airservices, the station.
768. INTERVIEWEE: Yeah.
769. INTERVIEWER 1: There's another one that's further along before it hits the general aviation apron area.
770. INTERVIEWEE: Yep.
771. INTERVIEWER 1: And then there is one just before the exit gate at the general aviation apron area, it's Bartlett - - -



772. INTERVIEWEE 1: And how effective are they at removing the PFAS foam from the water that would be flowing through them.

773. INTERVIEWER 1: The hydrocarbons it will pick up but it won't pick up the PFAS.

774. INTERVIEWEE: Yeah.

775. INTERVIEWER 1: However I think as I've mentioned to you beforehand we do monitor Rapid Creek especially after the first flush. So the first flush which is the big first rainfall, so we get to see if we're receiving any peaks in that. We monitor at the entrance point of Rapid Creek at the end of that stormwater drain. So we will be able to - - -

776. INTERVIEWEE: Yep.

777. INTERVIEWER 1: So in ways where you are saying that we can't get people to communicate to us there are other ways I think. Like [REDACTED] was saying to you we can look at phone usage, we can look at - - -

778. INTERVIEWEE: So if you have a look at - if you have a look at Rescue Road right, um, a fire truck would park on the southern end of Rescue Road to do its testing - - -

779. INTERVIEWER 1: Yep.

780. INTERVIEWEE: - - - of the outlets.

781. INTERVIEWER 1: Yep. Yep.

782. INTERVIEWEE: Probably around just - just south of you'll see there's a hydrant on Rescue Road on the southern side of the fire station.

783. INTERVIEWER 1: Yep.

784. INTERVIEWEE: That's about where the truck will park to do the testing.

785. INTERVIEWER 1: Yep.

786. INTERVIEWEE: If you're testing the soil beside the road 30 or 40 metres down - - -

787. INTERVIEWER 1: Yep.

788. INTERVIEWEE: - - - from where that hydrant is, so basically you know opposite the car park area.

789. INTERVIEWER 1: Yep.

790. INTERVIEWEE: And where you access the Customs dog compound from which is just to the north side of more than 390.

791. INTERVIEWER 1: No I know exactly where you're talking about yep.

792. INTERVIEWEE: If you test - test the ground in those areas I reckon you'll come back with high traces of PFAS.

793. INTERVIEWER 1: Right.

794. INTERVIEWEE: Because that's where all the white stuff has been sitting.

795. INTERVIEWER 1: Okay, I know exactly where you're talking about.

796. INTERVIEWEE: And now the other thing that takes place when there is an accidental discharge, there's a truck that will come round behind the one that's done the accidental discharge and the water from that truck will be used to flush the foam away.

797. INTERVIEWER 1: Okay.

798. INTERVIEWEE: Now the instruction we were given by [REDACTED], the reason why that was done, was so that you being the airport environment officer - - -

799. INTERVIEWER 1: Yep.

800. INTERVIEWEE: - - - wouldn't see the accidental discharge.

801. INTERVIEWER 1: At the rear of the station.

802. INTERVIEWEE: Yeah. But so you know there's that cover up - - -

803. INTERVIEWER 1: Yep, yep, I'm gathering that yeah.

804. INTERVIEWEE: - - - that was there. And you know look you know what I was getting at before with everything, I'll put my hand up. I was intimidated into running along with that. You know I'm ashamed to be that weak, I'm ashamed of myself for being that weak. But when you see what happens to other people when you get berated in the way that I was berated, um, I just kinda think well that doesn't excuse being weak but they're the reasons behind it nonetheless. Now I can't speak for any other officer as to why they're gone about doing it they can only speak for themselves, but I just wonder what their response will be.

805. INTERVIEWER 1: Yep.

806. INTERVIEWEE: Because the way that station was run it was run on the back of intimidation that Darwin cultural improvement program goes to that.

807. INTERVIEWER 1: Yeah. All right, you've given me a lot of information about the non-reporting of incidences and with that we will go. So that really covers that accusation really well, the 30 accidental the discharges of foam and why people haven't been. The next accusation I had was incorrect reporting of incidences and bullying. So you've answered a lot of those questions - - -

808. INTERVIEWEE: Yep.

809. INTERVIEWER 1: So we've really moved on forward from there. You had provided a CIRRIIS incident where a water agent was used to extinguish a small bushfire in November 2017. Was that connected to any accusation in that way, was that connected to the non-reporting of incidences or anything like that. Was there a reason why you had provided that email to give - - -

810. INTERVIEWEE: No look so the fire was November 2017?

811. INTERVIEWER 1: Yep, yep.

812. INTERVIEWEE: Look I may have provided that. Well you can have a look at the CIRRIIS report and - - -

813. INTERVIEWER 1: Yep.

814. INTERVIEWEE: - - - and if you have a look at I guess how fewer reports are actually created from that Darwin station.

815. INTERVIEWER 1: Yep.

816. INTERVIEWEE: If you were to ever be made privy to the reports from the other 25 stations around the country you would see that there would be so many more reports created than what's created at Darwin.

817. INTERVIEWER 1: Yeah.

818. INTERVIEWEE: And once again it goes to how [REDACTED] managed that station.

819. INTERVIEWER 1: Okay all right.

820. INTERVIEWEE: I don't think he wanted anybody being aware of that oh there's a problem at that station, you know I think the reasons were self-promotion, making out as if he was a very good fire station manager. I think the reason why he came up with this whole let's pollute the environment instead of costing Airservices thousands of dollars a week, was his way of saying, "I'm a good station manager, I'm saving you money."

821. INTERVIEWER 1: Yep.

822. INTERVIEWER 2: Yep.

823. INTERVIEWEE: All right, so you know it might not be relevant but it gives you the context of why things aren't being reported.

824. INTERVIEWER 1: Okay, thank you.

825. INTERVIEWER 2: Yeah, no that's something we're aware of because we do get incident reports from every operation on the airport and that's something that I know we look at on a monthly basis - - -

826. INTERVIEWEE: Yeah.

827. INTERVIEWER 2: - - - in our meetings with the airport leasing companies, whichever airport it happens to be.

828. INTERVIEWEE: Yep.

829. INTERVIEWER 2: And I know we look to see whether the reports are starting to drop off because accidents happen - - -

830. INTERVIEWEE: Yeah.

831. INTERVIEWER 2: And what we're primarily looking for is that they get reported and that they are getting dealt with - - -

832. INTERVIEWEE: Yeah.

833. INTERVIEWER 2: - - - so that we know they are aware of it, we know they know what they have to do and that they are taking the measures required to protect the environment and if they weren't able to protect the environment if it was a big event then they have gone ahead and done the remediation, in which case we should already have been aware of it anyway.

834. INTERVIEWEE: And that's great to hear because what that tells me is that you know as the airport environment officers, you're actually you know monitoring things - - -

835. INTERVIEWER 1: Yeah.

836. INTERVIEWEE: - - - which is great, you know. Um, yeah.

837. INTERVIEWER 1: But what you are highlighting to us which is very clear is that we, yeah, as far as Darwin is concerned, I haven't been receiving any notifications.

838. INTERVIEWEE: No. You really - I'm sure that both of you have read the emails that I forwarded to you know talking about you know basically the foam discharges - - -

839. INTERVIEWER 1: Yeah.

840. INTERVIEWEE: - - - that I'm talking about in all those emails.

841. INTERVIEWER 1: Yes.

842. INTERVIEWER: Yep.

843. INTERVIEWER 1: Yep. And that's - - -

844. INTERVIEWEE: Right.

845. INTERVIEWER 1: Yes.

846. INTERVIEWEE: Why were those emails being proliferated, why - why were they being sent. And I tell you the reason why and once again blind Freddy can see why. There might be plausible deniability because that's what lawyers will talk about um but the reason why I've been sending them is because there was accidental discharges.

847. INTERVIEWER 1: Something happened and there isn't action yeah.

848. INTERVIEWEE: And why isn't, you know, and I guarantee you through your own mind trend, you should be concerned that why isn't stuff happening at Darwin, why is it the only station around the country - or possibly, there might be others, that mistakes aren't being made at.

849. INTERVIEWER 1: Being reported.

850. INTERVIEWER 2: Yeah.

851. INTERVIEWEE: Yeah.

852. INTERVIEWER 1: Yes.

853. INTERVIEWEE: And being reported you know, and I'll tell you the reason, it's because of the culture of cover up and deceit.

854. INTERVIEWER 2: Yeah and that's certainly something that we will look at and be very interested in.

855. INTERVIEWER 1: Yes.

856. INTERVIEWEE: Yeah, the evidence is right before your very eyes, is right there. So it's you know, you know, it's - - -

857. INTERVIEWER 1: Yeah.

858. INTERVIEWEE: - - - it knows the - what I'm - you know the reason why we're talking.

859. INTERVIEWER 1: Yep.

860. INTERVIEWEE: You know these practices, Airservices needs to be you know made very well aware that there's a terrible culture at that station that I might also add is continuing given what transpired after the email that was sent back in September of last year. You know saying we've now changed the practices and then only to have the cover up continue in the days after it.

861. INTERVIEWER 2: Yep.

862. INTERVIEWER 1: Yep.

863. INTERVIEWEE: That wasn't sent by [REDACTED] that was sent by his right hand man [REDACTED].

864. INTERVIEWER 1: Yes.

865. INTERVIEWEE: It's still ongoing. Airservices - this kind of stuff needs to be drawn to Airservices attention 'cause Airservices doesn't want to know about it.

866. INTERVIEWER 2: Yeah and yeah - - -

867. INTERVIEWEE: I would go so far as to say Airservices is actually aiding and abetting the offenders at station.

868. [1:39:52.1]

869. INTERVIEWER 2: Yeah and certainly there will be recommendations which will come of this investigation. And not all of them will just apply to Darwin Airport, some of them will be where we will identify opportunities to improve regulatory - when I can speak again - oversight.

870. INTERVIEWEE: Yeah.

871. INTERVIEWER 2: I think I might get some water actually.

872. INTERVIEWER 1: (Indistinct).

873. INTERVIEWER 2: Did you want some water [REDACTED]?

874. INTERVIEWER 1: Thank you. Yeah thank you for that. So we - I'll wait until [REDACTED] gets back.

875. INTERVIEWEE: Yep.

876. INTERVIEWER 2: I don't have to go to the bathroom.

877. INTERVIEWER 1: We're not going too badly actually, we've got three more accusations to go so.

878. INTERVIEWEE: Yeah good. So hopefully we can finish over the next half hour.

879. INTERVIEWER 1: Yeah hopefully. Hopefully. And then if you have any yeah, if you think I haven't covered all of your accusations that's your chance to speak up.

880. INTERVIEWEE: Yeah.

881. INTERVIEWER 1: Okay?

882. INTERVIEWEE: Yeah, yeah.

883. INTERVIEWER 1: Now so you're aware we haven't interviewed any of the employees or been out at the station talking to the employees yet, you're the first.

884. INTERVIEWEE: Yeah.

885. INTERVIEWER 1: Okay?

886. INTERVIEWEE: Yep, good yeah. No look I - I spoke with um [REDACTED]

887. INTERVIEWER 1: Yes, yep.

888. INTERVIEWEE: And I've sent you know look I've sent some emails to her. I'm - I'm very ignorant and I don't mean this in a bad way but I'm ignorant to what's happening and how this is all going to unfold. You know I've learnt a great deal today - - -

889. INTERVIEWER 1: Good.

890. INTERVIEWEE: - - - from um about what your role is here.

891. INTERVIEWER 2: Yep.

892. INTERVIEWEE: Up until today I was under the impression that your role was to investigate and if there's been any offences committed, to set about a course of action that might lead to um matters being taken to the court. And that's not the case.

893. INTERVIEWER 1: Yep.

894. INTERVIEWEE: You know who should I be speaking to about that 'cause I am very much a um yeah, things need to be improved and that's what you're here for you know to seek out improvement, ensure it's you know put in place. But what I'm trying to say is that well no there's actually been some really bad offences committed here and the offenders need to be held to account. So who should I be speaking to about that?

895. INTERVIEWER 1: Basically what happens with us is once you start to get that regulatory breach there are means within our regulations, so let's say a operator does something, there are means within our regulations to follow that up.

896. INTERVIEWEE: Yep.

897. INTERVIEWER 2: That all points at the operator not at the individual - - -

898. INTERVIEWER 1: Not at the individual.

899. INTERVIEWER 2: - - - because we are interested in protection of the environment, improvement of environmental management - - -

900. INTERVIEWEE: Yeah.

901. INTERVIEWER 2: - - - and if necessary remediation if it's reasonable and practical.

902. INTERVIEWEE: Yeah.

903. INTERVIEWER 1: And the requirement for that remediation comes under our regulations in the form of something that we send them out through directions.

904. INTERVIEWER 2: Directions or orders if they won't get in and do it at the first instance.

905. INTERVIEWER 1: As a direction.

906. INTERVIEWER 2: Generally as - we're pretty good at talking people into doing things.

907. INTERVIEWER 1: Which is a legal directions they are required to follow. If we have problems - - -

908. INTERVIEWEE: Yeah, yeah I mean I understand or you know or understanding on behalf, you know starting to understand that. And I appreciate it but if I have a look at the NTEPA and the Act that they're investigating under.

909. INTERVIEWER 2: Yep.

910. INTERVIEWEE: There's actually offences and they're characterised as level 1, level 2, level 3 and level 4 offences.

911. INTERVIEWER 2: Yep.

912. INTERVIEWEE: Under their Act effectively what's gone on at that station there's level 1 and level 2 offences that have been committed at that station.

913. INTERVIEWER 2: Yep.

914. INTERVIEWEE: And they're trying to get access to that station to set about their investigation so they can actually pursue these offenders.

915. INTERVIEWER 2: Yeah and - - -

916. INTERVIEWEE: And they're not getting that access.

917. INTERVIEWER 2: Yeah.

918. INTERVIEWEE: So who - who does have the access to pursue the offenders?

919. INTERVIEWER 1: It's - - -

920. INTERVIEWEE: You know and I liken what's happening to you know if you have a look at an armed robber who holds up a bank, you don't just let him go, you pursue him. You put him away.

921. INTERVIEWER 2: Yeah we can only enforce the Act and regulations that we have - - -

922. INTERVIEWER 1: And we've got to do what we can - - -

923. INTERVIEWER 2: - - - and we're empowered because of the airport environment officers so actually - - -

924. INTERVIEWEE: Yeah. Well I just - - -

925. INTERVIEWER: - - - to be honest - - -

926. INTERVIEWEE: - - - the reason I bring this up I don't understand why the NTEPA is being kept from the station grounds, I don't understand it. If they as a law enforcement body - - -

927. INTERVIEWER 2: Yep.



928. INTERVIEWEE: - - - can't do their job well who does it in their place. Like that's Commonwealth land, I get that and it's the NTEPA, is there a Commonwealth EPA that can go there and do it?

929. INTERVIEWER: That's pretty much, we're the regulators, that's what we do, and we go by - - -

930. INTERVIEWEE: You're the regulator - - -

931. INTERVIEWER 2: So we're like that, the NTEPA.

932. INTERVIEWEE: Yep.

933. INTERVIEWER 1: So with the NTEPA trying to apply the criminal investigation I don't know legally if it would apply because it's on Commonwealth land.

934. INTERVIEWER 2: And we're not lawyers, we can't answer that question and certainly I know there has been instances where State environmental authorities have tried to come out and enforce different aspects of regulations on airports and while none of them have ever gone to court and it's been tested, and you never know till it goes to court, at every instance they have actually backed off because we have our own environmental protection regulations under the Act.

935. INTERVIEWEE: Yeah, yeah.

936. INTERVIEWER 2: And we're not lawyers.

937. INTERVIEWEE: Yes so I'm kinda you know I'm learning here.

938. INTERVIEWER 1: Yep.

939. INTERVIEWEE: So okay you go through your processes, you do what you do and you know let's just paint a or create a little bit of a scenario you know we're six months down the track from here, you've identified that yep you know [REDACTED] has kind of been telling the truth and we've identified that and we've found that some of his allegations um are you know correct and they're actually very serious offences that have been committed. What happens then? You go okay you put in place a you know system where Airservices complies with what's required of them and you do your checking and that's fantastic.

940. INTERVIEWER 2: Yep.

941. INTERVIEWEE: But if you identify that goodness gracious you know, this has - everything that's been said is true, you know isn't there a punishment in place?

942. INTERVIEWER 2: That's where the remediation comes in 'cause it's a very, very expensive exercise. But as for pursuing an individual, as far as I'm aware there is no opportunity under our Act or regulations for us to pursue an individual. It all refers - - -

943. INTERVIEWER 1: It's only the corporate.

944. INTERVIEWER 2: - - - to the operator on the airport.

945. INTERVIEWER 1: Yep and - - -

946. INTERVIEWER 2: And even where it says a person, a person can be a corporation.

947. INTERVIEWER 1: And it is the corporate - - -

948. INTERVIEWEE: Yeah okay yeah. No because it's understanding that all of a sudden you know I start to you know some of the people that I've been in contact and some people that have actually contacted me I might add.

949. INTERVIEWER 2: Yep.

950. INTERVIEWEE: After you know bringing this out, um I don't know if they're aware of the limitations you know that you have because their basic - you know some of these people you know I look at some of the stuff they're saying to me, and I listen to it and I'm just like oh my God yeah, kind of getting a little bit, you know this is getting a little bit outlandish. But I can now see why they're frustrated because people want to see offenders being held to account and you don't have the ability to hold offenders to account.

951. INTERVIEWER 1: We have the ability to hold the company to account though.

952. INTERVIEWEE: Yeah the company.

953. INTERVIEWER 1: Yeah.

954. INTERVIEWEE: Yeah.

955. INTERVIEWER 1: So the company will have to make its changes and we would be right up the bottom of the company to make sure that they have put those changes in place. So they would get the constant inspections and the checks on what they are doing and that the employees are following the procedures. We need to see evidence of that. So that's what happens in that scenario, so but it is still just to the company okay.

956. INTERVIEWEE: Yep, yep.

957. INTERVIEWER 2: And while previous conduct - - -

958. INTERVIEWEE: Yeah no that answers my question, so I'm still learning here, so yeah we'll keep moving on yep.

959. INTERVIEWER 2: And while I agree that previous conduct was if it's true, reprehensible, that it's not going to help environmental management going forward which is really what our regulations are looking at and - - -

960. INTERVIEWEE: Yeah, yeah. And look - - -

961. INTERVIEWER 2: And we do rely on people like yourselves bringing these issues forward where we're not getting the routine reporting that is expected.

962. INTERVIEWEE: Yeah, in the past you know, look in the past nine months I'd say thereabouts, um, what I've come to learn and start to appreciate is just how important it is that we put in place these systems because - - -

963. INTERVIEWER 2: Yeah.

964. INTERVIEWEE: - - - you know look this whole PFAS matter, you know I'm not just talking you know here in Australia, I'm talking globally.

965. INTERVIEWER 2: Yep.

966. [1:50:01.1]

967. INTERVIEWEE: You know this PFAS matter is gonna be to the 21st century what asbestos was to the 20th century.

968. INTERVIEWER 2: Yep. And to what extent we don't know.

969. INTERVIEWER 1: Yeah the research is completely out there like it was - - -

970. INTERVIEWEE: That's, you know, that's gazing into a crystal ball, I know that but you have a look at some of the outcomes from the United States with regards to 3M just recently - - -

971. INTERVIEWER 1: Yeah.

972. INTERVIEWEE: You know this isn't tiddly winks.

973. INTERVIEWER 1: No.

974. INTERVIEWEE: So I just - this is why I'm so focused on you know I know how bad this [REDACTED] is.

975. INTERVIEWER 1: Yeah.

976. INTERVIEWEE: His right hand man [REDACTED] has been working with him, you know when [REDACTED] [REDACTED] isn't the manager of the station over the years, [REDACTED] has been.

977. INTERVIEWER 1: Right.

978. INTERVIEWEE: And you know these are really - this is really bad stuff that's happening here. When do we start taking about these - these quotes.

979. INTERVIEWER 1: Yeah, I'm moving to the next accusation which was firefighting foam contamination from the large fires. So I don't know if that is the accusation, you did send me an email of how you'd reported an incident an incident on 11 September 2015 and 14 September 2015 about a large fire that had occurred. You reported the incident. Was that - did they use any foam in - - -

980. INTERVIEWEE: No.

981. INTERVIEWER 1: No okay. So you've reported - - -

982. INTERVIEWEE: No it was just water. Well the reason why - the reason why I included that - - -

983. INTERVIEWER 1: Yep.

984. INTERVIEWEE: - - - as a contextual thing.

985. INTERVIEWER 1: Okay.

986. INTERVIEWEE: We were using water only, we were supplying the NTFRS with water only.

987. INTERVIEWER 1: Yep.

988. INTERVIEWEE: And also the United States marines were helping us out in combating that fire and we were supplying them with water only.

989. INTERVIEWER 1: Yep. Water only.

990. INTERVIEWEE: Once again you know that was one of the CIRRIIS reports that I created that I was berated for creating.

991. INTERVIEWER 1: It's still very new - - -

992. INTERVIEWEE: Now emails that I sent you, you read the one that I got from  
[REDACTED]

993. INTERVIEWER 1: Yes.

994. INTERVIEWEE: Where he you know basically has a bit of a go at me, you know look you need to be careful Matthew about saying 79,000 litres when only 16,000 litres was used or thereabouts.

995. INTERVIEWER 2: Yep.

996. INTERVIEWEE: You know trying to play down the amount of water that was used.

997. INTERVIEWER 1: That information is actually useful for the AEO because basically with a fire a large amount of charcoal is released into the river system.
998. INTERVIEWEE: Yeah.
999. INTERVIEWER 1: And it blocks the oxygen content so it affects the fish within the river systems.
1000. INTERVIEWEE: Yeah.
1001. INTERVIEWER 1: So it's actually useful for that information to be passed on to the AEO because then what happens is later on down the track I get reports that the water system has low oxygen content and has high carbon content.
1002. INTERVIEWEE: Yep.
1003. INTERVIEWER 1: You've got fish dying, what's happening. I think we're getting some organics from a bush fire. So that information is useful to be reported.
1004. INTERVIEWEE: Yeah and it's important to know and look we've got to go about our business.
1005. INTERVIEWER 1: Yep.
1006. INTERVIEWEE: Don't get me wrong, we've got to use that water.
1007. INTERVIEWER 1: Yep.
1008. INTERVIEWEE: You know, one would argue that at some point we've got to stop using that Ansulite product. I might add that the solvent in RF6 is compatible with other firefighting foams.
1009. INTERVIEWER 1: Yes.
1010. INTERVIEWEE: As Ansulite is compatible with other firefighting foams. So this - this whole premise that Airservices runs on or the defence force dictates to us that we have to use Ansulite well why not use another product if it's compatible with the Ansulite product.
1011. INTERVIEWER 1: Yeah I'm well aware of that argument.
1012. INTERVIEWEE: It's a nonsense really isn't it. But the reason why I included those emails and that response from [REDACTED] is he's deliberately trying to play down the amount of water that was used. He was well aware that there was much more water used, he was well aware that what I was communicating with [REDACTED] was about the three days activity of firefighting.
1013. INTERVIEWER 2: Yep.
1014. INTERVIEWEE: But again he wanted to reduce the amount of water that was being used in the reporting. Why would he want - why would he go to those lengths to absolutely ignore what was before him. If you read through those emails you will read it and you will see as he did, why was he doing that.

1015. INTERVIEWER 1: Yeah.
1016. INTERVIEWEE: Unfortunately I can't other than you know through my own words, demonstrate to you what was said outside of that email to me.
1017. INTERVIEWER 1: Yep okay.
1018. INTERVIEWER 2: Yep.
1019. INTERVIEWEE: Once again it goes to that cultural cover up and deceit on station, deliberately trying to play things down so environment isn't made aware of something at the station and through their enquiries might be alerted to this whole - - -
1020. INTERVIEWER 1: Yeah.
1021. INTERVIEWEE: - - - organisational thing about deliberately contaminating the environment with fire ground waste and everything like that. You know they don't want your attention.
1022. INTERVIEWER 1: No. I know.
1023. INTERVIEWER 2: No that's fine. Can I ask you - - -
1024. INTERVIEWEE: Now I've got your attention.
1025. INTERVIEWER 1: You had my attention a while - when I first started.
1026. INTERVIEWEE: [REDACTED] was trying to stop it, that's the point I'm making.
1027. INTERVIEWER 1: No that's fine, you see basically what happened when I first started three years ago I started to get a lot more involved with the Airservices firefighting stations. So yeah, they would be aware that I started to get more involved.
1028. INTERVIEWEE: Airservices needs to be aware that it wasn't just [REDACTED]. Okay they're in a process of getting rid of him, you know that he's transitioning to retirement. He should have been sacked at the start of the year, last year. You know they found him guilty of being a racist on many occasions, they found him guilty of being a workplace bully on many occasions. But yet they continued to support him. Why? Why? Nobody seems to be able to answer me that question. I don't expect you to but this kind of stuff needs to be spelt out in black and white to Airservices. So talk about this culture of cover up and deceit on station, I tell you right now it extends all the way to the top of Airservices. All the way to the top. And then the way to get around it is to spell stuff out in black and white and make it you know make it abundantly clear and force their hand. Because if their hand isn't forced they'll continue with this culture of cover up and deceit.
1029. INTERVIEWER 2: Yep. Can I ask you a question?

1030. INTERVIEWEE: Yep.
1031. INTERVIEWER 2: Within that email it actually makes a little bit of an issue, not a huge one, about decanting water to the NTFRS tender.
1032. INTERVIEWEE: Yeah.
1033. INTERVIEWER 2: Was that an issue?
1034. INTERVIEWEE: No, no, all it was um you know, [REDACTED] the Airservices environmental chap, he just wanted to know was the water from our tenders going into other appliances and being used. And his concern is because the water that we carry is actually tainted.
1035. INTERVIEWER 1: Okay.
1036. INTERVIEWER 2: Yep that's what I'm wondering.
1037. INTERVIEWEE: That water we've actually got our own organisational documents that say don't wash yourself in it unless you absolutely have to.
1038. INTERVIEWER 2: Yep, that's because PFAS - - -
1039. INTERVIEWEE: For some reason I have an incident and I get burnt right, the immediate action on a burn is you know running water over the burn for 20 minutes yeah. We all know that. What they're saying is don't use the water from the truck.
1040. INTERVIEWER 2: Yep.
1041. INTERVIEWER 1: Okay.
1042. INTERVIEWEE: Because it's because the foam content, it's tainted water. Those receptacles that hold the 9,000 litres of water are contaminated with the foam.
1043. INTERVIEWER 2: Yep.
1044. INTERVIEWER 1: Yep, okay.
1045. INTERVIEWEE: So the water that goes in there and if you know the foam sunk in there it's just you know, so the reason why [REDACTED] was asking those questions about the NTFRS team gave tenders was that yes we were decanting water into their tenders and what he was getting at was that well maybe I need or he needs to contact the NTFRS to let them know that mate you've didn't receive some tainted water. You see where I'm coming from with that?
1046. INTERVIEWER 1: Yeah.
1047. INTERVIEWER 2: Yeah it was pretty much what I guessed.

1048. INTERVIEWEE: There is that - there is that awareness within the organisation, there is that concern, it's a little bit like what this doctor most recently said you know making references about the government, you know the Monty Python thing. You know, be concerned but don't be concerned, you know. So yeah, so that's where that was all coming from.

1049. INTERVIEWER 1: Okay thank you.

1050. INTERVIEWER 2: That's great thank you.

1051. INTERVIEWER 1: All right we're at the last one.

1052. INTERVIEWEE: Yep.

1053. INTERVIEWER 1: Which is the selling of the totes to the general public. By the way I am also there was or well I'll discuss it after this one, there is another accusation but I think we had already dealt with it beforehand as a department.

1054. INTERVIEWEE: Yep.

1055. INTERVIEWER 1: The selling of the totes to the general public is another accusation. Do you have a general idea of when this started or how long it went on for?

1056. [1:59:56.2]

1057. INTERVIEWEE: Once again, I – in talking with [REDACTED] he's a fire commander at our Coffs Harbour station.

1058. INTERVIEWER 1: Yeah.

1059. INTERVIEWEE: He was employed at Darwin up until about 2014 or 15.

1060. INTERVIEWER 1: Yeah.

1061. INTERVIEWEE: You know, he – he then moved on from the station, and I might add, part of the reason why he moved on was because of [REDACTED].

1062. INTERVIEWER 1: Yeah.

1063. INTERVIEWEE: All right. Um, but nonetheless, in – in talking with [REDACTED], [REDACTED] was the architect behind the whole, let's say, Airservices money. So, you know, we – you know, rather than – you know, this – now these totes, they're waste. They're hazardous waste. They should have been appropriately removed in the same way as the effluent should have been appropriately removed; they weren't. So rather than Airservices spending money on providing the fire fighters with tea and coffee and everything, he came up with the idea of let's sell the totes and we'll make money out of them, rather than them costing the organisation, we can make some money out of them.



1064. INTERVIEWER 1: Yeah.
1065. INTERVIEWEE: So the sale of those totes was obviously during the period of when the foam was being used in training. So they were being – being sold off from 2000 and whatever, maybe even it could go back into the 90s.
1066. INTERVIEWER 1: Okay.
1067. INTERVIEWEE: But they were continuing – continued to be sold up until – probably I would say, maybe around six months or so after the cessation of the use of foam in training. Now I think you got an email of me with some money in my hand and another sack - - -
1068. INTERVIEWER 1: Yeah, yeah, yep, I saw that.
1069. INTERVIEWEE: All right, I took over the management of the Tea Club in – I think it was May of 2011.
1070. INTERVIEWER 1: Yeah.
1071. INTERVIEWEE: The chap that was managing it – what's his name – [REDACTED] – he's now at Launceston. Now Jack managed it for about six months, and the Tea Club was effectively bankrupt. It couldn't – it couldn't operate, it couldn't function, because we were no longer selling the totes to get the money to fund it. The sale of the Coke to the firey's, you know, cans of Coke and everything, we'd buy 'em for 50 cents, sell 'em for a dollar. It just wasn't, you know, making the money to provide the coffee, the tea, the sugar, the milk and everything that the Tea Club would provide – sauces and everything for dinner.
1072. INTERVIEWER 1: Yep.
1073. INTERVIEWEE: So it got all too hard for him and he didn't want anything to do with it. They were going to shut down the Tea Club and we'd just look after ourselves, and during that period I was just constantly saying I don't understand how difficult it can be. You know, back in the 90s, early this century I ran a retail business for a number of years. So [REDACTED] actually said to me, well you, [REDACTED], you'll now be the Tea Club manager; and I happily took it on. One of the other fire fighters, [REDACTED] said how about we get – charge everybody at the start of each year 50 bucks, and that'll make up the lack of the sale of the totes.
1074. INTERVIEWER 1: Okay.
1075. INTERVIEWER 2: Yep.
1076. INTERVIEWEE: So we did that and for a period of about 18 months to two years, I ran the Tea Club and ran it very, very, well. All right, you know, blow my bags a little bit. But the point being is that it was

probably in late 2010 when the Tea Club started to run into difficulty, and that was because the totes weren't being sold anymore.

1077. INTERVIEWER 1: Okay.

1078. INTERVIEWEE: Now I don't know how many totes were sold, but what I do know is, it costs two, three – probably two to \$3,000 is minimum to run that Tea Club per annum. Now what I've been told is those totes were being sold off at 50 buck, a hundred bucks each.

1079. INTERVIEWER 1: Do you know if they had a list of who they were selling them to?

1080. INTERVIEWEE: No, but what I do know is that a chap by the name of [REDACTED], who is a friend of [REDACTED], bought one of those totes and was using it at his Dundee property to catch water and use it, bathe in it. You know, Dundee doesn't have water supplies. [REDACTED] died six months ago from some kind of a cancer or something.

1081. INTERVIEWER 1: Okay. Righto.

1082. INTERVIEWEE: Now from talking with firey's, I was under the impression, initially, that [REDACTED] was selling these totes to a third party for them to be on-sold. That information that was provided to me was incorrect. What was actually happening was, it was through word of mouth, so where some of these totes, they're great for catching water and storing water in, you know, tell ya mates, and that's what was happening. Even firey's were buying them and using them.

1083. INTERVIEWER 2: Okay, so that ceased in late 2010?

1084. INTERVIEWEE: Yeah, that ceased in late 2010.

1085. INTERVIEWER 2: Yeah.

1086. INTERVIEWEE: Now those totes are still out there. I was talking to a gentleman, probably two months ago, and he said he bought a property in Virginia, just south of Darwin, and he said when he bought that property, there was 20 plastic totes on that property, which he disposed of. He doesn't know where they were purchased from. He doesn't know if they were from a fire station or if they were from somewhere else.

1087. INTERVIEWER 2: Yep.

1088. INTERVIEWEE: But my concern is that these plastic totes that have, you know – saw that PFAS Foam a thousand litres of it, there's a bunch of them out in that community that people have been using and probably still are using. And I really do think as a matter of some form of concern, they should – there should be some endeavours to retrieve them.

1089. INTERVIEWER 1: Yep.

1090. INTERVIEWER 2: Yep.

1091. INTERVIEWEE: How do we – how do we get it out to the – you know, the people of – you know, the community at the top end, without causing alarm that, you know, there could be people – if you've got a thousand litre plastic tote sitting on your property, do you know where it came from?

1092. INTERVIEWER 1: Yeah.

1093. INTERVIEWER 2: Yep.

1094. INTERVIEWEE: You know – you know, do people, you know - do people need to be tested. 'Cause I tell you what; finding out about [REDACTED] that – that – that's alarming. That – that – that – you know, I found out about that in a telephone conversation that I had just prior to talking to you today.

1095. INTERVIEWER 2: Yes.

1096. INTERVIEWER 1: Okay.

1097. INTERVIEWEE: So for – for [REDACTED] to tell me that [REDACTED] actually dead from some kind of a cancerous tumour or something, and that he actually purchased and used one of those containers, that is alarming to me, and I've spoken to the NTEPA about these containers, they're concerned. They've said to me, well the last thing they want is to create hysteria in the community.

1098. INTERVIEWER 1: Yeah.

1099. INTERVIEWEE: But the reason why in my disclosure – the reason why I went to the public about this, was threefold. It was (a) to for the hand of the authorities to investigate; (b) the community needs to know that there's – you know, this PFAS and other stuff is being pumped into the environment - - -

1100. INTERVIEWER 2: Yep. Yeah, and certainly - - -

1101. INTERVIEWEE: - - - and (c) – and (c) these totes are out there - - -

1102. INTERVIEWER 2: Yeah.

1103. INTERVIEWEE: - - - and I would hate to think that people are still using them. And God help the poor people that were using them back in you know, 2008, 9, 10 or beforehand, and – and possibly drinking water from them or watering their vegie patch or bathing in it.

1104. INTERVIEWER 2: M'mm.

1105. INTERVIEWEE: (Indistinct) services actually tells us firey's, don't get that water on ya.

1106. INTERVIEWER 1: Yeah. Okay.

1107. INTERVIEWEE: All right, that – that's concerning. But the other aspect of it is, how many of these totes were sold? Because what that indicates to us is how much of this Ansulite foam has actually been pumped into the environment. If there's been 50 of these totes sold, there's 50,000 litres, that through those inappropriate means, you know, that secret taps, flushing it down sewer, that's how much has gone into the environment, just in Darwin.
1108. [2:10:19.6]
1109. INTERVIEWER 2: M'mm.
1110. INTERVIEWEE: If there's only ten of them, that's 10,000 litres.
1111. INTERVIEWER 1: No, I know. We - - -
1112. INTERVIEWEE: Do you see what I'm getting at here?
1113. INTERVIEWER 1: Yeah - - -
1114. INTERVIEWEE: This isn't – this isn't – this isn't just a little spillage of ten or 10 litres, this is thousands and thousands of litres of this stuff that has been pumped into the environment, deliberately.
1115. INTERVIEWER 1: Well we're going to – we'll be able to find lines of evidence of that because there is separate – we will be able to check the foam usage and then be able to work out how empty containers should be on sit.
1116. INTERVIEWEE: Our – to – to find out how many of these containers have sold, I wouldn't be talking to the firey's at the station. I don't think there's many people there that'd be able to tell you, and I think that there's one person that would be able to tell you how many.
1117. INTERVIEWER 1: Yeah.
1118. INTERVIEWEE: And I don't think he would tell you.
1119. INTERVIEWER 1: Yeah.
1120. INTERVIEWEE: He's the bloke managing the station right now. [REDACTED] right hand man, [REDACTED] [REDACTED]. But if you speak to some of the people that I've mentioned in my emails to you - - -
1121. INTERVIEWER 1: Yeah.
1122. INTERVIEWEE: - - - you might get an idea of how many, possibly, a rough idea of how many containers have been sold. And what I'm saying is that there's been lots, because it was mainly in that tea club, and I know how much money it takes to run that tea club, and this is where I kinda say there could be as many as 50 of them that have been sold, maybe even more.
1123. INTERVIEWER 1: Well we'll be able - - -

1124. INTERVIEWEE: So - - -

1125. INTERVIEWER 1: - - - to calculate if there's a discrepancy between foam usage, because they've been recording foam usage for a while now.

1126. INTERVIEWEE: Yeah.

1127. INTERVIEWER 1: And if - - -

1128. INTERVIEWEE: Now – now the other thing is, there's – there's the storage tank of foam just on the northern side of the EBT shed.

1129. INTERVIEWER 1: Yes, I know where you mean.

1130. INTERVIEWER 2: Yep.

1131. INTERVIEWEE: Now we keep our records – Airservices keeps records that – that are – you know, checks are done every week on – on – on the levels. Now, I don't know, does –does Ansulite foam evaporate – evaporate in the sun?

1132. INTERVIEWER 1: I couldn't answer that one. I wouldn't know myself.

1133. INTERVIEWEE: Because that – that's – that's how the reduction in the quantity of that foam in that tank is written off.

1134. INTERVIEWER 1: Yep.

1135. INTERVIEWEE: As evaporation. Now what I'm saying is that – well I want to know if it's evaporation so much as it's been used to replenish the trucks after an accidental - - -

1136. INTERVIEWER 1: After an incident occurred - - -

1137. INTERVIEWEE: - - - discharge - - -

1138. INTERVIEWER 1: Yes, yep.

1139. INTERVIEWEE: You know, so – you know, it's – it's – it's that kind of knowledge. There's – you know, look I'm sure there's a bunch of things that I could be telling you that helps you conduct your investigation, that I just can't draw from my head - - -

1140. INTERVIEWER 1: No, but - - -

1141. INTERVIEWEE: You know, I can't – you know, I can't think of.

1142. INTERVIEWER 1: Yep.

1143. INTERVIEWEE: But thinking of what I can to tell you, um, because I know that Airservices is going to be telling ya. You know, they're not going to be helping out at all. You know, because through other

processes that I've been involved with them, that cultural cover-up and deceit, it's just – it's a rotten organisation that is not going to help.

1144. INTERVIEWER 1: Yeah.

1145. INTERVIEWEE: It's not going to help ya.

1146. INTERVIEWER 1: Yeah.

1147. INTERVIEWER 2: Now - - -

1148. INTERVIEWEE: So – so you're going to go to that station, and tomorrow when you start talking to people, and they're showing you around, I just wonder how much help you're going to get. I hope you get a lot. I hope people are compliant. I hope people have adopted the same attitude that I've adopted.

1149. INTERVIEWER 1: I hope so - - -

1150. INTERVIEWEE: I just fear that it'll be the opposite.

1151. INTERVIEWER 1: Okay. We'll we've still got other – like I said, we've got other ways of calculating was well - - -

1152. INTERVIEWEE: Yeah.

1153. INTERVIEWER 1: For example - - -

1154. INTERVIEWEE: Yeah.

1155. INTERVIEWER 1: - - -waste tracking certificates of where waste's been taken to and disposed of.

1156. INTERVIEWEE: Yeah, and – and that's the other thing. When – when you talk about that, I know when I spoke with the ABC journalist and – and she put some details to Airservices, and they kind of responded that the waste has been managed appropriately. You know, there's a – you know, there's a removalist company that removes the waste in place.

1157. INTERVIEWER 1: Yep.

1158. INTERVIEWER 2: Yeah, they have to keep records because - - -

1159. INTERVIEWEE: Yeah.

1160. INTERVIEWER 2: - - - those records are expected to be provided as part of the annual environment report to the airport and to us - - -

1161. INTERVIEWEE: There's the – there's the – an easy way of finding out whether there – there actually is or not. Every business that keeps records of – you know, you think from a – you know – ABC waste removal company coming to your business on a weekly basis to remove waste and they're charging you, there's going to be those receipts, those documents in place.

1162. INTERVIEWER 1: Yeah, we're also – they also have to have a - - -

1163. INTERVIEWEE: Can they be furnished?

1164. INTERVIEWER 1: Yeah - - -

1165. INTERVIEWEE: And I'll guarantee ya, there's – there's no receipts pre-September of 2017 - - -

1166. INTERVIEWER 1: Right.

1167. INTERVIEWEE: - - - because nothing was being removed.

1168. INTERVIEWER 2: Yep.

1169. INTERVIEWER 1: Yeah, and that's what I will be – that's part of the lines of evidence that - - -

1170. INTERVIEWEE: It was being dumped into the environment.

1171. INTERVIEWER 1: All right, well our last – the last accusation was about the – I think you mentioned contaminated soil being taken off site, and that accusation did actually come all the way to – it was my predecessor when it happened, and I do have – I know that – so that was when we first started to be aware of something that had happened. Airservices – I'm pretty sure [REDACTED] himself, the infrastructure had a very – let's just say, a very strong word to Airservices about that. It was to never occur again from - - -

1172. INTERVIEWEE: What – what soil was that, sorry?

1173. INTERVIEWER 1: It was – there was an incident you mentioned about soil being taken off site without a waste tracking certificate and not notifying the – the EPA of that soil having come from the airport.

1174. INTERVIEWEE: Coming from where?

1175. INTERVIEWER 1: From the airport, from Airservices. So that happened about – yeah, that happened a while ago now. I've been in it for - - -

1176. INTERVIEWEE: I'm sorry, I don't remember talking about soil, that's all - - -

1177. INTERVIEWER 1: Oh, okay - - -

1178. INTERVIEWEE: - - - in any of my – any of my emails or anything. I – you know - - -

1179. INTERVIEWER 1: That's all right.

1180. INTERVIEWEE: I need you to refresh my memory, sorry.

1181. INTERVIEWER 1: Yeah, that – I – I seem to recall that being in one of your emails, so yeah. But that's all right, I – I can tell you that that's an incident that has occurred in the infrastructure had a – particularly

in regards to Darwin firefighting station had a word with them about waste tracking of soil being removed from sites.

1182. INTERVIEWEE: Okay.

1183. INTERVIEWER 1: Yep.

1184. INTERVIEWEE: So what you're saying is that it was Airservices conduct on that occasion was a bit inappropriate and – and your department kind of said, you know, don't do that again or words to – you know, something along those lines - - -

1185. INTERVIEWER 1: Oh, they did have a formal letter, it went all the way – all the way up through, and we then had to check on their processes for soil removal - - -

1186. INTERVIEWEE 1: Yeah, okay - - -

1187. INTERVIEWER 1: - - - every time that they had a building approval.

1188. INTERVIEWEE: Yeah. Righto.

1189. INTERVIEWER 1: Okay, so that was – that's – I think that's the last of it all. Thank you for going through all of those accusations. Did you have any questions about emails that you wanted clarity on?

1190. INTERVIEWER 2: The only one was email No.6, if you could pull it up.

1191. INTERVIEWER 1: No.6.

1192. INTERVIEWER 2: Yeah, it's got conflicting instructions from – sorry, just excuse me a second.

1193. INTERVIEWER 1: You'll have to make [REDACTED] aware of - - -

1194. INTERVIEWER 2: Yeah, [REDACTED], right - - -

1195. INTERVIEWER 1: Or [REDACTED] sorry.

1196. INTERVIEWER 2: It's from [REDACTED], and it's talking about – "Attended Darwin (Indistinct) station and spoke with Fire Commander [REDACTED] regarding details of incident. [REDACTED] gave the same details that you have provided below. He's also advised the fire commander, [REDACTED], was on duty at the time of the incident which occurred after the training exercise took place. Have advised [REDACTED] to cease use of the vehicle wash bay down area for vehicle washing or any other purpose apart from refuelling or filling vehicle until further notice." And then the next day another email was sent that said, "Until further notice, the wash bay is not to be used apart from refuelling".

1197. INTERVIEWER 1: Yes, I can – I can fill him in on that one - - -

1198. INTERVIEWER 2: Okay.



1199. INTERVIEWER 1: That's after the September incident. Basically what happened was – was [REDACTED] [REDACTED] contacted the – the provider for the sewer. It's NT – I can't remember the name of the provider – it's a state facility – to check on the waste certificate that is – so that waste certificate for – it is covered by – DIA has a waste certificate for all tenants, and their requirement, and the provider had said we don't want PFAS waste going into the sewer.

1200. INTERVIEWER 2: Right.

1201. INTERVIEWER 1: So after he had found that out, he said stop releasing it into the wash bay.

1202. INTERVIEWER 2: Yep.

1203. INTERVIEWEE: And that – and that's what order they are the email from [REDACTED] to the whole station with a document attached. There's now a new procedure, if there's any accidental discharge, it's been cleaned up, the contents of the truck dumped into the pond, and the waste management provider would be contacted together with the appointed environment officer and whoever else.

1204. INTERVIEWER 1: Yes.

1205. INTERVIEWER 2: Yep.

1206. INTERVIEWEE: The other – the other thing that I want to talk about, [REDACTED], is the actions after that email was sent out.

1207. [2:20:09.0]

1208. INTERVIEWER 1: Yeah.

1209. INTERVIEWEE: When I spoke with [REDACTED], probably in late September of last year, he told me about another accidental discharge, where the firey's told the fire commander, [REDACTED], and they were congregated in the fire commander's office, and [REDACTED] rang the station manager for some guidance on what to do.

1210. INTERVIEWER 1: Yep.

1211. INTERVIEWEE: And this was in – when – when [REDACTED] first told me this, I wasn't aware of what had transpired earlier in September.

1212. INTERVIEWER 1: Yep.

1213. INTERVIEWEE: So [REDACTED] told me that [REDACTED] rang the station manager, being [REDACTED], he's got the phone on speaker phone, all the firey's are in the office, and [REDACTED] gone, look we've had another accidental discharge, what do you want us to do, and the response was, cover it up as per what we've always done.

1214. INTERVIEWER 1: Okay.

1215. INTERVIEWEE: Now it might not be words to that effect, but that's effectively what I meant. Don't report it, cover it up.

1216. INTERVIEWER 1: Can you recall when? (Indistinct) - - -

1217. INTERVIEWEE: An accidental discharge – when I was talking to [REDACTED], that was around the 22nd or so of September.

1218. INTERVIEWER 1: Yep.

1219. INTERVIEWEE: He was talking about that having occurred, maybe some five or six days prior.

1220. INTERVIEWER 1: Okay.

1221. INTERVIEWEE: You know, thereabouts.

1222. INTERVIEWER 1: Yep.

1223. INTERVIEWEE: I spoke to [REDACTED] again about that in – in December, you know, only two months later.

1224. INTERVIEWER 1: Yep.

1225. INTERVIEWEE: And got him to confirm what he had told me and he confirmed it to me, yes, yes, yes, it wasn't just me, there was other firey's there and [REDACTED] asked [REDACTED], you know, and he was told cover it up.

1226. INTERVIEWER 1: Yep, okay.

1227. INTERVIEWEE: Now when I returned to work in – and I wasn't at the station, I was ostracised off into an office on my own - , in late November of last year, that's when I started to look at all my emails. I hadn't had access to my emails in, you know, almost a year.

1228. INTERVIEWER 1: Yep.

1229. INTERVIEWEE: And that's when I came across this email from [REDACTED], and I – and I came across, you know, these other emails, that was about this other accidental discharge and everything that had gone on, that email I'd sent you from the environment people - - -

1230. INTERVIEWER 1: Yep.

1231. INTERVIEWEE: - - - you know, [REDACTED] and the like.

1232. INTERVIEWER 1: Yep, yep.

1233. INTERVIEWEE: And it was around then – that's when I had that second conversation with [REDACTED] to confirm what he said, because it's like – was [REDACTED] talking about the accidental discharge down at the

training ground that brought about [REDACTED] putting in place this new procedure, or was he talking about another one. So I reconfirmed it with him and it was no, it was another one.

1234. INTERVIEWER 1: Okay.

1235. INTERVIEWER 2: Yep.

1236. INTERVIEWER 1: Right.

1237. INTERVIEWEE: So the reason why I say this is, you know, they go exactly to what I've been saying right along, is that, you know, [REDACTED] has – you know, it's brought to the attention of environment, we've got this new procedure in place, an appropriate procedure for it to be removed by a waste removal company, not dump it into the environment, he's put out an email to everyone saying, this is what we've got to do now, and then there's been an accidental discharge of foam, and he's said cover it up.

1238. INTERVIEWER 1: Okay.

1239. INTERVIEWER 2: Yep.

1240. INTERVIEWER 1: All right. Okay.

1241. INTERVIEWEE: This is what you're dealing with. These sort of people – this is – this is the type of person that you're going to be dealing with tomorrow.

1242. INTERVIEWER 2: Yep.

1243. INTERVIEWER 1: Okay.

1244. INTERVIEWEE: Now is he going to tell you that he did that? I don't think so. I hope he does. I hope his conscience gets the better of him and he actually does, but I don't think that's going to be the case. That – that – this is why I'm talking about crimes. This is why I'm talking about what happens when you set about the improvement program, there's got to be – you know, people have to be held to account for their actions. If – if there's no punishment, it just goes against the nature of why we have laws.

1245. INTERVIEWER 1: Yeah.

1246. INTERVIEWEE: Do – do you know what I mean?

1247. INTERVIEWER 1: Yeah. No, I know what you mean. I know what you mean.

1248. INTERVIEWEE: You know, they've got rid of [REDACTED] They should have sacked him at the start of last year, but Airservices chose to let him transition to retirement and rather than, you know, kind of deal with the person that brought it out appropriately, let's turn him into an offender and we'll sack him instead – and I'm talking about myself, all right. They've got rid of [REDACTED], but his right hand man, [REDACTED]

██████, is still in place there, and what happened in mid/late September would suggest that he's continuing with the inappropriate ways, and if he's not held to account, it's only natural that he will continue with those, and that should be very concerning to your organisation, very concerning.

1249. INTERVIEWER 2: We are - - -

1250. INTERVIEWEE: It's concerning to me. It concerns me.

1251. INTERVIEWER 2: Well we are extremely concerned that all the procedures that have been put in place by Airservices, that not only are they being followed, but they are being reviewed on a regular basis to ensure that there is improvement to environmental management, and obviously that they are reviewing whatever products they are required. And, you know, I think they are required to use the current foam, which may not be the best product, but they have their own operational requirements.

1252. INTERVIEWEE: Yeah.

1253. INTERVIEWER 2: Yeah, that – these things are being reviewed and that Airservices are out there, and I'm pretty sure they're doing audits, and we'll be looking at those tomorrow and see what the outcomes of their audits are.

1254. INTERVIEWEE: Yep.

1255. INTERVIEWER 2: And look to see whether there are any other improvements that can be identified and you know, as far as we can tell, what has occurred in the past, and - - -

1256. INTERVIEWEE: Yeah.

1257. INTERVIEWER 2: - - - we don't have a crystal ball. We can only do the best we can, with what we are able to find, identify, and more importantly, prove in a court of law.

1258. INTERVIEWER 1: Well also - - -

1259. INTERVIEWEE: And – and look – and I'm not questioning that, but what I'm trying to do is, I'm just trying to furnish you what I know - - -

1260. INTERVIEWER 2: Yeah. No, that's – it's good - - -

1261. INTERVIEWEE: - - - so you can do what you have to do.

1262. INTERVIEWER 1: Yeah - - -

1263. INTERVIEWER 2: Yeah, that's good - - -

1264. INTERVIEWEE: That's – that's all I'm doing.

1265. INTERVIEWER 1: And - - -

1266. INTERVIEWER 2: That's really good background information to have when we're out there on site talking to these people.
1267. INTERVIEWEE: Yeah.
1268. INTERVIEWER 1: It's also very useful for improving the process of – okay, so these guys are being audited, if it is proven that they're still not following the procedures, then obviously how they are auditing them isn't working because they're not picking up that people aren't following or not reporting or – yeah, following the - - -
1269. INTERVIEWEE: Yeah.
1270. INTERVIEWER 1: - - - procedures that should be in place.
1271. INTERVIEWER 2: Yep.
1272. INTERVIEWER 1: Yep.
1273. INTERVIEWEE: Yeah. So – you know, look I – you know, I – I – there's probably only one other thing I really want to say.
1274. INTERVIEWER 1: Yep.
1275. INTERVIEWEE: And – you know, so I've answered all the questions?
1276. INTERVIEWER 1: Yes, yes, thank you - - -
1277. INTERVIEWER 2: Yes, thank you.
1278. INTERVIEWER 1: Thank you, that helps.
1279. INTERVIEWEE: Yep. Yep, no worries. Look what – I guess, you know, I'm going back to these totes, and the totes – you know, I spoke to the media about the totes and they weren't interested. You know, all they're interested in is, you know, PFAS, fire trucks, foam discharges, you know, sensationalisation, sell a newspaper. All right, that's what the media's there for. I got the most out of them that I could, and I'm appreciate of – of those bodies doing what they have done, but – but the totes just – it just churns in my gut what's gone on there, you know, so I – I guess, you know, the question I've got of you is, what are you going to do about those totes?
1280. INTERVIEWER 1: Once we've found the line of evidence to prove that there is a discrepancy, i.e. you know, from other interviews, or from paperwork that shows, look there's a lot of totes missing, that is going to be leading us to the fact that they haven't been following the procedure that they should be doing for the waste disposal. And then there are areas within our regs that - - -
1281. INTERVIEWEE: Yeah.

1282. INTERVIEWER 1: - - - yeah, there's going to have to be a discussion later on how these toes come back, because basically - - -

1283. INTERVIEWER 2: It sounds to me, actually like your concerns are relating to ongoing health impacts from things that were sold - - -

1284. INTERVIEWER 1: Yes.

1285. INTERVIEWER 2: - - - by the staff - - -

1286. INTERVIEWEE: Yeah.

1287. INTERVIEWER 2: Prior to 2010.

1288. INTERVIEWER 1: Yes.

1289. INTERVIEWEE: Yeah.

1290. INTERVIEWER 2: Under our regulations, there's obviously nothing we can do about that, but we can certainly engage in conversations with Airservices, saying hang about, you've got a issue here – or potential issue here, regarding things that are sold by your officers, which I understand it was acceptable to do that at that time, that have potential health implications. Now health obviously is a requirement within the Northern Territory.

1291. INTERVIEWEE: M'mm.

1292. INTERVIEWER 2: So Airservices should be looking at that to see if – and they may not be able to identify where these totes are, but they may be able to put out some sort of general announcement requesting a recall of these totes if people can remember, because they may not be able to remember. It was eight years ago. They may have been handed off from person to person and no one has any idea where these things have come from. And they may all - - -

1293. INTERVIEWEE: (Indistinct) - - -

1294. INTERVIEWER 2: - - - if they held detergent in them, rather than PFAS.

1295. [2:30:03]

1296. INTERVIEWER 1: We also have a - - -

1297. INTERVIEWEE: And everything that you're saying right there - - -

1298. INTERVIEWER 2: Yeah.

1299. INTERVIEWEE: - - - it's music to my ears, you know. That's – what you've just said is a common sense kind of a response which is good.

1300. INTERVIEWER 2: I used to be an environmental health officer in a previous life.

1301. INTERVIEWEE: Yeah.

1302. INTERVIEWER 2: So I'll be happy that – I was going to have that conversation with them when we meet onsite tomorrow anyway.

1303. INTERVIEWEE: Yeah, yeah, yeah, good.

1304. INTERVIEWER 2: Because, for themselves, that's basically insurance for the organisation.

1305. INTERVIEWEE: Yeah.

1306. INTERVIEWER 2: They really should be getting - - -

1307. INTERVIEWEE: Well, I said to [REDACTED] from the NTEPA about these totes - - -

1308. INTERVIEWER 2: Yeah.

1309. INTERVIEWEE: - - - and he indicated to me that he's very concerned and he doesn't want to cause alarm in the community. I think I might've said this earlier.

1310. INTERVIEWER 2: Yeah.

1311. INTERVIEWEE: Now, I've come to learn – I don't use social media; I don't have a Facebook account, you know. Um, my wife does. I've got a little bit of an idea and I'm starting to understand that social media is actually a very powerful platform to get a message out into a community.

1312. INTERVIEWER 2: Yeah.

1313. INTERVIEWEE: Now, what I'm mulling as an idea is that, okay I've made my disclosures to the media and I've utilised that, um, okay, media – social media, maybe I'll put together a bit of a video and use the friends I've (indistinct words) and some of the other social media platforms in Darwin to get that message out to people that, well, if you got a thousand litre plastic tote that you'd purchased from the fire station, you need to contact somebody. If you've got one and you don't know where it comes from, you need to contact someone because there's serious health concerns here.

1314. INTERVIEWER 2: Yeah.

1315. INTERVIEWEE: You know, that's – that's – that's what I'm toying with. Now, I don't want to cause panic or alarm - - -

1316. INTERVIEWER 2: Yeah.

1317. INTERVIEWEE: - - - but that needs to be got out to the community because – I was talking to my mother this morning about this and I kind of drew a comparison. It's almost like, if I go to my doctor and said – and I kind of – you know, he does an examination of me and he finds a bit of bloody, you know, an

(indistinct) mole on my back, he does the appropriate thing. Let's take a sample and get it tested and we'll inform the patient if there's a problem.

1318. INTERVIEWER 2: M'mm.

1319. INTERVIEWEE: Now, he's not going to say, "I don't want to cause him any alarm so I'll just – I'll just ignore it". But these totes – this is my whole point with these totes. Something needs to be done. I don't know who the person or the body is, except there is something about it and it might be Airservices and I don't trust that they will do the right thing; but it's got to be somebody. Something's got to be done about retrieving these totes 'cause they're out there.

1320. INTERVIEWER 2: Yeah.

1321. INTERVIEWEE: I spoke with a person just a few hours ago. He said a mate of his bought one and he died from some cancerous tumour. That's – that's (indistinct words)

1322. INTERVIEWER 2: I would actually council you, [REDACTED], into not reading too much into that because a friend of mine – and I'm not that old, at least I hope I'm not that old – who was younger than me died in Darwin last year of a cancer.

1323. INTERVIEWEE: Yeah.

1324. INTERVIEWER 2: And I know people in their 30s who have died from cancer who've never gone anywhere near PFAS other than what is on their frypans.

1325. INTERVIEWEE: Yeah, yeah, yeah.

1326. INTERVIEWER 2: So they all – yes.

1327. INTERVIEWEE: Now this is what point they were trying to make. And I do understand what you're saying and I appreciate it and I'm – I'm hearing you loud and clear, but my point being is, that I know and you will come to learn as well - - -

1328. INTERVIEWER 2: Yeah.

1329. INTERVIEWEE: - - - that these totes are been sold into the community and there's many of them out there.

1330. INTERVIEWER 2: Yeah, and it's about risk management. It's one less thing that you could have - - -

1331. INTERVIEWEE: Now, are they still producing the foam? Is it still reaching out of the plastic? Probably not now.

1332. INTERVIEWER 2: Don't know. I haven't got the answer.

1333. INTERVIEWEE: But I do know that - to do with the Tindal air base - - -



1334. INTERVIEWER 2: M'mm.
1335. INTERVIEWEE: - - - that there's alerts being put out into the community, I'm hearing them on the radio. You know, if you've been a (indistinct words) down there and you want to be tested, you can come and get tested.
1336. INTERVIEWER 2: Yeah, and they do – they do have, obviously, exceptionally high levels - - -
1337. INTERVIEWEE: Yeah, yeah.
1338. INTERVIEWER 2: - - - which is why (indistinct) on where they are.
1339. INTERVIEWEE: So and you – you know, I just – you know, it's – I might be a bit ignorant with things, you know, I'm no professor or no, you know, lawyer or anything like that, but it just churns in my stomachs and I'm – over the past couple of years I've come to trust what my gut tells me and – and my gut's telling me that these totes, this whole tote thing, it's – it's a time bomb. And I just kinda think that something needs to be done. We can't just ignore it.
1340. [2:35:12]
1341. INTERVIEWER 2: We can certainly bring that Airservices attention. That's all I can say at this point.
1342. INTERVIEWEE: Yeah.
1343. INTERVIEWER 1: And it will be in the investigation and the outcomes of the investigation.
1344. INTERVIEWEE: Yeah.
1345. INTERVIEWER 2: Yeah.
1346. INTERVIEWEE: Because I'm not going to be communicating with Airservices about anything.
1347. INTERVIEWER 1: Yeah.
1348. INTERVIEWEE: All right? I tried to communicate with Airservices, um, and I might add, appropriately about some very inappropriate behaviours, um, you know, through the course of last year and the year prior. And Airservices last year, they put together a s.51 report for a public interest disclosure and in that report they blatantly lied. The ombudsman's office investigated and said, "You've lied", and they've gone, "Oh, oopsie, we won't do that again". I'd say that I'm not gonna waste my time in communicating with an organisation that lies, knowingly lies, and is steeped in this culture of cover-up and deceit. That's the reason why I took my public interest disclosure externally.
1349. INTERVIEWER 2: Well you actually - - -
1350. INTERVIEWEE: I can't (indistinct) deal with this organisation.
1351. INTERVIEWER 2: Yeah, for that - - -

1352. INTERVIEWEE: They do not do things appropriately. That – you know, this is – and the reason why I say that is because I'm not gonna (indistinct words). It's the reason why I took it to the department through NTEPA.
1353. INTERVIEWER 2: Yeah, that's fine. [REDACTED], as far as your complaints go, you would've got the same action if you had actually just brought it to us, if you'd known about us, and most people don't; and it's surprising how long it does take people to find the Airport Environment Officer.
1354. INTERVIEWEE: Yeah.
1355. INTERVIEWER 2: Now, under our regulations, it actually specifies the Airport Environment Officer. It's got nothing to do with the Department.
1356. INTERVIEWEE: Yeah.
1357. INTERVIEWER 2: The Airport Environment Officer is appointed by the Department but they are responsible for it. So in this case, it's [REDACTED]. It's her decision as to what actions - - -
1358. INTERVIEWEE: Yeah.
1359. INTERVIEWER 2: - - - can be taken forward. From myself, I'm responsible for [REDACTED] Airport. If I don't agree with the Department it's up to me to make the decision and if I believe there's a correct course to go down, well, that's the course I go down and that includes issuing directions and orders for certain actions to be taken.
1360. INTERVIEWEE: Yeah.
1361. INTERVIEWER 2: Okay?
1362. INTERVIEWEE: Yeah, yeah.
1363. INTERVIEWER 1: And I think - - -
1364. INTERVIEWEE: No, look, I - I get it. I knew there was the Airport Environment Officer when I made my disclosure. I just felt, um, that at the time [REDACTED] was the minister responsible. Ultimately they assume Airservices reports, they're the Minister for Infrastructure and Transport from a Federal Government perspective.
1365. INTERVIEWER 2: Yeah.
1366. INTERVIEWEE: I just (indistinct) and that's what I did. You know, I let the NTEPA know about it and certainly I went through, um, the (indistinct words)
1367. INTERVIEWER 1: (indistinct)

1368. INTERVIEWEE: (indistinct words) to do under the Public Interest Disclosure Act.

1369. INTERVIEWER 1: Well, I'm quite - - -

1370. INTERVIEWER 2: No, we wouldn't say you weren't.

1371. INTERVIEWER 1: No, no.

1372. INTERVIEWER 2: It's just a matter of getting things done and you'll get the same  
because - - -

1373. INTERVIEWEE: (indistinct words) I say that because, once again, Airservices, they – they look at me as  
being some kind of offender for having done what I've done according to law. I've complied with the law  
and they're treating me like and offender. So I'm not going to have any dealings with that organization. I  
will use the government bodies to - - -

1374. INTERVIEWER 2: Yeah, that - - -

1375. INTERVIEWEE: - - - to do that. I - you know, I – I – I just, you know, because – you know, I'm just  
horribly concerned about how that organization conducts itself.

1376. INTERVIEWER 2: Yeah, no, that's fine, and you're quite entitled to have lodged your complaints the  
way that you have.

1377. INTERVIEWEE: Yeah, it's through experience, my own experience.

1378. INTERVIEWER 2: Yeah, that's fine. You've obviously have had very poor experiences but the reason  
the regulations are written the way they is, the airport is [REDACTED], so she takes personal ownership of  
that.

1379. INTERVIEWEE: Yeah.

1380. INTERVIEWER 2: So if you bring those complaints to us we will deal with them.

1381. INTERVIEWEE: Yeah (indistinct words) - - -

1382. INTERVIEWER 2: And they'll be dealt with exactly the same (indistinct)

1383. INTERVIEWEE: - - - I'm sure you will, so - - -

1384. INTERVIEWER 1: So we'll do with these – so that you're aware, we have stakeholders that will be  
getting the outcomes of this report. So it'll be – and that is Department of Defence, that is the Northern  
Territory EPA.

1385. INTERVIEWEE: Yeah.

1386. INTERVIEWER 1: So both of those will be aware of the outcomes.

1387. INTERVIEWER 2: Yeah.

1388. INTERVIEWEE: Yeah.

1389. INTERVIEWER 2: And the Airservices, obviously.

1390. INTERVIEWER 1: Yeah, and so - - -

1391. INTERVIEWEE: Yeah.

1392. INTERVIEWER 1: - - - from those outcomes, there will be discussions on how these things can be, you know – and are they being resolved and from those, I'm hoping the discussion about the totes will come about, okay?

1393. INTERVIEWEE: Yeah, yeah.

1394. INTERVIEWER 1: I don't know how - - -

1395. INTERVIEWEE: Well, and I'll forward, you know, as we go, you know, through the course of this year hopefully, you know, we get some kind of resolution events.

1396. [2:40:07]

1397. INTERVIEWER 1: Yeah.

1398. INTERVIEWER 2: And obviously this is going to take a fair amount of time because [REDACTED] has - - -

1399. INTERVIEWEE: Yeah.

1400. INTERVIEWER 2: - - - three airports to look after.

1401. INTERVIEWEE: Yeah.

1402. INTERVIEWER 2: And we want to make sure that, we get one opportunity out of it – not that we can't go back and redo things – but we want to make sure it's done properly the first time.

1403. INTERVIEWER 1: And so - - -

1404. INTERVIEWEE: Yeah, yeah, and I do understand it does take time. You know, I know some of the communications I've had with, you know, (indistinct) I've been a little bit, you know, qualified (indistinct words) I guess. You know, but it's - - -

1405. INTERVIEWER 1: No, we understand that.

1406. INTERVIEWEE: You know, there's that haste in that first instance, you know.

1407. INTERVIEWER 1: Yeah.

1408. INTERVIEWEE: And then all of a sudden there's that understanding of, yes, these things do take time and I appreciate that and I know they will take time and I understand it.

1409. INTERVIEWER 1: And it's also why it's very important we speak to you first. We were hoping to speak to you face-to-face so we can really explain to you - - -

1410. INTERVIEWEE: Yeah.

1411. INTERVIEWER 1: - - - the whole process and why it does appear that there are delays but we are - - -

1412. INTERVIEWEE: Yeah.

1413. INTERVIEWER 1: - - - working on it and for your information, I'm putting all of my time into this investigation now the three airports have been allocated and - - -

1414. INTERVIEWEE: Yeah.

1415. INTERVIEWER 1: - - - the (indistinct) of the airports while I prioritise my time on this investigation, okay?

1416. INTERVIEWEE: Yeah, yeah, well, thank you for that. I – you know, I appreciate it and I appreciate the work that you're doing, um, and, you know, I just hope that we can come out the other end and – and the right thing is actually being done.

1417. INTERVIEWER 1: Yeah, well, that's – I'm hoping to look for a few changes come from this process.

1418. INTERVIEWEE: Yeah.

1419. INTERVIEWER 2: And look, the outcomes from what we find here. We're liable to have implications across every airport in Australia so - - -

1420. INTERVIEWER 1: So it is helpful.

1421. INTERVIEWER 2: - - - it is a high priority for us.

1422. INTERVIEWER 1: And it's helpful that you've gone through this process to do this because it's helped the change.

1423. INTERVIEWEE: Yeah, yeah. No, look, thank you. I think that's it.

1424. INTERVIEWER 1: Yeah.

1425. INTERVIEWER 2: That's great. Sorry to have taken so much of your time. I'm sure you want to head off for dinner now. What time is it?

1426. INTERVIEWEE: Yeah.

1427. INTERVIEWER 1: Are you (indistinct)

1428. INTERVIEWEE: I've got about an hour and a half - - -

1429. INTERVIEWER 1: (indistinct words)

1430. INTERVIEWEE: I've got about an hour and a half's travel to get back to my parents' place so - - -

1431. INTERVIEWER 1: Okay.

1432. INTERVIEWEE: So no problems.

1433. INTERVIEWER 1: I really appreciate that.
1434. INTERVIEWER 2: Okay, best of luck when you head up to Brisbane.
1435. INTERVIEWER 1: Yes.
1436. INTERVIEWEE: Cheers, thanks for that.
1437. INTERVIEWER 2: Great.
1438. INTERVIEWEE: Okay, thank you very much.
1439. INTERVIEWER 1: Thank you.
1440. INTERVIEWER 2: Okay, bye.
1441. INTERVIEWER 1: Bye.
1442. INTERVIEWEE: Okay, bye.

INTERVIEW CONCLUDED

**Table 14: Airservices interview list**

Interview no.	Employees interviewed	Employee Position	Present in the interview	Date	Time	Place
1 Corporate Airservices	██████████  ██████████  ██████████	ARFFS Senior Operational Standards Specialist  Environmental Systems and Assurance Manager  Airservices Government Relations Manager	██████████ (Darwin Airport Environment Officer)  ██████████ (Perth Airport Environment Officer)	13.04.2018	9.40am	Skype from Adelaide office
2	██████████	Fire Commander	██████████ (Darwin Airport Environment Officer)  ██████████ (Perth Airport Environment Officer)  ██████████ (Airservices Government Relations Manager)  ██████████ (Darwin Operations Manager)	18.04.2018	2.05pm	Darwin ARFFS station - Operations Manager's office
3	██████████	Fire Commander	██████████ (Darwin Airport Environment Officer)  ██████████ (Perth Airport Environment Officer)  ██████████ (Airservices Government Relations Manager)  ██████████ (Darwin Operations Manager)	19.04.2018	9.22am	Darwin ARFFS station - Operations Manager's office

4	[REDACTED]	Emergency Vehicle Technician	[REDACTED] (Darwin Airport Environment Officer) [REDACTED] (Perth Airport Environment Officer) [REDACTED] (Airservices Government Relations Manager) [REDACTED] (Darwin Operations Manager)	19.04.2018	12.26pm	Darwin ARFFS station - Operations Manager's Office
5	[REDACTED]	Darwin Operations Manager	[REDACTED] (Darwin Airport Environment Officer) [REDACTED] (Perth Airport Environment Officer) [REDACTED] (Airservices Government Relations Manager)	18.04.2018 and 19.04.2018	3.39pm 11.02am	Darwin ARFFS station - Operations Manager's Office
6 Complainant	[REDACTED]	Former Airservices' employee at the Darwin ARFFS station	[REDACTED] (Darwin Airport Environment Officer) [REDACTED] (Perth Airport Environment Officer)	17.04.2018	1.25pm	Skype interview from Darwin Home Affairs Office to Melbourne Home Affairs office



# **APPENDIX 6**

## **Record of Waste Certificates**

## Appendix 6 Darwin ARFFS Waste Tracking Certificates

**Table 15: Darwin ARFFS station waste tracking certificates**

Date	Location	Maintenance order or Waste Company	Airservices Employee	Volume (L)	Action
12.03.2018	Henry Wrigley drive training ground ARFFS station	Cleanaway Rec no. 279549		11,000	Pump out of pits
22.09.2017	ARFFS station	Cleanaway Rec no. 269837		1400	Clean out pit
22.09.2017	ARFFS station	Cleanaway rec no. 269838		8000	AFFF waste water
23.02.2017	ARFFS station	Cleanaway Rec no. 269957		8000	
24.02.2017	ARFFS station (Henry training)	Work order no. 1235393			
20.07.2015	ARFFS station	Work request no. 1009223			Separator maintenance Pump out pits Drain and clean tanks
5.06.2015	Location unknown	Transpacific Rec no: #208157		700l	
8.09.2014	Location unknown	Transpacific Rec no. 049465		9600	
24.07.2014	ARFFS station	Work request No. 880585			Pump out pits
1.02.2014	ARFFS station	Work request No. 821564			Separator maintenance Pump out pits Drain and clean tanks
12.08.2013	ARFFS station	Work request No. 765036			Separator maintenance Pump out pits Drain and clean tanks
14.03.2013	Location unknown	Transpacific Rec no. 04681		10500	
7.02.2013	ARFFS station	Work request No.710424			Separator maintenance Pump out pits Drain and clean tanks
28.10.2012	Location unknown	Transpacific Rec no. 002701		12000	
28.08.2012	ARFFS station	Work request No. 657667			Separator maintenance Pump out pits

Date	Location	Maintenance order or Waste Company	Airservices Employee	Volume (L)	Action
					Drain and clean tanks
29.02.2012	ARFFS station	Work request No. 605109			Separator maintenance Pump out pits Drain and clean tanks
1.02.2011	ARFFS station	Work request No. 501442			Separator maintenance Pump out pits Drain and clean tanks
28.04.2011	Drill ground ARFFS station	Work order no. 534177			Pump out station and drill ground pits
28.04.2011	Drill ground ARFFS station	Transpacific Rec no. 01412		20000	Pump out drill ground fire station pits
3.08.2011	ARFFS station	Work order no. 553005			Separator maintenance Pump out pits DEC 2011 Drain and clean tanks
7.09.2010	ARFFS station	Transpacific Rec no. 00407		12300	
16.08.2010	ARFFS station	Transpacific Rec no. 00638		14000	
1.08.2010	ARFFS station	Work order no 451159			Separator maintenance Pump out pits
17.09.2010	ARFFS fire station	Transpacific Rec no. 00407		12,300	
26.08.09	ARFFS fire station workshop	Cleanaway rec no. 107864		4000	Irrigation tank clean Station and work shop pits clean
16.04.09	ARFFS station	Work request no. 328770			Pump out pits
2.02.09	ARFFS station	Work request no.304578 Cleanaway		4000lt	Separator maintenance Pump out pits Drain and clean tanks
30.07.08	ARFFS station	Work request no. 259250			Separator maintenance Pump out pits Drain and clean tanks

Date	Location	Maintenance order or Waste Company	Airservices Employee	Volume (L)	Action
10.07.2008	ARFFS workshop	Work order no. 254146			Workshop back drain pumped out
9.07.2008	ARFFS workshop	Cleanaway receipt. 2186		2500lt	Workshop back drain pumped out
7.02.2008	ARFFS station	Work request No. 216746			Wash bay, workshop pit and swimming pool
1.08.2007	ARFFS station	Work request no. 175674			Separator maintenance Pump out pits Drain and clean tanks
27.07.2006	ARFFS station	Work request			Clean out holding ponds not pits
15.04.04	ARFFS station?*	Maintenance record			Pump out pits
18.10.03	ARFFS station?*	Maintenance record			Drain and clean tank
27.09.02	ARFFS station?*	Maintenance record			Drain and clean tank Pump out pits
27.09.02	ARFFS station	Waste Master			Pump wash bay pit
17.04.02	ARFFS station?*	Maintenance record			Drain and clean tank Pump out pits
18.10.01	ARFFS station	Waste Master			Pump out wash bay
16.10 .01	ARFFS station*	Maintenance record			
19.01.01	ARFFS station*	Maintenance record			Pump out pits
19.01.01	ARFFS station	Waste master			Pump out 2 wash bay pits

\* The maintenance record does not explicitly state where the work was done. The AEO has assumed it was at the ARFFS station as this was in the file for the station separator.

**Table 16: Darwin ARFFS Hot Fire Training Ground waste tracking certificates**

Date	Location	Company /maintenance request or email request	Airservices Employee	Volume (L)	Action
16.03.2018	LMU	Cleanaway Recno. 279270		10000 3500	Water removal from LMU pits
12.03.2018	LMU	Cleanaway Recno:279549		11000	Pumping out of pits from LMU
26.02.2018	LMU	Cleanaway rec no.279537		10000 10000 10000	Pumping out of pits from LMU
6.02.2018	LMU	Email request to Danny Shannon			Annual maintenance manager inspection
26.02.2018	LMU	Cleanaway Rec no. 279537		30000	Pump out of pits 3 loads at 10000lt each
16.03.2018	LMU	Cleanaway Rec no. 279270		13,500	Pump out of pits

Date	Location	Company /maintenance request or email request	Airservices Employee	Volume (L)	Action
22.11.2017	LMU	Cleanaway Rec no. 286781	██████ ██████	9500	Pump out of two pits of contaminated water with oil and fuel. One pit empty one may have 2000 lt more to pump out
15.12.2015	LMU	Email request station/drill ground pump out for 28.01.16			
5.06.2015		Waste receipt from env assurance audit Transpacific rec no .208157		700	
20.07.2015	LMU	Work order No. 100821			Pump out environmental pits as required
30.10.2015	LMU	Email notification	██████		Pump out pits completed by Sterling Property
10.10.2015	LMU	Work order No. 1035276 Note: completed by Sterling property	██████		Maintenance of drill ground separator Drain and clean tanks pump out pits
1.04.2015	LMU	Work order No.967406 Note: done by property	████████		Pump out pits Drain and clean tank
31.03.2015	LMU	Work order No. 964618 Note; done by property	████████		Drill ground separator maintenance
31.03.2015	LMU	Work order No. 954515	████████		Drill ground separator maintenance
16.02.2015	LMU	Email confirmation of 13.01.2015 next service 1.04.2015	████████		Property confirmed separators cleaned 13.01.2015.
15.12.2015	Unknown location	Shoal Bay waste facility Docket no. 30346452		5.66 tonne of waste disposed	
12.12.2015	Unknown location	Shoal Bay waste facility Docket no. 30345774		3.64 tonne of waste disposed	
9.12.2015	Unknown location	Shoal Bay waste facility Docket no. 30344722		4.1 tonne of waste disposed	
8.12.2015	Unknown location	Shoal Bay waste facility Docket no.30344413		3.84 tonne of waste disposed	
8.12.2015	Unknown location	Shoal Bay waste facility Docket no.30344467		3.66 tonne of waste disposed	

Date	Location	Company /maintenance request or email request	Airservices Employee	Volume (L)	Action
8.12.2015	Unknown location	Shoal Bay waste facility Docket no.30344364		2.22 tonne of waste disposed	
8.12.2015	Unknown location	Shoal Bay waste facility Docket no.30344596		2.26 tonne of waste disposed	
8.12.2015	Unknown location	Shoal Bay waste facility Docket no.30344596			
1.12.2014	LMU	Email confirmation of scheduled maintenance and flushing of fuel lines			Stirling property confirmed maintenance and flushing of fuel lines
13.11.2014	LMU	Drill ground separator Note; serviced by Sterling			Separator service
8.09.2014	LMU			9600	
	LMU	Receipt from Env assurance audit Transpacific Rec no.049465			
10.07.2014	LMU	Work order 873246			Pump out environmental pit as required
1.07.2014	LMU	Email confirmation from stirling property			Station and drill ground separators cleaned on 1.07.2014 by Sterling Property services
10.04.2014	LMU	Work order No. 844021 Emailed to property			Separator maintenance Pump out pits Drain and clean tank
10.03.2014	LMU	Work order no. 841149			Separator maintenance Pump out pits Drain and clean tank
10.02.2014	LMU	Work order no. 832154			Separator maintenance Pump out pits Drain and clean tank
10.01.2014	LMU	Work order no. 815036			Separator maintenance Pump out pits Drain and clean tank
6.12.2013	LMU	Work order no. 812549			Separator maintenance Pump out pits Drain and clean tank


Date	Location	Company /maintenance request or email request	Airservices Employee	Volume (L)	Action
23.10.2013	LMU	Work order no. 786964			Pump out pits
12.08.2013	LMU	Work order no. 775240			Separator maintenance Pump out pits Drain and clean tank
9.07.2013	LMU	Work order no. 755859			Separator maintenance Pump out pits Drain and clean tank
10.04.2013	LMU	Work order no. 731164			Separator maintenance Drain and clean tank
9.07.2013	LMU	Work order no. 758107			Drill ground separator clean not required
6.02.2013	LMU	Work order no. 704306			Separator maintenance Pump out pits Drain and clean tank
1.02.2013	LMU	Work order no. 677820			Separator maintenance Pump out pits Drain and clean tank
1.05.2012	LMU	Work order no. 630889			Separator maintenance Pump out pits Drain and clean tank
28.04.2012	LMU	Transpacific Rec no. 01412		20000	Pump out drill ground fire station pits
23.04.2012	LMU	Transpacific Recno.002963		10000	
23.04.2012	LMU	Work order no. 637492			Separator maintenance Pump out pits Drain and clean tanks
23.04.2012	LMU	Cleanaway Rec no. 002963		10000	Pump out of three pits
15.08.2011	LMU	Work order no. 546262			Not required pits clean
8.12.2009	LMU	Work order no. 377767			Cleaned and flushed tank
10.10.2009	LMU	Work order no. 378114			Drained SEPA tank and flushed
26.08.2009	LMU	Work order no. 346618 Cleanaway recno. 107864			Irrigation tank clean station and

Date	Location	Company /maintenance request or email request	Airservices Employee	Volume (L)	Action
					workshop pits cleaned
7.08.2009	LMU	Work order no. 352576 note	██████		Pump Out Pits as required
3.06.2009	LMU	Work order no. 343207			Separator maintenance Pump out pits? Drain and clean tank
1.05.2009	LMU	Work order no. 327666	██████		Separator maintenance Pump out pits? Drain and clean tank
8.04.2009	LMU	Work order no. 328769	██████		Separator maintenance Pump out pits? Drain and clean tank
1.02.2009	LMU	Work order no. 304607	██████		Separator maintenance Pump out pits Drain and clean tank
15.01.2009	LMU	Work Order No. 304859	██████	4000	Pits pumped out
10.11.2008	LMU	Work order no.			
30.10.2008	LMU	Work order no. 281997	██████		Drain and clean tank
9.10.2008	LMU	Work order no. 282311	██████		Separator maintenance Pump out pits Drain and clean tank
10.09.2008	LMU	Work order no. 273999	██████		Primed irrigation pump Separator maintenance Pump out pits Drain and clean tank
14.08.2008	LMU	Work order no . 266092	██████		Separator maintenance Pump out pits Drain and clean tank
1.08.2008	LMU	Work order no. 259245	██████		Separator maintenance Pump out pits Drain and clean tank
7.02.2008	LMU and station	Work order no. 216746	██████		Drained and cleaned plates



Date	Location	Company /maintenance request or email request	Airservices Employee	Volume (L)	Action
					Pumped out wash bay,workshop pit and swimming pool Drill ground pits pumped out
28.05.2008	LMU	Work order no. 250466			Separator maintenance Pump out pits Drain and clean tank
7.02.2008	LMU	Work request			Drill ground pits
11.07.2008	LMU	Work order no. 259245			Pumped out pits
9.07.2008	LMU	Cleanaway Rec no.2186		2500	
10.07.2008		Work order no.254146			Drill ground separator 3pits pumped out at drill ground separator tank flushed at drill ground
1.04.2008	LMU	Work order no. 2236798			Separator maintenance Pump out pits Drain and clean tank
13.03.2008	LMU	Work order no.233242			Run irrigation pump – lines cut Drained and cleaned tank
11.02.2008	LMU	Work order no 216741			Cleanaway pits pumped out 11.02.2008
1.11.2007	LMU	Work order no196395			Separator maintenance Pump out pits – due Dec 07 Drain and clean tank
9.10.2007	LMU	Work order no .196395			Pump out pits – due Dec 07
1.08.2007	LMU	Work order no. 175675			Separator maintenance Pump out pits Drain and clean tank
1.05.2007	LMU	Work order no. 154538			Drain and Clean tank
13.02.2007	LMU	Work Order no. 134111			Separator maintenance Pump out pits Drain and clean tank
1.02.2007	LMU	Work Order no. 134110			Separator maintenance

Date	Location	Company /maintenance request or email request	Airservices Employee	Volume (L)	Action
					Pump out pits Drain and clean tank – Dec 06
27.07.2006	LMU	Work order no. 93199	████████		Separator maintenance Pump out pits
27.07.2006	LMU	Work order no. 93200	████████		Drain and clean tank
02.05.2006	LMU	Work order no. 74830	████████		Drain and clean tank
14.02.2006	LMU	Work Order no. 57060	████████		Separator maintenance Drain and clean tank
20.12.2006	LMU	Cleanaway rec no 66481	████████	400	Pit pump out
3.11.2005	LMU	Waste Master Work Order no. 40548	████████		Pump out pits drain and clean tank .
4.11.2005	LMU	Waste master Rec no . 38159	████████	6000	All pits pumped
3.11.2005	LMU	Work order Clean away No.001404	████████		Pump out 4x separator pits
5.08.2005	LMU	Work order 23891	████████		Separator maintenance Drain and clean tank
5.08.2005	LMU	Work order no. 23892	████████		Pump out pits drain and clean tank
13.05.2005	LMU	Work order no. 16521	████████		Pump out pits drain and clean tank
28.01.2005	LMU	Work order no 14833	████████		Separator maintenance Drain and clean tank
28.01.2005	LMU	Work order no.14834	████████		Drain and clean tank
15.11.2004	LMU	Work order no. 12970	████████		Drain and clean tank
13.08.2004	LMU	Work order no. 11119	████████		Separator maintenance Pump out pits – Due Nov Drain and clean tank
13.08.2004	LMU	Work order no.11731	████████		Drain and clean tank
4.06.2004	LMU	Work order no. 10047	████████		Drain and clean tank

 Indicates work orders which have irrigation maintenance requests

 Indicates a receipt from a waste removal company.



Service Dkt # 269957

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

CAIRNS: Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870

MT ISA: Ph: 4743 1313 Fax: 4743 1999 • PO Box 1032, Mt Isa, Q 4825

MACKAY: Ph: 4829 3100 Fax: 4952 4300 • PO Box 5264 MC, Mackay, Q 4741

DARWIN: Ph: 08 8935 1137 or 07 4019 6600 Fax: 07 4033 6745 • PO Box 225, Stratford Q 4870

DATE: 23 / 2 / 2017

CLIENT ORDER#: [ ] ACCOUNT #: [ ]

CLIENT: Air Services 8 AUST - FIRE HENRY

POSTAL ADDRESS: [ ]

COLLECTION / DELIVERY  
SERVICE ADDRESS: [ ]

	QUANTITY	
<input type="checkbox"/> Oil Collection	[ ]	[ ]
<input checked="" type="checkbox"/> Oily Water Collection	8000	[ ]
<input type="checkbox"/> Sludge Collection	[ ]	[ ]
<input type="checkbox"/> Greasetrap Collection	[ ]	[ ]
<input type="checkbox"/> Septic Collection	[ ]	[ ]
<input type="checkbox"/> Dirty Water Collection	[ ]	[ ]
<input type="checkbox"/> Fuel Delivery Type of Fuel	[ ]	[ ]
<input type="checkbox"/>	[ ]	[ ]
<input type="checkbox"/>	[ ]	[ ]
<input type="checkbox"/>	"1.35-2.00 WAS GETTING PASS"	[ ]
<input type="checkbox"/>	[ ]	[ ]
<input type="checkbox"/>	[ ]	[ ]

	Time IN	Time OUT	TRAVEL Time
<input type="checkbox"/> Truck Hire Time	1:35	3:45	1:5
<input type="checkbox"/> Call Out Rate ( [ ] ) @ [ ] /hour			
Driver [ ]	Customer's Signature [ ]		
Unit # [ ]	Please Print Name [ ]		

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Tuesday, 15 December 2015 10:41 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Dn Separator- pit pump out

Hi [REDACTED] Can you arrange service of the station drill ground separator.

Also, we will look at doing a station/drill ground pit pump out on 28/1/16 ; if this date suits you, please organise waste master

Thanks,

Regards,

[REDACTED]  
Emergency Vehicle Technician  
Airservices  
Aviation Rescue Fire Fighting  
Maintenance & Logistics - Darwin  
Tel [REDACTED]  
Mobile: [REDACTED]  
[REDACTED]

~~~~~  
[www.airservicesaustralia.com](http://www.airservicesaustralia.com)  
~~~~~

15/12/2015



# TRANSPACIFIC INDUSTRIES GROUP LTD

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

CAIRNS: Ph: 4055 2711 Fax: 4055 1822 • PO Box 225, Stratford Q 4870

MT ISA: Ph: 4743 1313 Fax: 4743 1999 • PO Box 1032, Mt Isa, Q 4825

MACKAY: Ph: 4952 4967 Fax: 4952 4300 • PO Box 5264 MC, Mackay, Q 4741

DATE: 8/9/2014 Service Dkt # 049465  
CLIENT ORDER#:                      ACCOUNT #:                       
CLIENT: AIR SERVICES AUST.  
POSTAL ADDRESS: DARWIN AIRPORT  
COLLECTION / DELIVERY  
SERVICE ADDRESS:                     

	QUANTITY	
<input type="checkbox"/> Oil Collection	<u>                    </u>	<u>                    </u>
<input checked="" type="checkbox"/> Oily Water Collection	<u>9600</u>	<u>                    </u>
<input type="checkbox"/> Sludge Collection	<u>                    </u>	<u>                    </u>
<input type="checkbox"/> Greasetrap Collection	<u>                    </u>	<u>                    </u>
<input type="checkbox"/> Septic Collection	<u>                    </u>	<u>                    </u>
<input type="checkbox"/> Dirty Water Collection	<u>                    </u>	<u>                    </u>
<input type="checkbox"/> Fuel Delivery	<u>                    </u>	<u>                    </u>
Type of Fuel <u>                    </u>	<u>                    </u>	<u>                    </u>
<input type="checkbox"/> <u>                    </u>	<u>                    </u>	<u>                    </u>
<input type="checkbox"/> <u>                    </u>	<u>                    </u>	<u>                    </u>
<input type="checkbox"/> <u>                    </u>	<u>                    </u>	<u>                    </u>
<input type="checkbox"/> <u>                    </u>	<u>                    </u>	<u>                    </u>

☐ Truck Hire Time 10:30 11:30 1 HR INCLUDING UNLOAD TIME  
☐ Call Out Rate                      @                      / hour  
Driver                      Customer's Signature                       
nit # 176 Please Print Name

**TRANSPACIFIC**TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888**WASTE TRACKING FORM**

<b>A</b> This section to be completed by Waste Producer	Name of producer..... <u>Air port Services</u>	
	Address of producer.....	
	<b>TYPE OF WASTE</b> (Mark box next to waste)	<b>AMOUNT OF WASTE (LITRES)</b>
	<input checked="" type="checkbox"/> Water/Oil Mixtures	<div style="border: 1px solid black; padding: 20px; text-align: center;">10500</div>
	<input type="checkbox"/> Grease Trap/Vegetable Waste	
	<input type="checkbox"/> Inert Sludges/Wool Scouring Sludge	
<input type="checkbox"/> Water Based Paint Sludges		
<input type="checkbox"/> Waste Oil		
<input type="checkbox"/> Oil Filters		
<input type="checkbox"/> Oily Rags		
<input type="checkbox"/> Other Liquid Wastes		
(Specify).....		
I hereby declare that the above consignment is accurately described and is in proper condition for transport.		
Signature..... [Redacted]		
Name ..... [Redacted] Date <u>14/3/13</u>		

<b>B</b> To be completed by the Transporter of the Waste	Name of Licencee..... <u>THS</u>	
	Licence Number..... <u>EPWL0224</u>	
	Vehicle Registration..... <u>950828</u>	
	I hereby acknowledge receipt of the above mentioned waste for transport.	
	Signature..... [Redacted]	
Name ..... [Redacted] Date <u>14/3/13</u>		

<b>C</b> To be completed by the Depot receiving the Waste	Name of Depot.....	
	Licence Number.....	
	I hereby declare I have received the above waste.	
	Signature.....	
Name ..... Date / /		

WHITE - Waste Producer Copy YELLOW - Transporter Copy BLUE - Receiving Depot Copy

No. 04681





# TRANSPACIFIC

TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383

875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888

## WASTE TRACKING FORM

<b>A</b> This section to be completed by Waste Producer	Name of producer..... <u>AFR</u>	
	Address of producer..... <u>Darwin Airport</u>	
	<b>TYPE OF WASTE</b> (Mark box next to waste)	<b>AMOUNT OF WASTE (LITRES)</b>
	<input checked="" type="checkbox"/> Water/Oil Mixtures	<div style="border: 1px solid black; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center; font-size: 24px;">12000</div>
	<input type="checkbox"/> Grease Trap/Vegetable Waste	
<input type="checkbox"/> Inert Sludges/Wool Scouring Sludge		
<input type="checkbox"/> Water Based Paint Sludges		
<input type="checkbox"/> Waste Oil		
<input type="checkbox"/> Oil Filters		
<input type="checkbox"/> Oily Rags		
<input type="checkbox"/> Other Liquid Wastes		
(Specify).....		
I hereby declare that the above consignment is accurately described and is in proper condition for transport.		
Signature..... [Redacted]		
Name..... [Redacted] Date <u>23/10/12</u>		

<b>B</b> To be completed by the Transporter of the Waste	Name of Licencee..... <u>HTS</u>	
	Licence Number..... <u>EPW 025</u>	
	Vehicle Registration..... <u>950828</u>	
	I hereby acknowledge receipt of the above mentioned waste for transport.	
	Signature..... [Redacted]	
Name..... [Redacted] Date <u>23/10/12</u>		

<b>C</b> To be completed by the Depot receiving the Waste	Name of Depot.....	
	Licence Number.....	
	I hereby declare I have received the above waste.	
	Signature.....	
	Name..... Date / /	

WHITE - Waste Producer Copy YELLOW - Transporter Copy BLUE - Receiving Depot Copy

TPPT5707

No. 002701



**TRANSPACIFIC**

TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383

875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888

### WASTE TRACKING FORM

**A** This section to be completed by Waste Producer

Name of producer.....  
Address of producer..... PARUIN AIRPORT

**TYPE OF WASTE** (Mark box next to waste)

<input checked="" type="checkbox"/>	Water/Oil Mixtures
<input type="checkbox"/>	Grease Trap/Vegetable Waste
<input type="checkbox"/>	Inert Sludges/Wool Scouring Sludge
<input type="checkbox"/>	Water Based Paint Sludges
<input type="checkbox"/>	Waste Oil
<input type="checkbox"/>	Oil Filters
<input type="checkbox"/>	Oily Rags
<input type="checkbox"/>	Other Liquid Wastes

AMOUNT OF WASTE (LITRES)  
9000

(Specify).....  
I hereby declare that the above consignment is in proper condition for transport.  
Signature.....  
Name..... Date / /

**B** To be completed by the Transporter of the Waste

Name of Licencee..... TTS  
Licence Number..... BPWLO25  
Vehicle Registration..... W1L915  
I hereby acknowledge receipt of the above mentioned waste for transport.  
Signature.....  
Name..... Date 24/8/12

**C** To be completed by the Depot receiving the Waste

Name of Depot.....  
Licence Number.....  
I hereby declare I have received the above waste.  
Signature.....  
Name..... Date / /

WHITE - Waste Producer Copy YELLOW - Transporter Copy BLUE - Receiving Depot Copy

TPPTPI5707

No. 002493

Estimated Costs			
Labour:	\$0.00	Material:	\$0.00
		Other:	\$0.00
Total Cost:			\$0.00






**RANSPACIFIC**

TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383

875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888

**WASTE TRACKING FORM**

<b>A</b>	This section to be completed by Waste Producer	Name of producer..... <u>Air Services Australia</u>	<b>AMOUNT OF WASTE (LITRES)</b> <div style="border: 1px solid black; padding: 5px; display: inline-block;">10,000 Litres</div>
		Address of producer..... <u>Darwin Airport</u>	
		<b>TYPE OF WASTE</b> (Mark box next to waste)	
		<input checked="" type="checkbox"/> Water/Oil Mixtures	
		<input type="checkbox"/> Grease Trap/Vegetable Waste	
		<input type="checkbox"/> Inert Sludges/Wool Scouring Sludge	
		<input type="checkbox"/> Water Based Paint Sludges	
		<input type="checkbox"/> Waste Oil	
		<input type="checkbox"/> Oil Filters	
		<input type="checkbox"/> Oily Rags	
		<input type="checkbox"/> Other Liquid Wastes	
		(Specify)..... <u>4 1/2 hours</u>	
		I hereby declare that the above consignment is accurately described and is in proper condition for transport.	
		Signature..... 	
		Name.....	Date <u>23/4/12</u>
<b>B</b>	To be completed by the Transporter of the Waste	Name of Licencee..... <u>TTS</u>	
		Licence Number..... <u>GWP 1024</u>	
		Vehicle Registration..... <u>950-797</u>	
		I hereby acknowledge receipt of the above mentioned waste for transport.	
		Signature..... 	
		Name.....	Date <u>23/4/12</u>
<b>C</b>	To be completed by the Depot receiving the Waste	Name of Depot..... <u>TTS</u>	
		Licence Number..... <u>GWP 1024</u>	
		I hereby declare I have received the above waste	
		Signature..... 	
		Name.....	Date <u>23/4/12</u>

WHITE - Waste Producer Copy YELLOW - Transporter Copy BLUE - Receiving Depot Copy

TPTPI5707

No. 002963



**TRANSPACIFIC**  
INDUSTRIES GROUP LTD

TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383

875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888

### WASTE TRACKING FORM

<b>A</b> This section to be completed by Waste Producer	Name of producer..... <u>DARWIN AIRPORT FIRE STATION</u>	
	Address of producer..... <u>DARWIN AIRPORT</u>	
	<b>TYPE OF WASTE</b> (Mark box next to waste)	<b>AMOUNT OF WASTE (LITRES)</b>
	<input checked="" type="checkbox"/> Water/Oil Mixtures	<div style="border: 1px solid black; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center;">20,000 L PUMP OUT DRILL (GROW) FIRE STATION PITS</div>
	<input type="checkbox"/> Grease Trap/Vegetable Waste	
<input type="checkbox"/> Inert Sludges/Wool Scouring Sludge		
<input type="checkbox"/> Water Based Paint Sludges		
<input type="checkbox"/> Waste Oil		
<input type="checkbox"/> Oil Filters		
<input type="checkbox"/> Oily Rags		
<input type="checkbox"/> Other Liquid Wastes		
(Specify) .....		
I hereby declare that the above consignment is accurately described and is in proper condition for transport.		
Signature..... [Redacted]		
Name..... [Redacted] Date <u>28/4/11</u>		

<b>B</b> To be completed by the Transporter of the Waste	Name of Licencee..... <u>TRANSPACIFIC</u>	
	Licence Number..... <u>EPWHCO24</u>	
	Vehicle Registration..... <u>950 828</u>	
	I hereby acknowledge receipt of the above mentioned waste for transport.	
	Signature..... [Redacted]	
Name..... [Redacted] Date <u>28/4/11</u>		

<b>C</b> To be completed by the Depot receiving the Waste	Name of Depot..... <u>TTS</u>	
	Licence Number.....	
	I hereby declare I have received the above waste.	
	Signature.....	
	Name..... Date <u>28/4/11</u>	

WHITE - Waste Producer Copy YELLOW - Transporter Copy BLUE - Receiving Depot Copy

TPTPI5707

No. 01412

### WASTE TRACKING FORM

<b>A</b>	This section to be completed by Waste Producer	Name of producer <u>A.R.S. SERVICES Australian Fire Station</u>
		Address of producer <u>H. Sney Wrigley Drive</u>
		<b>TYPE OF WASTE</b> (Mark box next to waste) <div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> Water/Oil Mixtures  <input type="checkbox"/> Grease Trap/Vegetable Waste  <input type="checkbox"/> Inert Sludges/Wool Scouring Sludge  <input type="checkbox"/> Water Based Paint Sludges  <input type="checkbox"/> Waste Oil  <input type="checkbox"/> Oil Filters  <input type="checkbox"/> Oily Rags  <input type="checkbox"/> Other Liquid Wastes         </div> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <b>AMOUNT OF WASTE (LITRES)</b>  <u>14,000</u> </div> </div>
		(Specify) _____ I hereby declare that the above consignment is accurately described and is in proper condition for transport.
Signature _____ Name _____ Date <u>16/8/10</u>		

<b>B</b>	To be completed by the Transporter of the Waste	Name of Licencee <u>T.T.S</u>
		Licence Number <u>EPWH2024</u>
		Vehicle Registration <u>291</u>
		I hereby acknowledge receipt of the above mentioned waste for transport. Signature _____ Name _____ Date <u>16/8/10</u>

<b>C</b>	To be completed by the Depot receiving the Waste	Name of Depot <u>T.T.S</u>
		Licence Number <u>EPWH2024</u>
		I hereby declare I have received the above waste. Signature _____ Name _____ Date <u>16/8/10</u>

WHITE - Waste Producer Copy    YELLOW - Transporter Copy    BLUE - Receiving Depot Copy

No. 00638



**TRANSPACIFIC**  
INDUSTRIES GROUP LTD

TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383

875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888

### WASTE TRACKING FORM

<b>A</b> This section to be completed by Waste Producer	Name of producer	Fire Services Australia Fire Station	
	Address of producer	Henry Drive	
	<b>TYPE OF WASTE</b> (Mark box next to waste)	<b>AMOUNT OF WASTE (LITRES)</b>	
	<input checked="" type="checkbox"/> Water/Oil Mixtures	<div style="border: 1px solid black; padding: 10px; text-align: center;">12,300 Ltrs</div>	
	<input type="checkbox"/> Grease Trap/Vegetable Waste		
<input type="checkbox"/> Inert Sludges/Wool Scouring Sludge			
<input type="checkbox"/> Water Based Paint Sludges			
<input type="checkbox"/> Waste Oil			
<input type="checkbox"/> Oil Filters	(Specify) .....		
<input type="checkbox"/> Oily Rags	I hereby declare that the above consignment is accurately described and is in proper condition for transport.		
<input type="checkbox"/> Other Liquid Wastes	Signature	[Redacted Signature]	
	Name	[Redacted Name]	
		Date 7/9/10	

<b>B</b> To be completed by the Transporter of the Waste	Name of Licencee	T-T-S	
	Licence Number	EPWHL024	
	Vehicle Registration	221	
	I hereby acknowledge receipt of the above mentioned waste for transport.		
	Signature	[Redacted Signature]	
	Name	[Redacted Name]	
		Date 7/9/10	

<b>C</b> To be completed by the Depot receiving the Waste	Name of Depot	T-T-S	
	Licence Number	EPWHL024	
	I hereby declare I have received the above waste.		
	Signature	[Redacted Signature]	
	Name	[Redacted Name]	
		Date 7/9/10	

WHITE - Waste Producer Copy    YELLOW - Transporter Copy    BLUE - Receiving Depot Copy

TPTPI5707

No. 00407



**Work Order No 304578**

W/O Group No

**Requester's Information**

Name:	Request No:
Details:	Phone No:
Rego Number:	Approved By:

**Asset Information**

Asset No: DN Station Separator	Drill Ground Separator
DN ARFF	Darwin ARFF
DN Station	Fire Station
Comments:	
Contractor:	
Contact:	Ph No:
Warranty Start	Warranty Finish

**Work Details**

Job Description: Station Separator (DN) - 6 Monthly			
Instructions: 1. Conduct 6 monthly service in accordance with the tasks listed below. 2. Close work order on MEX.			
Safety Notes:			
Priority: 3	Next / Sched maintenanc	Job Type: PM	
Status: 1 - Scheduled			
Account Code:	Reference No:	Frequency: 6 Months	
Duration: 0.00 h	Policy No: 356	Department: EVT	
Raised: 2/01/2009	Due Start: 1/02/2009	Start:	Due Finish
		Finish: 2.2.09	

**Trades Information**

Trade Code	Name	Due Start	Est Duration	Date Started	Act Duration	Signature

**Tasks**

No	Description	Complete	Reading Type	Reading
1	Visual inspection	<input checked="" type="checkbox"/>		
2	Check motor/gearbox	<input checked="" type="checkbox"/>		
3	Check pumping operation	<input checked="" type="checkbox"/>		
4	Check pipes and fittings	<input checked="" type="checkbox"/>		
5	Drain and clean tank	<input checked="" type="checkbox"/>		

1.5 litres DEGREASER

CLEANED PLATES

PITS PUMPED OUT  
4000L - CLEANING

ENTERED

Work Order No 346618

W/O Group No

### Requester's Information

Name:	Request No:
Details:	Phone No:
Rego Number:	Approved By:

### Asset Information

Asset No: DN Drill Ground Separator		Drill Ground Separator	
DN 119	CUSTOMER	SYSTEM	RND.
00255762	971		
	SEQ.	VOLUME	DATE
		4000	26.8.09

Con	PICK UP	Air Services Aust F.S. Workshop
Contractor	DELIVERY	
Contact	RECEIPT No.	107864

Wo	CLEANAWAY	DEPOTS:
Job Descri	A Division of BIS Cleanaway Limited ABN 79 000 164 938	DARWIN PO Box 2600 PALMERSTON 0831
Instruc		ALICE SPRINGS PO Box 8264 ALICE SPRINGS 0871
Safety M		KATHERINE PO Box 270 KATHERINE 0851
Pr		
S		
Account		
Dui		

Raised: 10/06/2009	Due Start: 10/07/2009	Start:	Due Finish	Finish:
--------------------	-----------------------	--------	------------	---------

### Trades Information

Trade Code	Name	Due Start	Est Duration	Date Started	Act Duration	Signature
				26/8/09		

### Estimated Costs

Labour:	\$0.00	Material:	\$0.00	Other:	\$0.00
Total Cost:				\$0.00	

### Work History Comments

- IRRIGATION TANK CLEAN } DRILL GROUND.			
- MAIN TANK NOT TOO BAD }			
STATION + WORKSHOP PITS CLEANED. - NOT TOO DIRTY!			
Downtime: 0.00	hrs	Repair Time 0.00	hrs
Done Reading:			

Airservices Australia - ARFF

W/O Group No

Work Order Number 216746

Raised 2/01/2008

Due Start 1/02/2008

Equipment No DN Station Separator

Drill Ground Separator

Location DN Station

Fire Station

Equipment

Safety Notes

Work Details

Policy No 356

Reference No

Job Description Station Separator (DN) - 6 Monthly

- Instructions
1. Conduct 6 monthly service in accordance with the tasks listed below.
  2. Close work order on MEX.

Account Code

Department DN Mech

Priority

3

Next / Sched maintenance

Job Type PM

Job Completed By

Name

Signature

Date Completed

Labour Hours

Downtime

Released from Service:

1/1/08 @ 1:00

Returned to Service:

1/1/08 @ 1:00

Total Downtime: 0 hrs

Work History Comments

Spare Parts/Material

Tasks

No	Description	Complete	Type	Reading
1	Visual inspection	<input checked="" type="checkbox"/>		
2	Check motor/gearbox	<input checked="" type="checkbox"/>		
3	Check pumping operation	<input checked="" type="checkbox"/>		
4	Check pipes and fittings	<input checked="" type="checkbox"/>		
5	Drain and clean tank	<input checked="" type="checkbox"/>		Drained & cleaned.
6	Clean plates (as required)	<input checked="" type="checkbox"/>		Cleaned Plates
7	Pump out pits (as required)	<input checked="" type="checkbox"/>		8-2-08.

pump out  
wash bay, workshop pit  
and swimming pool

Also - drill ground pits pumped out.

## Aviation Rescue and Fire Fighting

HR-112-Form

Page 1 of 1

## HR-112-Form – ARFF Services File Note

MATTER: <u>AFFF waste removal</u>	AUTHOR: [REDACTED]	DATE <u>12/04/18</u>	TYPE <input type="checkbox"/> Meeting <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> General File Note <input type="checkbox"/> Research
Re. _____	File No. _____	Started: _____ am / pm	
Persons Involved _____		Finished: _____ am / pm	

Receipt for removal of 5 foam totes. 2 were empty and 3 had fluid with a combined total of 1000L of possible AFFF contamination. Also removed were 2 x 120L bins and 5 hazard bags containing cleanup material from foam spill that occurred 23/2 and 27/2/18.



**Making a sustainable future possible**



**NQ RESOURCE RECOVERY PTY LTD.**  
PO Box 2600,  
Palmerston 0831  
T: (08) 8935 1111 F: (08) 8932 5888

**A Tax Invoice will be posted out for your records**

# TRANSPORT MANIFEST

MANIFEST #: 002051

**CSS #:** \_\_\_\_\_ **DEH Docket #:** \_\_\_\_\_

DEH Docket #:

## GENERATOR:

(Address)

**RECEIVER:**

(Address)

**PHONE:****FAX:**

(Signature)

(Position)

**CHARGE TO:**

**ORDER NUMBER:**[illegible]

Transport of \_\_\_\_\_ drums / pallets @ \$ \_\_\_\_\_ each

**Labour** \_\_\_\_\_ **hours @ \$** \_\_\_\_\_ **each**

## Material Charges

Other Charges

**TOTAL CHARGES**

**Generator's  
Cinnatrina™**

Date: \_\_\_\_\_

**Driver's Signature:**

Date:

CONCEIVING AND

## HR-112-Form – ARFF Services File Note

MATTER: <u>Waste water removal from LMU pit</u>	AUTHOR: [REDACTED]	DATE <u>16/03/18</u>	TYPE <input type="checkbox"/> Meeting <input type="checkbox"/> Telephone <input type="checkbox"/> General File Note <input type="checkbox"/> Research
Re. _____	File No. _____	Started: _____ am / pm	
Persons Involved <u>CleanAway</u>		Finished: _____ am / pm	

Waste water removal from LMU pits receipts from licensed contractor CleanAway.



Service Dkt # **279270**

**NQ Resource Recovery Pty Ltd** ABN 74 057 294 265

**TOWNSVILLE (Regional Office):** Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

**CAIRNS:** Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870

**MT ISA:** Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

**MACKAY:** Ph: 4829 3100 Fax: 4952 4511 • PO Box 5264 MC, Mackay, Q 4741

DATE:

12 / 3 / 2018

CLIENT ORDER#:

ACCOUNT #:

CLIENT: Darwin International Airport

POSTAL ADDRESS:

Fire training yard.  
COLLECTION / DELIVERY  
SERVICE ADDRESS:

QUANTITY

☐ Oil Collection

☐ Oily Water Collection

☐ Sludge Collection

☐ Greasetrapp Collection

☐ Septic Collection

☐ Dirty Water Collection

☐ Fuel Delivery  
Type of Fuel

☐

☒

FFFF

Load 1 = 10,000L

☐

Load 2 = 3,500L

☐

☐

Total 13,500L

☐ Truck Hire Time

☐ Call Out Rate (

Time IN

Time OUT

TRAVEL Time

) @

/hour

Driver

Customer's Signature

Unit #

Please Print Name



Service Dkt # 279549

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

CAIRNS: Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870

MT ISA: Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

MACKAY: Ph: 4829 3100 Fax: 4952 4511 • PO Box 5264 MC, Mackay, Q 4741

DATE: 12 / 3 / 20 18

CLIENT ORDER#: ACCOUNT #: 362558

CLIENT: Air Services Australia

POSTAL ADDRESS:

COLLECTION / DELIVERY  
SERVICE ADDRESS:

Henry Wrigley Place  
Training Ground

QUANTITY

- ☐ Oil Collection
- ☐ Oily Water Collection
- ☐ Sludge Collection
- ☐ Greasetrap Collection
- ☐ Septic Collection
- ☐ Dirty Water Collection
- ☐ Fuel Delivery  
Type of Fuel

FFFF Water  
Sample Taken

1# = 11000 L

☐ Truck Hire Time

☐ Call Out Rate ( ) @ /hour

Time IN

Time OUT

TRAVEL Time

9.30

10.47

15 MIN

Driver

Customer's Signature

Unit #

Please Print Name

600511011216

## Aviation Rescue and Fire Fighting

HR-112-Form

Page 1 of 1

## HR-112-Form – ARFF Services File Note

MATTER: <u>Pump out of pits at LMU</u>	AUTHOR: [REDACTED]	DATE <u>26/02/18</u>	TYPE <input type="checkbox"/> Meeting <input type="checkbox"/> Telephone <input type="checkbox"/> General File Note <input type="checkbox"/> Research
Re. _____	File No. _____	Started: _____ am / pm	
Persons Involved <u>CleanAway</u>		Finished: _____ am / pm	

Pumping out of and removal of firewater from pits at the LMU.

Service  
Dkt #

279537

40

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

CAIRNS: Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870

MT ISA: Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

MACKAY: Ph: 4829 3100 Fax: 4952 4511 • PO Box 5264 MC, Mackay, Q 4741

DATE:

4/26/2018

CLIENT ORDER#:

ACCOUNT #:

CLIENT:

AIRPORT FIRE &amp; RESCUE

POSTAL ADDRESS:

Aguar International Airport

COLLECTION / DELIVERY  
SERVICE ADDRESS:

- ☐ Oil Collection
- ☐ Oily Water Collection
- ☐ Sludge Collection
- ☐ Greasetrap Collection
- ☐ Septic Collection
- ☐ Dirty Water Collection
- ☐ Fuel Delivery
- Type of Fuel

QUANTITY

Load 1 = 10,000L

Load 2 = 10,000L

Load 3 = 10,000L

Total = 30,000L

- ☐ Truck Hire Time

Time IN

Time OUT

TRAVEL Time

- ☐ Call Out Rate (

)

@

/hour

Driver

Customer's Signature

Unit #

Please Print Name

600511011216

## Aviation Rescue and Fire Fighting

HR-112-Form

Page 1 of 1

## HR-112-Form – ARFF Services File Note

MATTER: <u>Pump out pits at LMU</u>	AUTHOR: [REDACTED]	DATE <u>22/11/17</u>	TYPE <input type="checkbox"/> Meeting <input type="checkbox"/> Telephone <input type="checkbox"/> General File Note <input type="checkbox"/> Research
Re. _____	File No. _____	Started: _____ am / pm	
Persons Involved <u>Cleanaway</u>	Finished: _____ am / pm		

Pumping out of pits at LMU of firewater.





Service  
Dkt # 286781

38

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

CAIRNS: Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870

MT ISA: Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

MACKAY: Ph: 4829 3100 Fax: 4952 4511 • PO Box 5264 MC, Mackay, Q 4741

DATE:

22 / 11 / 20 17

CLIENT ORDER#:

ACCOUNT #:

247868

CLIENT:

Air Services Australia

POSTAL ADDRESS:

Henry Wingley Dve

COLLECTION / DELIVERY  
SERVICE ADDRESS:

Marsaba

☐ Oil Collection

☒ Oily Water Collection

☐ Sludge Collection

☐ Greasetrap Collection

☐ Septic Collection

☐ Dirty Water Collection

☐ Fuel Delivery  
Type of Fuel

QUANTITY

9500L

P out two Pits  
of Contaminated  
water with oil &  
fuel.  
one PIT EMPTY  
one may have  
2000L more to  
Pump out.

☐ Truck Hire Time

☐ Call Out Rate (

Time IN

Time OUT

TRAVEL Time

12:00

13:50

2.5 hr

) @

/hour

Driver

Customer's Signature

Unit #

Please Print Name

600511011216



## Aviation Rescue and Fire Fighting

37

HR-112-Form

Page 1 of 1

## HR-112-Form – ARFF Services File Note

MATTER: <u>Pump out pits at station</u>	AUTHOR: [REDACTED]	DATE <u>22/09/17</u>	TYPE <input type="checkbox"/> Meeting <input type="checkbox"/> Telephone <input type="checkbox"/> General File Note <input type="checkbox"/> Research
Re. _____	File No. _____	Started: _____ am / pm	
Persons Involved <u>Cleanaway</u>		Finished: _____ am / pm	

Pumping out of pits at rear of station of flushing of vehicle of foam residual.

**TOWNSVILLE (Regional Office):** Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
**CAIRNS:** Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870  
**MT ISA:** Ph: 4743 1313 Fax: 4743 1999 • PO Box 1032, Mt Isa, Q 4825  
**MACKAY:** Ph: 4829 3100 Fax: 4952 4300 • PO Box 5264 MC, Mackay, Q 4741  
**DARWIN:** Ph: 08 8935 1137 or 07 4019 6600 Fax: 07 4033 6745 • PO Box 225, Stratford Q 4870

DATE:

22 / 9 / 2017

CLIENT ORDER#:

ACCOUNT #:

CLIENT:

Air Services Australia

POSTAL ADDRESS:

COLLECTION / DELIVERY  
SERVICE ADDRESS:

Darwin Airport

QUANTITY

☐ Oil Collection

☐ Oily Water Collection

☐ Sludge Collection

☐ Greasetrap Collection

☐ Septic Collection

☐ Dirty Water Collection

☐ Fuel Delivery  
Type of Fuel

Contaminated Water  
1/2000 AFFF

8000 LT.

Time IN

Time OUT

TRAVEL Time

☐ Truck Hire Time

☐ Call Out Rate (

) @

/hour

Driver

Customer's Signature

Unit #

Please Print Name

**TOWNSVILLE (Regional Office):** Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
**CAIRNS:** Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870  
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**MACKAY:** Ph: 4829 3100 Fax: 4952 4300 • PO Box 5264 MC, Mackay, Q 4741  
**DARWIN:** Ph: 08 8935 1137 or 07 4019 6600 Fax: 07 4033 6745 • PO Box 225, Stratford Q 4870

DATE: **22 / 9 / 2017**

CLIENT ORDER#:  ACCOUNT #:

CLIENT: **Air services Australia**

POSTAL ADDRESS:

COLLECTION / DELIVERY SERVICE ADDRESS: **Darwin Air port**

	QUANTITY	
<input type="checkbox"/> Oil Collection	<input type="text"/>	
<input type="checkbox"/> Oily Water Collection	<input type="text"/>	<b>AFF</b>
<input type="checkbox"/> Sludge Collection	<input type="text"/>	<b>Clear out pt.</b>
<input type="checkbox"/> Greasetrap Collection	<input type="text"/>	
<input type="checkbox"/> Septic Collection	<input type="text"/>	<b>1400 Ltrs.</b>
<input type="checkbox"/> Dirty Water Collection	<input type="text"/>	
<input type="checkbox"/> Fuel Delivery Type of Fuel	<input type="text"/>	
<input type="checkbox"/>	<input type="text"/>	
<input type="checkbox"/>	<input type="text"/>	
<input type="checkbox"/>	<input type="text"/>	
<input type="checkbox"/>	<input type="text"/>	
<input type="checkbox"/>	<input type="text"/>	

☐ Truck Hire Time **1000** **1045** **1:45**  
☐ Call Out Rate ( **0** ) @  /hour

Driver:  Customer's Signature:   
Unit #:  Please Print Name:

CITY OF DARWIN  
DARWIN NT  
TERMINAL  
REFERENCE

35230000  
047043

CUSTOMER COPY

CARD NO: 4336-2012(i)  
EXPIRY DATE: 09/18  
NAB Visa Payment  
CREDIT \$270.60  
PURCHASE AUD \$270.60  
TOTAL

APPROVED 00  
AUTH NO: 647614  
AID: A0000000031010  
ATC: 363 TVR:0000048000  
CSN:00 A17A72CE6C22CC8E  
09 DEC 2015 09:17  
SHOAL BAY WASTE

11503313301  
30344722-SB

et No:  
her No:

In: 09/12/2015 9:17:55 AM  
Out: 09/12/2015 9:17:55 AM

le Rego: CB8LRI  
ent: CASH SALES  
r Number:  
ract:

hed Waste  
ERCIAL  
n Items

Price  
\$60.00/t  
Price

Qty

S Weight: 7.92t  
Weight: 3.82t  
Weight: 4.10t

argeable Weight: 4.10t  
cil Fee: \$246.00  
Levy: \$0.00  
: \$24.60  
Temporary Acc: \$0.00

al Price: \$270.60

ments:  
POS  
al Amount Tendered: \$270.60  
ange Given: \$0.00

ver:  
rator: Dennis

CITY OF DARWIN  
DARWIN NT  
TERMINAL  
REFERENCE

35230000  
047011

CUSTOMER COPY

CARD NO: 4336-2012(i)  
EXPIRY DATE: 09/18  
NAB Visa Payment  
CREDIT \$253.44  
PURCHASE AUD \$253.44  
TOTAL

APPROVED 00  
AUTH NO: 602515  
AID: A0000000031010  
ATC: 357 TVR:0000048000  
CSN:00 965231AFF816C033  
08 DEC 2015 10:16  
SHOAL BAY WASTE

11503313301  
30344413-SB

Ticket No:  
Voucher No:

Time In: 08/12/2015 10:16:08 AM  
Time Out: 08/12/2015 10:16:08 AM

Vehicle Rego: CB8LRI  
Client: CASH SALES  
Order Number:  
Contract:

Weighted Waste  
COMMERCIAL  
Each Items

Price  
\$60.00/t  
Price

Qty

GROSS Weight: 7.66t  
TARE Weight: 3.82t  
NET Weight: 3.84t

Chargeable Weight: 3.84t  
Council Fee: \$230.40  
EPA Levy: \$0.00  
GST: \$23.04  
Temporary Acc: \$0.00

Total Price: \$253.44

Payments:  
EFTPOS \$253.44  
Total Amount Tendered: \$253.44  
Change Given: \$0.00

Driver:  
Operator: Dennis

DARWIN NT  
TERMINAL  
REFERENCE

35230000  
047142

CUSTOMER COPY

CARD NO: 4336-2012(i)  
EXPIRY DATE: 09/18  
NAB Visa Payment  
CREDIT \$240.24  
PURCHASE AUD \$240.24  
TOTAL

APPROVED 00  
AUTH NO: 363115  
AID: A0000000031010  
ATC: 376 TVR:0000048000  
CSN:00 6DC36F2744CCB422  
12 DEC 2015 11:18  
SHOAL BAY WASTE

Phone: 08 89450877

ABN: 11503313301  
Ticket No: 30345774-SB  
Voucher No:

Time In: 12/12/2015 11:18:23 AM  
Time Out: 12/12/2015 11:18:23 AM

Vehicle Rego: CB080M  
Client: CASH SALES  
Order Number:  
Contract:

Weighted Waste  
STAGE2 - INERT WASTE  
Each Items

Price  
\$60.00/t  
Price

Qty

GROSS Weight: 8.56t  
TARE Weight: 4.92t  
NET Weight: 3.64t

Chargeable Weight: 3.64t  
Council Fee: \$218.40  
EPA Levy: \$0.00  
GST: \$21.84  
Temporary Acc: \$0.00

Total Price: \$240.24

Payments:  
CREDIT CARD \$240.24  
Total Amount Tendered: \$240.24  
Change Given: \$0.00

Driver:  
Operator: Michael

DARWIN NT  
TERMINAL  
REFERENCE

35230000  
047220

CUSTOMER COPY

CARD NO: 4336-2012(i)  
EXPIRY DATE: 09/18  
NAB Visa Payment  
CREDIT \$373.56  
PURCHASE AUD \$373.56  
TOTAL

APPROVED 00  
AUTH NO: 604414  
AID: A0000000031010  
ATC: 383 TVR:0000048000  
CSN:00 95AC6CDEDDFB8193  
15 DEC 2015 14:08  
SHOAL BAY WASTE

ABN: 11503313301  
Ticket No: 30346452-SB  
Voucher No:

Time In: 15/12/2015 2:08:52 PM  
Time Out: 15/12/2015 2:08:52 PM

Vehicle Rego: CB080M  
Client: CASH SALES  
Order Number:  
Contract:

Weighted Waste  
COMMERCIAL  
Each Items

Price  
\$60.00/t  
Price

Qty

GROSS Weight: 10.58t  
TARE Weight: 4.92t  
NET Weight: 5.66t

Chargeable Weight: 5.66t  
Council Fee: \$339.60  
EPA Levy: \$0.00  
GST: \$33.96  
Temporary Acc: \$0.00

Total Price: \$373.56

Payments:  
POS \$373.56  
Total Amount Tendered: \$373.56  
Change Given: \$0.00

Driver:  
Operator: Dennis



TERMINAL  
REFERENCE 35230000  
047015

## CUSTOMER COPY

CARD NO: 4336-2012(i)  
EXPIRY DATE: 09/18  
NAB Visa Payment  
CREDIT  
PURCHASE \$241.56  
TOTAL AUD \$241.56

## APPROVED

AUTH NO: 00  
AID: 343414  
ATC: 358 A0000000031010  
CSN: 00 A0C1419A8896614F  
08 DEC 2015 11:23  
SHOAL BAY WASTEShoal Bay  
Phone: 08 89450877

ABN: 11503313301

Ticket No: 30344467-SB

Time In: 08/12/2015 11:23:38 AM  
Time Out: 08/12/2015 11:23:38 AM

Vehicle Rego: CB81RI

Client: CASH SALES

Weighed Waste  
LANDSCAPE COMMERCIAL  
Each Items Qty Price  
\$60.00/t PriceGROSS Weight: 7.48t  
TARE Weight: 3.82t  
NET Weight: 3.66t  
Chargeable Weight: 3.66t  
Council Fee: \$219.60  
EPA Levy: \$0.00  
GST: \$21.96  
Temporary Acc: \$0.00  
Total Price: \$241.56Payments: \$241.56  
CREDIT CARD \$241.56  
Total Amount Tendered: \$0.00  
Change Given:

Driver: Dennis

TERMINAL  
REFERENCE 35230000  
047006

## CUSTOMER COPY

CARD NO: 4336-2012(i)  
EXPIRY DATE: 09/18  
NAB Visa Payment  
CREDIT  
PURCHASE \$111.00  
TOTAL AUD \$111.00

## APPROVED

AUTH NO: 00  
AID: 362512  
ATC: 356 A0000000031010  
CSN: 00 33DC80C102A8539B  
08 DEC 2015 08:58  
SHOAL BAY WASTE

Shoal

Phone: 08 89450877

ABN: 11503313301

Ticket No: 30344464-SB

Time In: 08/12/2015 8:58:14 AM  
Time Out: 08/12/2015 8:58:14 AM

Vehicle Rego: CB81RI

Client: CASH SALES  
Order Number:  
Contract:Weighed Waste  
LANDSCAPE COMMERCIAL  
Each Items Qty Price  
\$45.45/t PriceGROSS Weight: 6.04t  
TARE Weight: 3.82t  
NET Weight: 2.22t  
Chargeable Weight: 2.22t  
Council Fee: \$100.91  
EPA Levy: \$0.00  
GST: \$10.07  
Temporary Acc: \$0.00  
Total Price: \$111.00Payments: \$111.00  
EFTPOS \$111.00  
Total Amount Tendered: \$0.00  
Change Given:

Driver:

TERMINAL  
REFERENCE 35230000  
047031

## CUSTOMER COPY

CARD NO: 4336-2012(i)  
EXPIRY DATE: 09/18  
NAB Visa Payment  
CREDIT  
PURCHASE \$149.16  
TOTAL AUD \$149.16

## APPROVED

AUTH NO: 00  
AID: 513712  
ATC: 359 A0000000031010  
CSN: 00 E0EBDBCCB44728B  
08 DEC 2015 14:43  
SHOAL BAY WASTE

Shoal Bay

Phone: 08 89450877

ABN: 11503313301

Ticket No: 30344456-SB

Time In: 08/12/2015 2:43:54 PM  
Time Out: 08/12/2015 2:43:54 PM

Vehicle Rego: CB81RI

Client: CASH SALES  
Order Number:  
Contract:Weighed Waste  
STAGE2 - INERT WASTE  
Each Items Qty Price  
\$60.00/t PriceGROSS Weight: 6.08t  
TARE Weight: 3.82t  
NET Weight: 2.26t  
Chargeable Weight: 2.26t  
Council Fee: \$135.60  
EPA Levy: \$0.00  
GST: \$13.56  
Temporary Acc: \$0.00  
Total Price: \$149.16Payments: \$149.16  
CREDIT CARD \$149.16  
Total Amount Tendered: \$0.00  
Change Given:

Driver:

Tax Invoice  
REPRINT

Shoal Bay

Phone: 08 89450877

ABN: 11503313301

Ticket No: 30344456-SB

Time In: 08/12/2015 2:43:54 PM  
Time Out: 08/12/2015 2:43:54 PM

Vehicle Rego: CB81RI

Client: CASH SALES  
Order Number:  
Contract:Weighed Waste  
STAGE2 - INERT WASTE  
Each Items Qty Price  
\$60.00/t PriceGROSS Weight: 6.08t  
TARE Weight: 3.82t  
NET Weight: 2.26t  
Chargeable Weight: 2.26t  
Council Fee: \$135.60  
EPA Levy: \$0.00  
GST: \$13.56  
Temporary Acc: \$0.00  
Total Price: \$149.16Payments: \$149.16  
CREDIT CARD \$149.16  
Total Amount Tendered: \$0.00  
Change Given:

Driver:

## HR-112-Form – ARFF Services File Note

MATTER: <u>Pump out pits at station</u>	AUTHOR: [REDACTED]	DATE <u>22/09/17</u>	TYPE <input type="checkbox"/> Meeting
Re. _____	File No. _____	Started: _____ am / pm	<input type="checkbox"/> Telephone
Persons Involved <u>Cleanaway</u>		Finished: _____ am / pm	<input type="checkbox"/> General File Note <input type="checkbox"/> Research

Pumping out of pits at rear of station of flushing of vehicle of foam residual.

**TOWNSVILLE (Regional Office):** Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
**CAIRNS:** Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870  
**MT ISA:** Ph: 4743 1313 Fax: 4743 1999 • PO Box 1032, Mt Isa, Q 4825  
**MACKAY:** Ph: 4829 3100 Fax: 4952 4300 • PO Box 5264 MC, Mackay, Q 4741  
**DARWIN:** Ph: 08 8935 1137 or 07 4019 6600 Fax: 07 4033 6745 • PO Box 225, Stratford Q 4870

DATE: / / 20

CLIENT ORDER#: ACCOUNT #:

CLIENT:

POSTAL ADDRESS:

COLLECTION / DELIVERY SERVICE ADDRESS:

	QUANTITY	
<input type="checkbox"/> Oil Collection		
<input type="checkbox"/> Oily Water Collection		
<input type="checkbox"/> Sludge Collection		
<input type="checkbox"/> Greasetrap Collection		
<input type="checkbox"/> Septic Collection		
<input type="checkbox"/> Dirty Water Collection		
<input type="checkbox"/> Fuel Delivery Type of Fuel		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

☐ Truck Hire Time Time IN Time OUT TRAVEL Time  
☐ Call Out Rate ( ) @ /hour

Driver Customer's Signature  
 Unit # Please Print Name

**TOWNSVILLE (Regional Office):** Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
**CAIRNS:** Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870  
**MT ISA:** Ph: 4743 1313 Fax: 4743 1999 • PO Box 1032, Mt Isa, Q 4825  
**MACKAY:** Ph: 4829 3100 Fax: 4952 4300 • PO Box 5264 MC, Mackay, Q 4741  
**DARWIN:** Ph: 08 8935 1137 or 07 4019 6600 Fax: 07 4033 6745 • PO Box 225, Stratford Q 4870

DATE:

21 / 9 / 2017

CLIENT ORDER#:

ACCOUNT #:

CLIENT:

Air services Australia

POSTAL ADDRESS:

COLLECTION / DELIVERY  
SERVICE ADDRESS:

Darwin Airport

QUANTITY

☐ Oil Collection

☐ Oily Water Collection

☐ Sludge Collection

☐ Greasetrap Collection

☐ Septic Collection

☐ Dirty Water Collection

☐ Fuel Delivery  
Type of Fuel

☐

☐

☐

☐

☐

☐ Truck Hire Time

☐ Call Out Rate (

Time IN

Time OUT

TRAVEL Time

) @

/hour

Driver

Customer's Signature

Unit #

Please Print Name



## HR-112-Form – ARFF Services File Note

MATTER: <u>Pump out pits at LMU</u>	AUTHOR: [REDACTED]	DATE <u>22/11/17</u>	TYPE <input type="checkbox"/> Meeting <input type="checkbox"/> Telephone <input type="checkbox"/> General File Note <input type="checkbox"/> Research
Re. _____	File No. _____	Started: _____ am / pm	
Persons Involved <u>Cleanaway</u>		Finished: _____ am / pm	

Pumping out of pits at LMU of firewater.

Service  
Dkt #

286781

38

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

CAIRNS: Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870

MT ISA: Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

MACKAY: Ph: 4829 3100 Fax: 4952 4511 • PO Box 5264 MC, Mackay, Q 4741

DATE:

22 / 11 / 20 17

CLIENT ORDER#:

ACCOUNT #:

207868

CLIENT:

Air Services Australia

POSTAL ADDRESS:

Henry Wingley DVE

COLLECTION / DELIVERY  
SERVICE ADDRESS:

Marsala

☐ Oil Collection☒ Oily Water Collection☐ Sludge Collection☐ Greasetrap Collection☐ Septic Collection☐ Dirty Water Collection☐ Fuel Delivery  
Type of Fuel☐☐☐☐☐☐ Truck Hire Time☐ Call Out Rate (

QUANTITY

9500L

P out two Pits  
of contaminated  
water with oil &  
fuel.  
one PIT EMPTY  
one may have  
2000L more to  
pump out.

Time IN

Time OUT

TRAVEL Time

12:00

13:50

2.5 hrs

) @  /hour

Driver

Customer's Signature

Unit #

Please Print Name

600511011216

41

COMMERCIAL-IN-CONFIDENCE  
**Aviation Rescue and Fire Fighting**

**HR-112-Form**

**Page 1 of 1**

**HR-112-Form – ARFF Services File Note**

<b>MATTER:</b> <u>Pump out of pits at LMU</u>	<b>AUTHOR:</b> [REDACTED]	<b>DATE</b> <u>26/02/18</u>	<b>TYPE</b> <input type="checkbox"/> Meeting <input type="checkbox"/> Telephone <input type="checkbox"/> General File Note <input type="checkbox"/> Research
<b>Re.</b> _____	<b>File No.</b> _____	<b>Started:</b> _____ am / pm	
<b>Persons Involved</b> <u>CleanAway</u>		<b>Finished:</b> _____ am / pm	

Pumping out of and removal of firewater from pits at the LMU.



Service  
Dkt #

279537 40

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

CAIRNS: Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870

MT ISA: Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

MACKAY: Ph: 4829 3100 Fax: 4952 4511 • PO Box 5264 MC, Mackay, Q 4741

DATE: 21 / 12 / 20

CLIENT ORDER#:

ACCOUNT #:

CLIENT:

ARRIVE EARTH RESCUE

POSTAL ADDRESS:

Arrive Earth Rescue

COLLECTION / DELIVERY

SERVICE ADDRESS:

☐ Oil Collection

QUANTITY

☐ Oily Water Collection

☐ Sludge Collection

☐ Greasetrap Collection

☐ Septic Collection

☐ Dirty Water Collection

☐ Fuel Delivery  
Type of Fuel

☐☐☐☐☐

☐ Truck Hire Time

Time IN

Time OUT

TRAVEL Time

☐ Call Out Rate (

) @

/hour

Driver

Customer's Signature

Unit #

Please Print Name

## HR-112-Form – ARFF Services File Note

MATTER: <u>Waste water removal from LMU pit</u>	AUTHOR: [REDACTED]	DATE <u>16/03/18</u>	TYPE <input type="checkbox"/> Meeting <input type="checkbox"/> Telephone <input type="checkbox"/> General File Note <input type="checkbox"/> Research
Re. _____	File No. _____	Started: _____ am / pm	
Persons Involved <u>CleanAway</u>	Finished: _____ am / pm		

Waste water removal from LMU pits receipts from licensed contractor CleanAway.



Service Dkt # 279270

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
CAIRNS: Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870  
MT ISA: Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
MACKAY: Ph: 4829 3100 Fax: 4952 4511 • PO Box 5264 MC, Mackay, Q 4741

DATE: 12 / 9 / 20

CLIENT ORDER#: ACCOUNT #:

CLIENT:

POSTAL ADDRESS:

COLLECTION / DELIVERY SERVICE ADDRESS:

	QUANTITY	
<input type="checkbox"/> Oil Collection		
<input type="checkbox"/> Oily Water Collection		
<input type="checkbox"/> Sludge Collection		
<input type="checkbox"/> Greasetrap Collection		
<input type="checkbox"/> Septic Collection		
<input type="checkbox"/> Dirty Water Collection		
<input type="checkbox"/> Fuel Delivery Type of Fuel		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

☐ Truck Hire Time Time IN Time OUT TRAVEL Time  
☐ Call Out Rate ( ) @ /hour  
Driver Customer's Signature  
Unit # Please Print Name



Service  
Dkt # 279270

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
CAIRNS: Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870  
MT ISA: Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
MACKAY: Ph: 4829 3100 Fax: 4952 4511 • PO Box 5264 MC, Mackay, Q 4741

DATE: 12 / 3 / 2018

CLIENT ORDER#: ACCOUNT #:

CLIENT: *Dennis International Support*

POSTAL ADDRESS:

COLLECTION / DELIVERY  
SERVICE ADDRESS:

	QUANTITY
<input type="checkbox"/> Oil Collection	
<input type="checkbox"/> Oily Water Collection	
<input type="checkbox"/> Sludge Collection	
<input type="checkbox"/> Greasetrap Collection	
<input type="checkbox"/> Septic Collection	
<input type="checkbox"/> Dirty Water Collection	
<input type="checkbox"/> Fuel Delivery Type of Fuel	
<input type="checkbox"/>	
<input checked="" type="checkbox"/> <i>JEFF</i>	<i>Load 1 = 10, each</i>
<input type="checkbox"/>	<i>Load 2 = 3, 500</i>
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	<i>Total 13, each</i>

☐ Truck Hire Time Time IN Time OUT TRAVEL Time  
*9:05 12:30 1 hr*

☐ Call Out Rate ( ) @ /hour

Driver Customer's Signature

Unit # Please Print Name



Service Dkt # 279549

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
CAIRNS: Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870  
MT ISA: Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
MACKAY: Ph: 4829 3100 Fax: 4952 4511 • PO Box 5264 MC, Mackay, Q 4741

DATE: 12 / 18 / 2018

CLIENT ORDER#: [ ] ACCOUNT #: 362558

CLIENT: Aus Services Australia

POSTAL ADDRESS:

COLLECTION / DELIVERY  
SERVICE ADDRESS:

Harry Whaley Drive  
Tully Council

- ☐ Oil Collection
- ☐ Oily Water Collection
- ☐ Sludge Collection
- ☐ Greasetrap Collection
- ☐ Septic Collection
- ☐ Dirty Water Collection
- ☐ Fuel Delivery
- ☐ Type of Fuel

QUANTITY


AFEF Waste  
Sample Taken  
12 = 11000 Lt.

☐ Truck Hire Time

Time IN

Time OUT

TRAVEL Time

9:30 10:47 1:50

☐ Call Out Rate (

) @ /hour

Driver

Unit #

Customer's Signature

Please Print Name



maintenance on pits

Airservices Australia - Western District

**Work Order No 1235393**

W/O Group No

**Requester's Information**

**Name:** \_\_\_\_\_ **Request No:** \_\_\_\_\_  
**Details:** \_\_\_\_\_  
**Rego Number:** \_\_\_\_\_ **Approved By:** \_\_\_\_\_

Last Reading Taken:

Date:

**Asset Information**

**Asset No:** DN Silt Trap

Industrial Silt Trap

DN Station

Fire Station

**Serial No:**

**ENTERED**

**Comments:**

**Warranty Start** 30/04/1999

**Warranty Finish** 30/04/2000

**Work Details**

**Job Description:** Assist contractor to pump sludge from pits

**Instructions:**

**Safety Notes:**

**Priority:** 0

**Job Type:** Other

**Status:** 0 - Entered

**Account Code:**

**Reference No:**

**Frequency:**

**Duration:**

h

**Policy No:**

**Department:** EVT

**Due Start:** 23/02/2017

**Finish:** 24/02/2017

**Trades Information**

Trade Code	Name	Est Duration	Date Started	Act Duration	Signature
Mech		0.00	23/02/2017	1.00	
Mech		0.00	24/02/2017	2.00	

**Estimated Costs**

<b>Labour:</b>	\$0.00	<b>Material:</b>	\$0.00	<b>Other:</b>	\$0.00
<b>Total Cost:</b>					\$0.00



Service Dkt # 269957

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

**TOWNSVILLE (Regional Office):** Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814  
**CAIRNS:** Ph: 4019 6600 Fax: 4033 6745 • PO Box 225, Stratford, Q 4870  
**MT ISA:** Ph: 4743 1313 Fax: 4743 1999 • PO Box 1032, Mt Isa, Q 4825  
**MACKAY:** Ph: 4829 3100 Fax: 4952 4300 • PO Box 5264 MC, Mackay, Q 4741  
**DARWIN:** Ph: 08 8935 1137 or 07 4019 6600 Fax: 07 4033 6745 • PO Box 225, Stratford Q 4870

DATE: 23 / 2 / 2017

CLIENT ORDER#: [ ] ACCOUNT #: [ ]

CLIENT: AIR SERVICES AUSTRALIA - FIRE HENRY

POSTAL ADDRESS: [ ]

COLLECTION / DELIVERY  
SERVICE ADDRESS: [ ]

	QUANTITY	
<input type="checkbox"/> Oil Collection	[ ]	[ ]
<input checked="" type="checkbox"/> Oily Water Collection	4000	[ ]
<input type="checkbox"/> Sludge Collection	[ ]	[ ]
<input type="checkbox"/> Greasetrap Collection	[ ]	[ ]
<input type="checkbox"/> Septic Collection	[ ]	[ ]
<input type="checkbox"/> Dirty Water Collection	[ ]	[ ]
<input type="checkbox"/> Fuel Delivery Type of Fuel	[ ]	[ ]
<input type="checkbox"/>	[ ]	[ ]
<input type="checkbox"/>	[ ]	[ ]
<input type="checkbox"/>	1.35 - 2.00 hrs getting pass	[ ]
<input type="checkbox"/>	[ ]	[ ]
<input type="checkbox"/>	[ ]	[ ]

☐ Truck Hire Time  
☐ Call Out Rate ( [ ] ) @ [ ] /hour  
Driver [ ] Customer's Signature [ ]  
Unit # [ ] Please Print Name [ ]

**From:** [REDACTED]  
**Sent:** Monday, 8 September 2014 2:13 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Darwin pits

**Attachments:** 140908233902\_0001.pdf



140908233902\_0001.pdf (50 KB)

Hi [REDACTED], pits were pumped today

Thanks,

Regards,

[REDACTED]  
Emergency Vehicle Technician  
Airservices  
Aviation Rescue Fire Fighting  
Maintenance & Logistics - Darwin  
Tel: [REDACTED]  
Mobile: [REDACTED]  
[REDACTED]

~~~~~  
[www.airservicesaustralia.com](http://www.airservicesaustralia.com)  
~~~~~

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# TRANSPACIFIC INDUSTRIES GROUP LTD

NQ Resource Recovery Pty Ltd ABN 74 057 294 265

TOWNSVILLE (Regional Office): Ph: 4774 7333 Fax: 4774 7099 • PO Box 7948, Garbutt, Q 4814

CAIRNS: Ph: 4055 2711 Fax: 4055 1822 • PO Box 225, Stratford Q 4870

MT ISA: Ph: 4743 1313 Fax: 4743 1999 • PO Box 1032, Mt Isa, Q 4825

MACKAY: Ph: 4952 4967 Fax: 4952 4300 • PO Box 5264 MC, Mackay, Q 4741

DATE: 8/9 / 20 14 Service Dkt # 049465

CLIENT ORDER#: ACCOUNT #:

CLIENT: AIR SERVICES AUST.

POSTAL ADDRESS: DARWIN AIRPORT

COLLECTION / DELIVERY  
SERVICE ADDRESS:

☐ Oil Collection

☒ Oily Water Collection

☐ Sludge Collection

☐ Greasetrap Collection

☐ Septic Collection

☐ Dirty Water Collection

☐ Fuel Delivery  
Type of Fuel

QUANTITY

9600

☐ Truck Hire Time

☐ Call Out Rate (

Driver

nit #

Time IN

10:30

Time OUT

11:30

TRAVEL Time

1 HR INCLUDING

) @ [ ] / hour

Customer's Signature

Please Print Name

TPNQR 0014

### Work Details

**Job Description:** September Pit Pump Out

**Instructions:** Pump out Environmental pits as required. Close Work Order

**Safety Notes:**

**Priority:** 3

**Next / Sched maintenanc**

**Job Type:** Environ

**Status:** 1 - Scheduled

**Account Code:** DNOPS 51310

**Reference No:**

**Frequency:** 1 Years

**Duration:** 0.00

h

**Policy No:** 373

**Department:** EVT

**Due Start:** 10/07/2012

**Finish:**

24/8/12

### Trades Information

Trade Code	Name	Due Start	Est Duration	Date Started	Act Duration	Signature
	[REDACTED]				2	[REDACTED]

### Estimated Costs

**Labour:**

\$0.00

**Material:**

\$0.00

**Other:**

\$0.00

ENTERED

**Work Order No 637492**

W/O Group No

**Requester's Information**

<b>Name:</b>	<b>Request No:</b>
<b>Details:</b>	<b>Phone No:</b>
<b>Rego Number:</b>	<b>Approved By:</b>

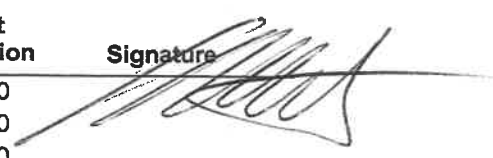
**Asset Information**

<b>Asset No:</b> DN Drill Ground Seperator	<b>Drill Ground Seperator</b>
..... DN ARFF	Darwin ARFF
..... DN Trg	Fire Training Facilities / Equipment
<b>Comments:</b>	
<b>Contractor:</b>	<b>Ph No:</b>
<b>Contact:</b>	
<b>Warranty Start</b> 1/08/2001	<b>Warranty Finish</b> 1/08/2002

**Work Details**

<b>Job Description:</b> Pump out treated drill ground waste water			
<b>Instructions:</b>			
<b>Safety Notes:</b>			
<b>Priority:</b> 2	Minor Fault	<b>Job Type:</b> Request	
<b>Status:</b> 0 - Entered			
<b>Account Code:</b> DNE&M 51310	<b>Reference No:</b>	<b>Frequency:</b>	
<b>Duration:</b> 5.00 h	<b>Policy No:</b>	<b>Department:</b> EVT	
<b>Raised:</b> 23/04/2012	<b>Due Start:</b>	<b>Start:</b>	<b>Due Finish</b>
			<b>Finish:</b>

**Trades Information**

Trade Code	Name	Due Start	Est Duration	Date Started	Act Duration	Signature
Mech			0.00	19/04/2012	1.00	
Mech			0.00	20/04/2012	2.00	
Mech			0.00	20/04/2012	2.00	
Mech			0.00	23/04/2012	1.00	
Mech			0.00	23/04/2012	3.50	
Mech			0.00	23/04/2012	3.00	

**Tasks**

No	Description	Complete	Reading Type	Reading	Trade Name
1	pump out treated waste water from holding tank	<input checked="" type="checkbox"/>			
2		<input checked="" type="checkbox"/>			

WASTE OIL, COOLANT, FILTERS AND RAGS  
ALSO COLLECTED.

ENTERED



**TRANSPACIFIC**

TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383

875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888

## WASTE TRACKING FORM

<b>A</b> This section to be completed by Waste Producer	Name of producer	Air Services Australia
	Address of producer	Darwin Airport
	<b>TYPE OF WASTE</b> (Mark box next to waste)	
	<input checked="" type="checkbox"/> Water/Oil Mixtures	
	<input type="checkbox"/> Grease Trap/Vegetable Waste	
<input type="checkbox"/> Inert Sludges/Wool Scouring Sludge		
<input type="checkbox"/> Water Based Paint Sludges		
<input type="checkbox"/> Waste Oil		
<input type="checkbox"/> Oil Filters		
<input type="checkbox"/> Oily Rags		
<input type="checkbox"/> Other Liquid Wastes		
(Specify)	4 1/2 hours	
I hereby declare that the above consignment is accurately described and is in proper condition for transport.		
Signature	[Redacted] Date 23/4/12	
Name		

AMOUNT OF WASTE (LITRES)

10000litres

<b>B</b> To be completed by the Transporter of the Waste	Name of Licencee	ITS
	Licence Number	CWP 6024
	Vehicle Registration	950-797
	I hereby acknowledge receipt of the above mentioned waste for transport.	
	Signature	[Redacted] Date 23/4/12
Name		

<b>C</b> To be completed by the Depot receiving the Waste	Name of Depot	ITS
	Licence Number	CWP 6024
	I hereby declare I have received the above waste.	
	Signature	[Redacted] Date 23/4/12
	Name	

WHITE - Waste Producer Copy YELLOW - Transporter Copy BLUE - Receiving Depot Copy

No. 002963

**Work Order No 534177**

W/O Group No

**Requester's Information**

<b>Name:</b>	<b>Request No:</b>
<b>Details:</b>	<b>Phone No:</b>
<b>Rego Number:</b>	<b>Approved By:</b>

**Asset Information**

<b>Asset No:</b> DN Drill Ground Separator	<b>Drill Ground Separator</b>
<input type="checkbox"/> DN ARFF	<input type="checkbox"/> Darwin ARFF
<input type="checkbox"/> DN Trg	<input type="checkbox"/> Fire Training Facilities / Equipment
<b>Comments:</b>	
<b>Contractor:</b>	<b>Ph No:</b>
<b>Contact:</b>	
<b>Warranty Start</b> 1/08/2001	<b>Warranty Finish</b> 1/08/2002

**Work Details**

<b>Job Description:</b> pump out station and drill ground pits. clean out pads and weed spray				
<b>Instructions:</b>				
<b>Safety Notes:</b>				
<b>Priority:</b> 0	<b>Job Type:</b> Environ			
<b>Status:</b> 0 - Entered				
<b>Account Code:</b> DNE&M 51310	<b>Reference No:</b>	<b>Frequency:</b>		
<b>Duration:</b> 3.00 h	<b>Policy No:</b>	<b>Department:</b> EVT		
<b>Raised:</b> 28/04/2011	<b>Due Start:</b>	<b>Start:</b>	<b>Due Finish</b>	<b>Finish:</b>

**Trades Information**

Trade Code	Name	Due Start	Est Duration	Date Started	Act Duration	Signature
Mech			0.00	28/04/2011	3.00	

**Estimated Costs**

<b>Labour:</b>	\$0.00	<b>Material:</b>	\$0.00	<b>Other:</b>	\$0.00
<b>Total Cost:</b>				\$0.00	

**ENTERED**





**TRANSPACIFIC**  
INDUSTRIES GROUP LTD  
TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383

875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888

### WASTE TRACKING FORM

A	This section to be completed by Waste Producer	Name of producer <u>DARWIN AIRPORT FIRE STATION</u>	
		Address of producer <u>DARWIN AIRPORT</u>	
		<b>TYPE OF WASTE</b> (Mark box next to waste)	<b>AMOUNT OF WASTE (LITRES)</b>
		<input checked="" type="checkbox"/> Water/Oil Mixtures	<div style="border: 1px solid black; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center;">20,000 L PUMP OUT (DRILL GROUND) FIRE STATION PITS</div>
		<input type="checkbox"/> Grease Trap/Vegetable Waste	
<input type="checkbox"/> Inert Sludges/Wool Scouring Sludge			
<input type="checkbox"/> Water Based Paint Sludges			
<input type="checkbox"/> Waste Oil			
		<input type="checkbox"/> Oil Filters	
		<input type="checkbox"/> Oily Rags	
		<input type="checkbox"/> Other Liquid Wastes	
		(Specify) .....	
		I hereby declare that the above consignment is accurately described and is in proper condition for transport.	
		Signature .....	
		Name .....	Date <u>28/4/11</u>

B	To be completed by the Transporter of the Waste	Name of Licencee <u>TRANSPACIFIC</u>	
		Licence Number <u>EPWH024</u>	
		Vehicle Registration <u>950 828</u>	
		I hereby acknowledge receipt of the above mentioned waste for transport.	
		Signature .....	
		Name .....	Date <u>28/4/11</u>

C	To be completed by the Depot receiving the Waste	Name of Depot <u>TIS.</u>	
		Licence Number .....	
		I hereby declare I have received the above waste.	
		Signature .....	
		Name .....	Date <u>28/4/11</u>

WHITE - Waste Producer Copy YELLOW - Transporter Copy BLUE - Receiving Depot Copy

TPTPI5707



No. 01412






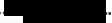
**TRANSPACIFIC**  
INDUSTRIES GROUP LTD  
TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383

875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888

### WASTE TRACKING FORM

<b>A</b> This section to be completed by Waste Producer	Name of producer <u>Air Services Australia Fire Station</u>	
	Address of producer <u>Henry Drive</u>	
	<b>TYPE OF WASTE</b> (Mark box next to waste)	<b>AMOUNT OF WASTE (LITRES)</b>
	<input checked="" type="checkbox"/> Water/Oil Mixtures	<div style="border: 1px solid black; padding: 10px; text-align: center;">12,300 Ltrs</div>
	<input type="checkbox"/> Grease Trap/Vegetable Waste	
	<input type="checkbox"/> Inert Sludges/Wool Scouring Sludge	
<input type="checkbox"/> Water Based Paint Sludges		
<input type="checkbox"/> Waste Oil		
<input type="checkbox"/> Oil Filters		
<input type="checkbox"/> Oily Rags		
<input type="checkbox"/> Other Liquid Wastes		
(Specify) .....		
I hereby declare that the above consignment is accurately described and is in proper condition for transport.		
Signature 		
Name  Date <u>7/9/10</u>		

<b>B</b> To be completed by the Transporter of the Waste	Name of Licencee <u>T-T-S</u>	
	Licence Number <u>EPWH2024</u>	
	Vehicle Registration <u>291</u>	
	I hereby acknowledge receipt of the above mentioned waste for transport.	
	Signature 	
Name  Date <u>7/9/10</u>		

<b>C</b> To be completed by the Depot receiving the Waste	Name of Depot <u>T-T-S</u>	
	Licence Number <u>EPWH2024</u>	
	I hereby declare I have received the above waste.	
	Signature 	
Name  Date <u>7/9/10</u>		

WHITE - Waste Producer Copy    YELLOW - Transporter Copy    BLUE - Receiving Depot Copy

TPTP15707

No. **00407**



**TRANSPACIFIC**  
INDUSTRIES GROUP LTD

TRANSPACIFIC TECHNICAL SERVICES  
ABN 40 010 745 383

875 Stuart Highway, Holtz, NT 0829  
PO Box 2600, Palmerston, NT 0831  
Phone: 08 8935 1104  
Fax: 08 8932 5888

### WASTE TRACKING FORM

<b>A</b> This section to be completed by Waste Producer	Name of producer <u>A. RESOURCES Australia Fire Station</u>	
	Address of producer <u>Henry Wrigley Drive</u>	
	<b>TYPE OF WASTE</b> (Mark box next to waste)	<b>AMOUNT OF WASTE (LITRES)</b>
	<input checked="" type="checkbox"/> Water/Oil Mixtures	<div style="border: 1px solid black; padding: 20px; text-align: center;">14,000</div>
	<input type="checkbox"/> Grease Trap/Vegetable Waste	
<input type="checkbox"/> Inert Sludges/Wool Scouring Sludge		
<input type="checkbox"/> Water Based Paint Sludges		
<input type="checkbox"/> Waste Oil		
<input type="checkbox"/> Oil Filters		
<input type="checkbox"/> Oily Rags		
<input type="checkbox"/> Other Liquid Wastes		
(Specify) _____		
I hereby declare that the above consignment is accurately described and is in proper condition for transport.		
Signature _____		
Name _____ Date <u>16/8/10</u>		

<b>B</b> To be completed by the Transporter of the Waste	Name of Licencee <u>T.T.S</u>	
	Licence Number <u>CPWH2024</u>	
	Vehicle Registration <u>291</u>	
	I hereby acknowledge receipt of the above mentioned waste for transport.	
	Signature _____	
Name _____ Date <u>16/8/10</u>		

<b>C</b> To be completed by the Depot receiving the Waste	Name of Depot <u>T.T.S</u>	
	Licence Number <u>CPWH2024</u>	
	I hereby declare I have received the above waste.	
	Signature _____	
	Name _____ Date <u>16/8/10</u>	

WHITE - Waste Producer Copy    YELLOW - Transporter Copy    BLUE - Receiving Depot Copy

TPTP15707

No. 00638

## **APPENDIX 7**

### **Darwin ARFFS Local Instructions**

Currently awaiting NRFC to be added to local instruction update.

Improvements to current procedure,  
evidence of change management.

#### 2.1.4 Fuel storage monitoring

Prior to using any fuel storage infrastructure, ARFFS staff is to undertake a visual inspection of its condition to ensure there is no evidence of leakage from bunds, bowzers, fuel hoses or containers etc.

The diesel, kerosene and unleaded tanks have regular and scheduled maintenance including inspection of the vacuum tank surrounding the underground tank. These inspections are conducted in accordance with MEX.

The procedure for the management and recording of fuels is as per the ARFFS Reserve Stock Management system.

#### 2.1.5 Fuel refuelling and refilling

All diesel fuel, kerosene and unleaded refuelling and refilling activities will be conducted within the confines of a sufficiently bunded area ~~the fire station's rear wash down area.~~

A spill kit is located onsite at the southern end of the workshop at the rear of the station.

#### 2.1.6 Managing and reporting leaks and spills

Determine the type and volume of spillage, exposures, equipment and facilities involved, attempt to control any leaks (spill kit, bunding and leak monitoring etc) and manage spills in accordance with local AEP.

In the event of a major spill of an ARFFS product, Darwin International Airport Limited Environment Officer shall be notified. The ARFFS officer-in-charge shall contact the Airport Safety Officer to arrange this notification.

All endeavours shall be directed to preventing any run-off from entering waterways.

~~Fire Station Manager~~ Darwin Operations Manager (DOM) is to be notified of all leaks and spills.

Any ARFFS spill details are to be recorded in the Corporate Integrated Reporting and Risk Information System (CIRRIS).

#### 2.1.7 Foam storage

The foam is delivered as required in 1000 litre totes the excess totes are stored in the Royal Wolf purpose built environmental containers that are capable of holding 4 totes each. These totes are inspected weekly for integrity and recorded on the station's weekly stock checklist.

#### 2.1.8 Foam refilling of vehicles and equipment

All foam refilling activities will be conducted within the confines of the fire station's rear wash down area. As foam decreases the separators effectiveness, the separator shall be turned off prior to filling and any spill managed.

#### 2.1.9 Vehicle Agent Discharge (AFFF)

If an operational or non-operational AFFF Agent Discharge event occurs the vehicle/s pump system will require flushing.

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Flushing of Mk8 vehicles is to be completed at the LMU. Mk8 vehicles are not to be driven on to the LMU pad. Park the vehicle as close as practical to the LMU pad.

All vehicle outlets are to be flushed with water only at the LMU training pad.

All deliveries are to be thoroughly flushed in the same order as the Daily Inspection list as per AFFM-M8.

All outlets will be flushed under low pressure.

All outlets, except the underbody sprays, will be flushed on to the LMU pad.

The underbody sprays will be drained into large containers. Before opening valve, place containers under each spray. Once completed the contents will be emptied on to the LMU pad.



The large containers are to be kept in the EVT's half shed on the portable bund.



- Notify the DOM
- Notify the station EVT
- Ensure reporting protocols and procedures are completed in accordance with ENV-001
- The foam and waste water that is contained at the LMU is to be removed by a certified waste disposal agency. The Property Manager is to be contacted to manage this process. A copy of all disposal receipts or certificates must be provided by the waste contractor and kept on file for tracking and auditing purposes.
- DIA and the Airport Environment Officer are to be notified of any AFFF discharge on DIA land. This should be facilitated through the DIA Safety Officer.

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Indent at: 3.27 cm

- RAAF Environment Officer is to be notified of any AFFF discharge on Darwin RAAF land.

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#### **2.1.92.1.10 Dangerous goods and hazardous materials**

Dangerous goods and hazardous materials used and stored should be in accordance with Hazardous Chemicals ([AA-PROC-SAF-0015](#)).

The MSDS register is available on the external southern wall next to the door of the EVT's shed in the SO's office, all other Chemdata is available through Adelaide or Brisbane FCCs.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Monday, 26 March 2018 1:44 PM  
**To:** [REDACTED]  
**Subject:** RFC 37215: Endorser - Review RFC. \*\*\* Note: This is an automated message, DO NOT REPLY TO THIS EMAIL \*\*\*

*Response Requested:* [RFC 37215: Endorser - Review RFC. \\*\\*\\* Note: This is an automated message, DO NOT REPLY](#)

*Workflow:* NRFC Darwin Fire Station Darwin Local Instructions 26/3/2018 12:56:14 PM



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Monday, 26 March 2018 1:44 PM  
**To:** [REDACTED]  
**Subject:** RFC 37215: Your RFC is now in the Endorsement Phase

FYI

Originated by : [REDACTED]

Workflow : NRFC2008-2016 - NRFC Darwin Fire Station Darwin Local Instructions 26/3/2018 12:56:14 PM

Note: It is your responsibility to monitor the progress of this RFC and to alert the RFC Coordinator if timely progress of the RFC does not occur.

NRFC ID = 37215

NRFC Name = Darwin Local Instructions DNLI\_ARFF

NRFC Description = Multiple changes of Fire Station Manager to Darwin Operations Manager, Manager Northern Regional to Western Region Manager and National Operations Centre to Network Coordination Centre throughout document. 2 Environment additional information. 2.1.3 Fuel storage Changes. 2.1.9 Vehicle Agent Discharge (AFFF) Mk8 after use foam flushing procedures updated. 7.4.2 Disposable items arrangements updated. 8.1.10 FCC automatic and manually operated staff recall notification procedures updated. 8.1.18 EVT man-down alarm procedures updated.

NIL SCARD required.

The RFC Coordinator assigned = NRFC, ARFF

To track the status of this RFC, click link below  
<<<http://nrfdetail/RFCDetail.aspx?ID=37215>>>

## 2.1.10 Other chemicals and potential contaminants

All other potential contaminating materials will be stored as detailed below.

Item	Condition
Dry Chemical Powder	DCP is delivered in 22.7 kg containers and is stored in the storage shed at the rear of the workshop.
Chemical and acids	Chemicals and acids are held on-site in small quantities. These products shall be kept segregated and stored in well-ventilated secure areas in the unit's workshops. Signage shall advise personnel of chemical storage.

## 2.1.11 Waste management and disposal *Last couple of years.*

All waste materials (oil, oil filters, contaminated fuels, acids, etc) are to be stored in their appropriately-labelled, leak-proof containers. Disposal is through a registered and licensed waste management company.

WasteMaster (Cleanaway)

(Lic number EPWHL024)

Phone: 13 13 39 (24 hours)

The occupational health and safety representative will ensure that the end disposal of ARFFS waste by the waste management company complies with relevant territory/federal legislation.

Waste	Company
General Household Wastes	Managed by P&E
Recyclable Wastes	Managed by P&E
Automotive waste products (e.g. paint, filters, fluids and soiled rags)	Cleanaway Services (Lic number EPWHL024) Phone: (08) 89351111
Tyres	Berrimah NT Tyre Service Phone: (08) 89474266 Bob Jane T Mart Casuarina Phone: (08) 89270322
Automotive batteries	Sims Metal Winnellie Phone: (08) 89843381
Oil	Cleanaway Services (Lic number EPWHL024) Phone: (08) 89351111
Contaminated water	Cleanaway Services (Lic number EPWHL024) Phone: (08) 89351111

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Automotive batteries	Sims Metal Winnellie Phone: (08) 89843381
Oil	Cleanaway Services (Lic number EPWHL024) Phone: (08) 89351111
Contaminated water	Cleanaway Services (Lic number EPWHL024) Phone: (08) 89351111

# **Darwin Local Instructions**

**DNLI\_ARFF**

**Version 25**

**Effective 5 October 2017**

Prepared: ARFFS Documentation

Authorised: Western Operations Manager – [REDACTED]

## Change Summary

Version	Date	Change Description
25	5 October 2017	<p>NRFC 35676</p> <p>Change to diesel, ULP and kerosene storage. Change to LPG control system operating procedures.</p> <p>All:</p> <ul style="list-style-type: none"><li>• ARFF updated to ARFFS</li><li>• Hyperlinks updated.</li></ul>

# Table of Contents

<b>1</b>	<b>Administration .....</b>	<b>8</b>
<b>2</b>	<b>Environment.....</b>	<b>9</b>
<b>2.1</b>	<b>Site management and operations .....</b>	<b>9</b>
2.1.1	Site access.....	9
2.1.2	Environmental policy.....	9
2.1.3	Fuel storage .....	9
2.1.4	Fuel storage monitoring .....	9
2.1.5	Fuel refuelling and refilling .....	10
2.1.6	Managing and reporting leaks and spills .....	10
2.1.7	Foam storage.....	10
2.1.8	Foam refilling of vehicles and equipment .....	10
2.1.9	Dangerous goods and hazardous materials .....	10
2.1.10	Other chemicals and potential contaminants.....	11
2.1.11	Waste management and disposal .....	11
2.1.12	Site condition monitoring.....	12
2.1.13	General site maintenance .....	12
<b>2.2</b>	<b>Vehicle and equipment management.....</b>	<b>12</b>
2.2.1	Vehicle wash down .....	12
2.2.2	Vehicle and equipment maintenance.....	12
2.2.3	Removal and storage of refrigerant gases.....	12
2.2.4	Disposal of vehicle consumables and wastes .....	13
2.2.5	Foam and monitor testing .....	13
<b>2.3</b>	<b>Training.....</b>	<b>13</b>
2.3.1	General .....	13
2.3.2	Training facilities .....	13
2.3.3	Fire training water and other wastes.....	14
2.3.4	Foam and water based training .....	14
2.3.5	Dry Chemical Powder (DCP) training .....	14
2.3.6	Extinguisher training .....	15
2.3.7	Training and smoke management .....	15
2.3.8	Management of vehicles as training aids.....	16
<b>2.4</b>	<b>Operational response.....</b>	<b>16</b>
2.4.1	Use of extinguishing agents.....	16
2.4.2	Incident procedures and reporting requirements .....	16
<b>2.5</b>	<b>ARFFS environment incident response and emergency management .....</b>	<b>16</b>
2.5.1	Initial response to spills and other environment incidents .....	16
2.5.2	Reporting and recording .....	16
2.5.3	Environment incident investigations, corrective and preventative action .....	16
2.5.4	Emergency management plans .....	17

2.5.5	Spill Containment Procedures .....	17
<b>2.6</b>	<b>Environmental value management.....</b>	<b>17</b>
2.6.1	Impact assessment and management.....	17
2.6.2	Identification, communication and conservation of environmental values.....	17
<b>2.7</b>	<b>Procurement and service provision.....</b>	<b>18</b>
2.7.1	Septic and sewer .....	18
2.7.2	Water supply .....	18
2.7.3	Electricity.....	19
2.7.4	Procurement of consumables .....	19
2.7.5	Projects and changes in practice .....	19
<b>2.8</b>	<b>Documentation and reporting .....</b>	<b>19</b>
2.8.1	Environmental risk assessment, plans and reporting .....	19
2.8.2	Record management .....	19
2.8.3	Permits and approvals .....	19
2.8.4	Assurance monitoring and reporting.....	19
<b>3</b>	<b>Equipment.....</b>	<b>20</b>
<b>3.1</b>	<b>Hazmat equipment Availability.....</b>	<b>20</b>
3.1.1	Purpose.....	20
3.1.2	Instruction.....	20
<b>3.2</b>	<b>Radios .....</b>	<b>20</b>
3.2.1	Fixed vehicle radio maintenance .....	20
3.2.2	Fixed ARFFS ultra high frequency base station radio maintenance .....	21
3.2.3	Portable radio maintenance .....	21
3.2.4	Radio procedures for access onto movement areas .....	22
<b>3.3</b>	<b>Vehicles/equipment.....</b>	<b>22</b>
3.3.1	After maintenance procedures.....	22
3.3.2	Reserve fire vehicle - Mk8 .....	22
3.3.3	Loan register .....	23
<b>4</b>	<b>Fire station .....</b>	<b>24</b>
<b>4.1</b>	<b>Large mock-up training ground operating procedures .....</b>	<b>24</b>
4.1.1	Introduction .....	24
4.1.2	Frequency of use .....	24
4.1.3	Fires .....	25
4.1.4	Exercise Safety Officer .....	25
4.1.5	Air Traffic Control approval to light requirements .....	25
4.1.6	Facility use limitations .....	26
4.1.7	Hydrocarbon fuel storage at the site.....	26
4.1.8	Access to the facility from the sealed perimeter road .....	26
4.1.9	Environment.....	26
4.1.10	Fire operations in the built-up training pad .....	27
4.1.11	Training Procedures in the mock-up area.....	27
4.1.12	Water and hydrocarbon retention system.....	27

4.1.13	Pumping and electrical operations .....	28
4.1.14	Pressurised fuel fire system .....	29
4.1.15	Oil Separator system operation (in generator shed) .....	30
<b>4.2</b>	<b>Reserve stock .....</b>	<b>31</b>
4.2.1	Minimum reserves .....	31
4.2.2	Weekly stock check .....	31
4.2.3	Aqueous film forming foam .....	31
4.2.4	Reordering .....	31
4.2.5	Diesel issue .....	32
<b>4.3</b>	<b>Training facilities .....</b>	<b>32</b>
4.3.1	Fire station training ground operating procedures .....	32
4.3.2	Hot fire fuel gantry training facility .....	33
4.3.3	Control person/Safety Officer .....	34
4.3.4	Hot fire training control bunker .....	34
4.3.5	Hot fire training ground liquid petroleum gas supply system .....	35
4.3.6	Hot fire training ground liquid fuel supply system .....	35
4.3.7	Hot fire gantry fuel control procedures .....	35
4.3.8	Liquid hydrocarbon fuel system operating procedures .....	36
4.3.9	Liquid petroleum gas control system operating procedures .....	36
4.3.10	Smoke/fire training facility (Fire House) .....	37
4.3.11	Waste water retention pond .....	37
4.3.12	Mobile aircraft training mock-up .....	40
4.3.13	Training facility operator/Safety Officer instructions checklist .....	40
<b>5</b>	<b>Human resources .....</b>	<b>41</b>
<b>5.1</b>	<b>Staff qualifications and licensing .....</b>	<b>41</b>
<b>5.2</b>	<b>Ratings Progression .....</b>	<b>41</b>
<b>6</b>	<b>Vacant .....</b>	<b>42</b>
<b>7</b>	<b>Work Health and Safety .....</b>	<b>43</b>
<b>7.1</b>	<b>High visibility clothing .....</b>	<b>43</b>
7.1.1	High visibility vests .....	43
<b>7.2</b>	<b>Clinical waste and disposal procedures .....</b>	<b>43</b>
<b>7.3</b>	<b>Special cleaning procedures .....</b>	<b>44</b>
7.3.1	Applicability .....	44
7.3.2	Procedures .....	44
<b>7.4</b>	<b>After incident or casualty handling .....</b>	<b>44</b>
7.4.1	Protective clothing .....	44
7.4.2	Disposable items .....	44
7.4.3	Suspected high risk contamination .....	45
<b>7.5</b>	<b>Decontamination procedures .....</b>	<b>45</b>
<b>8</b>	<b>Operations .....</b>	<b>47</b>
<b>8.1</b>	<b>Fire Control Centre procedures .....</b>	<b>47</b>



8.1.1	Fire Control Centre .....	47
8.1.2	Local Procedures .....	47
8.1.3	Oncoming FCC Operators procedures .....	47
8.1.4	Daily inspection .....	47
8.1.5	Weekly crash alarm procedures .....	48
8.1.6	Alarm escalation testing processes .....	49
8.1.7	Failure of crash alarm facilities .....	50
8.1.8	Failure of main fire station alert system .....	50
8.1.9	Failure of main and back up fire station crash alarm and/or alert system .....	50
8.1.10	FCC automatic and manually operated staff recall notification procedures .....	50
8.1.11	Fire alarms monitored on Darwin Firemon System .....	51
8.1.12	AFA activation RAAF and domestic (civilian) .....	51
8.1.13	Escalation of fire alarms.....	52
8.1.14	Actions required on receiving Escalated RAAF Fire Alarm .....	52
8.1.15	Procedures in event of receiving Fault Activations .....	52
8.1.16	FCC procedures required in event of RAAF Communications failure to Firemon.....	53
8.1.17	Recording of events .....	53
8.1.18	EVT man-down alarm .....	53
8.1.19	Non crash alarm notification .....	54
<b>8.2</b>	<b>Hydrant replenishment/designated hydrants .....</b>	<b>54</b>
8.2.1	Reference.....	54
8.2.2	Designated hydrants .....	54
8.2.3	Hydrant testing.....	54
<b>8.3</b>	<b>Darwin runway viewing camera system .....</b>	<b>54</b>
8.3.1	Reference.....	54
8.3.2	Runway camera .....	55
8.3.3	Operation of the camera controls .....	55
8.3.4	Viewing monitors.....	55
8.3.5	Faults and maintenance.....	55
<b>8.4</b>	<b>Limited visibility procedure .....</b>	<b>57</b>
8.4.1	Purpose.....	57
8.4.2	Reference.....	57
8.4.3	Air Traffic Control advice.....	57
8.4.4	Response to an incident .....	57
<b>8.5</b>	<b>Pre-incident panning.....</b>	<b>57</b>
8.5.1	Pre-incident pans .....	57
8.5.2	Response to automatic fire alarm activation.....	58
8.5.3	Aircraft incident response .....	60
8.5.4	Response to fires on/off the airport.....	60
8.5.5	Darwin tactical plan and resources for category 8.....	61
8.5.6	Standby positions.....	62
8.5.7	Notification of the Fire Station Manager or Incident Command System Officer .....	62
8.5.8	High voltage sub-station procedures .....	63

<b>8.6</b>	<b>Response preparedness and response time tests.....</b>	<b>64</b>
8.6.1	Response preparedness procedures.....	64
8.6.2	Vehicle Response Time tests and routes to be taken .....	64
<b>8.7</b>	<b>Special risk areas .....</b>	<b>65</b>
8.7.1	Environment Australia .....	65
8.7.2	Royal Australian Air Force explosive ordinance facility .....	66
8.7.3	Royal Australian oxygen storage facility .....	66
<b>9</b>	<b>Safety Management.....</b>	<b>67</b>
<b>9.1</b>	<b>Portfolio Responsibilities .....</b>	<b>67</b>
<b>9.2</b>	<b>On-airport driver brake demonstration procedure .....</b>	<b>67</b>
<b>9.3</b>	<b>Off-airport driver training procedures .....</b>	<b>68</b>
<b>9.4</b>	<b>Darwin cyclone procedures.....</b>	<b>68</b>
9.4.1	Introduction .....	68
9.4.2	References.....	68
9.4.3	Stage 1 .....	68
9.4.4	Stage 2.....	68
9.4.5	Stage 3.....	69
9.4.6	Stage 4.....	69
9.4.7	Stage 5.....	69
9.4.8	All clear .....	69
9.4.9	Post disaster - initial actions .....	70
9.4.10	Post disaster – continuance.....	70
<b>10</b>	<b>Security .....</b>	<b>71</b>

# 1 Administration

NA

## 2 Environment

### 2.1 Site management and operations

#### 2.1.1 Site access

The ARFFS station is located on Darwin International Airport. Site access is via Emergency Gate I, Pederson Road. Escort arrangements are required to gain access to the site via Emergency gate I. This can be facilitated by contacted ARFFS on [REDACTED]

Site Registration and Induction should be in accordance with Contractor and Visitor Management ([HR-128](#)) and ARFFS Contractor and Visitor Checklist

#### 2.1.2 Environmental policy

Amendments of Environment Management ([ENV-001](#)) will be managed in accordance with ARFFS Change Management Procedure ([SMS-105](#)).

#### 2.1.3 Fuel storage

The following describes the specific conditions for storage of fuel in accordance with [ENV-001](#).

Item	Condition
Diesel Fuel	Diesel fuel is delivered in bulk on an as-required basis and stored in a 5000 litre compartment tank located northern end of the workshop at the rear of the fire station.
Training fuel	Kerosene (Jet-A1) Training fuel is stored in a 1000 litre tank situated on the bunded section of the Christmas tree at the rear of the station. Rainwater is drained from the bunded area as necessary (once staff has ensured no potential contamination exists – such as a fuel slick on the water). Training fuel offered to ARFFS by other organisations is not to be accepted.
Fuel Containers	Fuel containers are stored in the fuel trailer and in the flammable liquid cabinet in the rear shed, near the smoke house.
Fuel Storage Signage	All site fuel signage will be in accordance with Airservices Australia Environmental guidelines for fuel.

#### 2.1.4 Fuel storage monitoring

Prior to using any fuel storage infrastructure, ARFFS staff is to undertake a visual inspection of its condition to ensure there is no evidence of leakage from bunds, bowsers, fuel hoses or containers etc.

The diesel, kerosene and unleaded tanks have regular and scheduled maintenance including inspection of the vacuum tank surrounding the underground tank. These inspections are conducted in accordance with MEX.

The procedure for the management and recording of fuels is as per the ARFFS Reserve Stock Management system.

## **2.1.5 Fuel refuelling and refilling**

All diesel fuel, kerosene and unleaded refuelling and refilling activities will be conducted within the confines of the fire station's rear wash down area.

A spill kit is located onsite at the southern end of the workshop at the rear of the station.

## **2.1.6 Managing and reporting leaks and spills**

Determine the type and volume of spillage, exposures, equipment and facilities involved, attempt to control any leaks (spill kit, bunding and leak monitoring etc) and manage spills in accordance with local AEP.

In the event of a major spill of an ARFFS product, Darwin International Airport Limited Environment Officer shall be notified. The ARFFS officer-in-charge shall contact the Airport Safety Officer to arrange this notification.

All endeavours shall be directed to preventing any run-off from entering waterways.

Fire Station Manager is to be notified of all leaks and spills.

Any ARFFS spill details are to be recorded in the Corporate Integrated Reporting and Risk Information System (CIRRIS).

## **2.1.7 Foam storage**

The foam is delivered as required in 1000 litre totes the excess totes are stored in the Royal Wolf purpose built environmental containers that are capable of holding 4 totes each. These totes are inspected weekly for integrity and recorded on the station's weekly stock checklist.

## **2.1.8 Foam refilling of vehicles and equipment**

All foam refilling activities will be conducted within the confines of the fire station's rear wash down area. As foam decreases the separators effectiveness, the separator shall be turned off prior to filling and any spill managed.

## **2.1.9 Dangerous goods and hazardous materials**

Dangerous goods and hazardous materials used and stored should be in accordance with Hazardous Chemicals ([AA-PROC-SAF-0015](#)).

The MSDS register is available in the SO's office, all other Chemdata is available through Adelaide or Brisbane FCCs.

## 2.1.10 Other chemicals and potential contaminants

All other potential contaminating materials will be stored as detailed below.

Item	Condition
Dry Chemical Powder	DCP is delivered in 22.7 kg containers and is stored in the storage shed at the rear of the workshop.
Chemical and acids	Chemicals and acids are held on-site in small quantities. These products shall be kept segregated and stored in well-ventilated secure areas in the unit's workshops. Signage shall advise personnel of chemical storage.

## 2.1.11 Waste management and disposal

All waste materials (oil, oil filters, contaminated fuels, acids, etc) are to be stored in their appropriately-labelled, leak-proof containers. Disposal is through a registered and licensed waste management company.

WasteMaster (Cleanaway)

(Lic number EPWHL024)

Phone: 13 13 39 (24 hours)

The occupational health and safety representative will ensure that the end disposal of ARFFS waste by the waste management company complies with relevant territory/federal legislation.

Waste	Company
General Household Wastes	Managed by P&E
Recyclable Wastes	Managed by P&E
Automotive waste products (e.g. paint, filters, fluids and soiled rags)	Cleanaway Services (Lic number EPWHL024) Phone: (08) 89351111
Tyres	Berrimah NT Tyre Service Phone: (08) 89474266 Bob Jane T Mart Casuarina Phone: (08) 89270322
Automotive batteries	Sims Metal Winnellie Phone: (08) 89843381
Oil	Cleanaway Services (Lic number EPWHL024) Phone: (08) 89351111
Contaminated water	Cleanaway Services (Lic number EPWHL024) Phone: (08) 89351111

## **2.1.12 Site condition monitoring**

The Fire Station Manager must be notified via email of any indication of damage or decay of sealed surfaces, bunds or training pads. This may include, but is not limited to, cracked surfaces, stained surfaces or hydrocarbon odours. This information is to be passed by the Duty Officer to Projects and Engineering (P&E) Property Operations for rectification.

## **2.1.13 General site maintenance**

ARFFS will endeavour to use products that are environmentally friendly.

All maintenance activities are to be undertaken in accordance with the requirements of on-ground activities ( [PROC265](#)

# **2.2 Vehicle and equipment management**

## **2.2.1 Vehicle wash down**

All cleaning of vehicles must be done in the vehicle wash-down area at the rear of the station. This includes activities such as engine steam cleaning, degreasing, and general washing of vehicles.

The area is designed so that all contaminants are washed down into the separation pit and not released into the airport drainage systems.

## **2.2.2 Vehicle and equipment maintenance**

All scheduled EVT maintenance of vehicles and equipment is to be conducted in the Mechanical Workshop or wash-down areas unless it is not possible to do so.

With the exception of equipment that has purpose-designed maintenance areas (CABA), all fire fighter vehicle and equipment maintenance is to be conducted within the Fire Station workshop or the rear wash-down bay.

## **2.2.3 Removal and storage of refrigerant gases**

The removal and storage of refrigerant gases undertaken by ARFFS are the responsibility of the EVT personnel.

All procedures are to consider the Australian Automotive Code of Practice 2008: Control of refrigerant gases during manufacture, installation, servicing or decommissioning of motor vehicle air conditioners.

## 2.2.4 Disposal of vehicle consumables and wastes

The disposal of vehicle consumables and waste is detailed previously in Site Management and Operations Waste Management and Disposal.

All procedures and requirements are to be in accordance with Section 4.12 of [ENV-001](#).

## 2.2.5 Foam and monitor testing

All vehicle maintenance in relation to the foam system and/monitor is to occur at the Fire Training Ground to ensure that any foam produced will be contained within the confines of the concrete bunded area.

## 2.3 Training

### 2.3.1 General

Darwin Hot Fire Training Facilities are located on the Airservices leases:

- North West of the 18 Threshold (LMU)
- at the rear of the station on the western side of the workshop (Gas training rig, Smoke House and CFBT).

Hot fire training must only be undertaken at either of these two facilities which are purpose built for hot fire training. Both facilities are surrounded by a bunded area.

### 2.3.2 Training facilities

All ARFFS staff members are to ensure training activities do not encroach on or disturb environmentally sensitive or important areas. The following outlines the procedures for the environmental facilities, use and servicing at the LMU training ground.



Action	Procedure
Operation of the Training Ground Environmental System	The gate control valve that limits the run-off of water to the open drain must be closed prior to any pouring of fuels or training commencing. Note: The 'red flag' must be flown on the bollards adjacent to the raised pad when the valves on the water processing facility are set to 'Stormwater Waste'.
Storm Water Disposal	The stormwater is diverted to the open drain by opening the discharge gate valve adjacent to the concrete pad. Notes: If this valve is open, ensure the gate valve to the processing tank is closed. The 'red flag' must be flown on the bollards adjacent to the raised pad when the valves on the water processing facility are set to 'Stormwater Waste'. Prior to being opened the pad is to be washed clean of fuel.
Oil Separator Servicing	The ARFFS EVT is responsible for service and maintenance of the holding tanks' oil separators, installed at the rear of the fire station and at the training ground. For the removal of oils contact: Cleanaway Services Phone: (08) 89351111

### 2.3.3 Fire training water and other wastes

Liquid waste from the LMU area is currently removed by a licensed contractor, Cleanaway Services (Lic number EPWHL024) Phone: (08) 89351111.

Liquid waste from the training areas adjacent to the fire station is to be retained in the bunded area and treated before release to sewer.

### 2.3.4 Foam and water based training

In line with the Manager National Operations Memo Ref: 01/10. The practice of using Fire Fighting Foam for training activities has ceased.

The following procedures apply when using the training ground area:

- The bunded area houses the large mock-up and the hot fire training facility and is to be used for all hot fire training involving flammable liquids and dry chemical powder.
- Kerosene is the accepted flammable liquid used for training purposes. Small amounts of unleaded petrol may be used as an accelerant.
- Hot fire training incorporating carbon-based materials (i.e. freighter fires) are acceptable in the bunded area.
- For operating instructions for the environmental system at the training grounds refer to [4.3 Training facilities](#).

### 2.3.5 Dry Chemical Powder (DCP) training

The 225 kg DCP unit is to be tested in conjunction with hot fire training sessions at the training ground.

All DCP extinguisher training shall be conducted on the bunded area at the training ground.

DCP Training should (where possible) be avoided on windy days.

### **2.3.6 Extinguisher training**

All practical fire extinguisher training is to be conducted on the bunded area at the rear of the station. Residual powder left in DCP extinguishers after discharge will be placed in the large waste management bin for removal/disposal. Unless express permission has been sought and obtained from MQAC, only BE type (Purple K) DCP shall be used in ARFFS extinguishers and training.

### **2.3.7 Training and smoke management**

Fire training at Airports regulated by the Airports Act 1996 is to be conducted in accordance with the 'Agreement under sub-regulation 4.02(2) Airports (Environment Protection) Regulations 1997 in relation to the emission of dark smoke - Head Agreement' dated 8th June 2012.

ARFFS has entered into an agreement with the Department of Infrastructure, Transport, Regional Development and Local Government obliging us to inform the relevant authorities of ARFFS activities that may cause dark smoke emissions.

In this event, at least one hour prior to commencement, the airport lessee company and the airport environmental officer must be notified via Darwin Local Form DNF 244.

In the interests of minimising the effect of dark smoke emissions, (where possible) training officers should program night training for activities that are likely to produce dark smoke emissions.

To ensure that aircraft operations are not adversely affected by ARFFS training activities, the fire officer is to gain approval from the on-duty tower controller prior to lighting training fires.

Contact phone numbers will be listed on the Darwin Local Form DNF 244.

Issuing authority	Contact number
Darwin International Airport Terminal Control Centre	Refer DNF 244
Airport Environment Officer Health Safety and Environment Manager	Refer DNF 244

### **2.3.8 Management of vehicles as training aids**

Vehicles brought on site for use as a training aid are to be free of fuel and oil.

Training (where possible) should be conducted on the concrete pad surrounding the smoke hut.

Disposal of vehicles will be coordinated by the Fire Station Manager.

## **2.4 Operational response**

### **2.4.1 Use of extinguishing agents**

During all operational responses, ARFFS personnel must (where possible):

- avoid the uncontrolled dispersal of extinguishing agents
- cease the flow of extinguishing agents when not required.

### **2.4.2 Incident procedures and reporting requirements**

All ARFFS operational responses involving the use of foam are to be reported and recorded in accordance with section 8 of [ENV-001](#).

## **2.5 ARFFS environment incident response and emergency management**

### **2.5.1 Initial response to spills and other environment incidents**

ARFFS responses to spills and other environment incidents will be managed in accordance with [ENV-001](#), local AEP, and relevant ARFFS [SOPs](#).

### **2.5.2 Reporting and recording**

All Airservices internal reporting and recording is to be undertaken in accordance with section 8.6 of [ENV-001](#).

DIA and the AEO are to be notified of any significant spill. This should be facilitated through the DIA Airport Safety Officer.

### **2.5.3 Environment incident investigations, corrective and preventative action**

Environment incident investigations, corrective and preventative action will be undertaken by the Environment Portfolio Holder where required and in accordance with Section 8.3 of [ENV-001](#).

## 2.5.4 Emergency management plans

Emergency Management Plans for ARFFS Darwin are documented in Darwin Contingency Plan ([DNCP ARFF](#)) and as per local AEP.

## 2.5.5 Spill Containment Procedures

To contain any spills of foam or other harmful liquids from the Darwin Fire Station and Station training ground the following steps are to be taken:

- The two open drains that flow into the main airport drainage system are to be blocked using sandbags and plastic sheeting.
- The occurrence is to be reported as soon as possible as per normal reporting procedures described in ENV001.
- The water that is contained in the temporary dam is to be removed by a certified waste disposal agency. The Property Manager is to be contacted to manage this process.

Plastic sheeting and sandbags to complete the temporary dam are to be stored on a pallet in the fire station store shed for rapid deployment in the event of an accidental discharge of foam or other harmful liquids from the Fire Station or training ground.

## 2.6 Environmental value management

### 2.6.1 Impact assessment and management

Environmental assessments and ongoing management requirements are undertaken within the site by the Airservices Environment Group.

ARFFS staff is to ensure that training activities do not conflict with environmental investigation works. If there is any doubt, staff are to seek clarification from the Fire Station Manager.

Environmental management requirements are to be communicated to all personnel and site visitors in accordance with ARFFS Contractor and Visitor Checklist.

### 2.6.2 Identification, communication and conservation of environmental values

The Airservices Environment Group will identify and manage any identified areas of environmental significance.

An Environment Manifest will be available on site to document areas that may include but not be limited to:

- establishment of no go areas and
- areas of environmental significance.

Environment Manifests are to be reviewed as part of site induction.

Identified areas listed above are to be recorded within MEX.

There are currently no areas identified within the Darwin aerodrome.

## **2.7 Procurement and service provision**

### **2.7.1 Septic and sewer**

The process for reporting observed faults or issues requiring maintenance will be in accordance with Section 10.1 of [ENV-001](#).

### **2.7.2 Water supply**

The process for reporting observed faults or issues requiring maintenance will be in accordance with Section 10.2 of [ENV-001](#).

All endeavours shall be made to reduce the consumption of water. By altering housekeeping practices (i.e. sweeping instead of hosing), water usage can be significantly reduced.

### **2.7.3 Electricity**

All endeavours shall be made to reduce the consumption electricity. By altering housekeeping practices (i.e. turning off lights during the day), power usage can be significantly reduced.

### **2.7.4 Procurement of consumables**

ARFFS Darwin will endeavour to purchase products that are environmentally friendly.

Where possible and without limiting the purchasing options of the unit, detergents for general use or vehicle washing shall be bio-degradable.

New products will be supported by MSDS where necessary, if not already on the station registry.

### **2.7.5 Projects and changes in practice**

New projects, changes in practice or upgrades to ARFFS managed facilities that may impact the environment must be managed in accordance with Section 10.5 of [ENV-001](#).

## **2.8 Documentation and reporting**

### **2.8.1 Environmental risk assessment, plans and reporting**

Environmental risk assessments, plans and reporting requirements are to be managed and maintained in accordance with [ENV-001](#), section 11.1.

### **2.8.2 Record management**

Auditable records and supporting documentation in relation to the Site will be managed and maintained in accordance with [ENV-001](#), section 11.2.

### **2.8.3 Permits and approvals**

Permits and approvals will be managed and maintained in accordance with [ENV-001](#), section 11.3.

### **2.8.4 Assurance monitoring and reporting**

Assurance monitoring and reporting will be managed and maintained in accordance with [ENV-001](#), section 11.4.

## **3 Equipment**

### **3.1 Hazmat equipment Availability**

#### **3.1.1 Purpose**

The purpose of this instruction is to:

- give direction for the continuous availability of the hazardous materials (HazMat) equipment
- ensure that the scheduled maintenance is carried out in accordance with the MEX Maintenance Policies.

#### **3.1.2 Instruction**

The HazMat equipment will be stored in the breathing apparatus maintenance room.

Upon request from the responding senior officer (Fire Commander or Station Officer) that the HazMat equipment be dispatched to the HazMat incident site, the equipment is to be loaded into the general use vehicle and transported to the incident site.

The required inspections of the HazMat equipment are to be carried out by a nominated crew member when scheduled on MEX. The inventory board is to be used and signed when inspections are being carried out

## **3.2 Radios**

### **3.2.1 Fixed vehicle radio maintenance**

#### **3.2.1.1 Fixed vehicle very high frequency and ultra high frequency**

No spare operational radios are kept at fire stations.

If a radio on a vehicle becomes unserviceable, the Fire Commander/Station Officer (SO) will carry an additional portable very high frequency (VHF) radio on the vehicle.

#### **3.2.1.2 Vehicle radio repairs**

All VHF and ultra high frequency vehicle radios will be repaired by Vertel Communications on a replacement and return system.

Radios found to be faulty will be reported to ARFFS Emergency Vehicle Technician (EVT) staff. Faults will be raised on MEX. EVTs will organise the replacement radio and complete installations.

The above will be responsible to identify the problem and contact Vertel on 1300 837 835 to arrange for replacement radios.

Once replaced, the unserviceable radio will be dispatched to Vertel for repair.

### **3.2.2 Fixed ARFFS ultra high frequency base station radio maintenance**

ARFFS ultra high frequency base station and repeater is sited in the Fire Control Centre Equipment Room.

Failures of this equipment will be reported to Fire Commander and Station Officer for implementation of replacement procedures. MEX fault procedures will be implemented.

The above will contact Vertel on 1300 837 835 to report equipment fault or failure.

Vertel Communications will organise the repair/replacement as appropriate.

No performance testing will be carried out on this system, only radio system failure maintenance.

### **3.2.3 Portable radio maintenance**

#### **3.2.3.1 Portable radio battery numbering**

As the radios are centrally maintained by Vertel the radios WILL NOT be marked with station numbering. Batteries will use their serial numbers as their identifiers.

#### **3.2.3.2 Daily testing procedures**

Daily testing procedures will be completed in accordance with the [Aviation Fire Fighting Manuals](#).

Portable radios will be rotated with spares held in the chargers as part of the morning daily vehicle inspection as per MEX instruction.

#### **3.2.3.3 Radio failure**

Ascertain if the failure is due to the radio or the battery. (Swap battery to check.)

If the fault is not rectified by replacing the battery, the radio is to be quarantined. The Fire Commander (FC) will advise the Fire Station Manager.

A 'hot swap' will be arranged and ESIR reporting considered.

#### **3.2.3.4 Radio repairs**

Portable radios are maintained by Vertel Communications.

Radio failures will be reported to Fire Commander and Station Officer for implementation of replacement procedures.

MEX fault procedures are to be completed on any radio failure.

The above will contact Vertel on 1300 837 835 to report equipment fault or failure.

Vertel Communications will organise the repair/replacement as appropriate.



## 3.2.4 Radio procedures for access onto movement areas

### 3.2.4.1 Radio communications

Vehicles positioned at the fire station shall have their radios (fixed and portable) tuned to the following frequencies.

Radio	Channel	Frequency	Airport site
Very high frequency (VHF) (air)	1	██████	Aerodrome Control
Ultra high frequency (UHF)	1		Fire Control Centre operator

Radio frequencies ██████ (VHF) and Channel 1 (UHF) are to be utilised for emergency response.


Notify the tower as soon as turnout is in progress.

Clearance to enter the flight strip must be obtained at all times.

Clearance to enter taxiways must be obtained from Surface Movement Control (SMC) for non-emergency movements. Location, destination and required taxiway must be stated.

In an emergency response, the ARFFS will notify SMC when they are entering a taxiway, with brief advice of destination.

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Note : All clearances must be acknowledged with read back confirmation of the clearance given.

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## 3.3 Vehicles/equipment

### 3.3.1 After maintenance procedures

#### 3.3.1.1 Introduction

The following instruction details the procedures for maintenance of vehicles and equipment returned to service after mechanical maintenance.

#### 3.3.1.2 Instruction

Any vehicle returned to service after long-term maintenance is to have all relevant inspections completed, prior to being brought on line.

Any vehicle returning to service after routine maintenance is to have the relevant inspection completed, prior to being brought on line.

Any piece of equipment returned to service after mechanical or specialist maintenance is to have an appropriate operational check completed to ensure it is working correctly, before being stowed into an operational position on a vehicle.

Checks and inspections are scheduled and recorded on MEX.

### 3.3.2 Reserve fire vehicle - Mk8

#### 3.3.2.1 Availability of reserve Mk8

The reserve Mk8 is normally located in the emergency vehicle technician (EVT) workshop.

The EVTs will tag-out the vehicle when it is not available to be immediately brought into service.

The EVTs will advise the Fire Commander (FC) if it is known that the reserve vehicle will not be readily available for an extended period.

Any unavailability advice received for the spare Vehicle that carries over into another shift will be handed over to the oncoming officer and recorded in the handover log.


### **3.3.2.2 Access to emergency vehicle technician workshop**

For safety reasons ARFFS operational staff should always advise the EVT when entering the workshop.

The FC has access to a workshop key if access is required to obtain the reserve vehicle.

Time permitting the FC should attempt to advise the senior EVT and the Fire Station Manager (FSM) when the reserve vehicle has been obtained 'after hours'.

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Note : After hours include any time the workshop is locked.

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### **3.3.3 Loan register**

At The instruction of the MNO no ARFFS equipment is to be loaned to anyone or any organisation.

## **4 Fire station**

### **4.1 Large mock-up training ground operating procedures**

#### **4.1.1 Introduction**

##### **4.1.1.1 Location**

The large mock-up training ground is situated north-west of the main fire station, on a 12.3 hectare site leased from the Department of Defence.

##### **4.1.1.2 Operating procedures**

In accordance with the lease requirements, specific instructions are issued pertaining to the use of this facility. These include information regarding the following:

- frequency of use
- fires
- fax notification of intended usage
- Air Traffic Control approval to light requirements
- usage of facility limitations
- safety officer
- hydrocarbon fuel storage at the site
- access to the facility from the sealed perimeter road
- environmental instructions.

#### **4.1.2 Frequency of use**

##### **4.1.2.1 Training area open/closed**

The training ground will only be used from the cessation of the wet season (approx.) b1 April and the onset of the wet season (possibly December).

The Fire Station Manager will declare the training area open/closed.

Hot fire training will take place at a secondary training facility at the rear of the fire station, if the above is not available.

Limited Non External Fire training can occur at the LMU in the wet season providing the ground is not wet.

Small internal fires are able to be utilised but care must be taken to ensure that NO vehicles traverse off the built up pad area.

EXTREME caution must be paid to the possibility of FOD pickup by vehicles and equipment.

(text deleted)

### **4.1.3 Fires**

#### **4.1.3.1 External fires**

Fuel for external fires will consist of authorised liquid hydrocarbon fuel only.

#### **4.1.3.2 Internal fires**

Fuel for internal fires will consist of hay only.

#### **4.1.3.3 Multi-vehicle attack**

Fires for a multi-vehicle attack will consist of no more than 150 litres of fuel on either side of the mock-up, as per agreement with the Australian Defence Force.

#### **4.1.3.4 Single vehicle attack**

Fuel usage for single vehicle attack will be limited to 150 litres of fuel on one side of the mock-up.

#### **4.1.3.5 Engine, wheel and auxiliary power unit fires**

Fuel burners will be used to simulate engine, wheel and auxiliary power unit fires.

### **4.1.4 Exercise Safety Officer**

#### **4.1.4.1 Appointment**

Prior to operation of the training facility, an exercise safety officer must be appointed to be responsible for the safety control of operations on the site.

#### **4.1.4.2 Inspection**

A pre-ignition inspection of the facility must be undertaken by the designated exercise safety officer.

#### **4.1.4.3 Controls operation**

Operation of the controls for the training aid must only be undertaken by staff who has received the operation and familiarisation briefing on the use and safety aspects of the facility.

### **4.1.5 Air Traffic Control approval to light requirements**

Prior to the lighting of fires in the training ground, approval will be obtained from the tower. The tower permission criteria will relate to the:

- wind direction
- aircraft movements or
- other physical conditions

that would adversely affect the safe operations of the airport.

The wind direction notification is obtained from the tower. When wind direction is indicated as 070 degrees to 110 degrees, no fires are to be lit around the mock-up.

If, in the opinion of the tower supervisor, the wind direction is likely to encroach in the 070 degree to 110 degree arc during the anticipated training time, approval to light will not be given.

#### 4.1.6 Facility use limitations

Where possible, all fires are to be contained within the concrete pad areas of the training area.

Specific fires that are set in steel trays outside of the concrete pad are to have the residue fuels/foam, etc., disposed of onto the concrete pad for environmental safety.

External fires on the concrete pad are to have a maximum of 300 litres of fuel per exercise.

(text deleted)

#### 4.1.7 Hydrocarbon fuel storage at the site

On-site hydrocarbon fuel storage will be limited to the contents of the 120-litre storage tank attached to the fuel pump for the burners. This is housed inside the control enclosure which is within a bunded area.

#### 4.1.8 Access to the facility from the sealed perimeter road

Access to the training facility from the sealed perimeter road will only be via the designated entry/exit points. These points are to be marked by two white posts adjacent to the roadway.

Maintenance of the ground at these entry points is the responsibility of ARFFS.

#### 4.1.9 Environment

##### Concrete pad confinement

Specific fires that are set in steel trays outside of the concrete pad are to have the residue fuel disposed onto the concrete pad for processing.

##### Training exercise waste

All waste after training exercises is to be retained within the first settling tank for a period of 24 hours, prior to being processed through the separators.

The first settling/separating tank will be emptied of any hydrocarbon products at three-monthly intervals.

Sampling for hydrocarbons in the waste water will be done annually, taken from the discharge outlet of the final separator. These results will be sent to Facilities Management Services.

##### Cleaning of Training Pad prior to the wet season

Prior to the onset of the wet season, the concrete pad will be hosed free of hydrocarbons, and the discharge of rain water will be diverted via the 'stormwater waste valve' to the leased site. This is achieved by operation of the control gate valves.



The 'red flag' must be flown on the bollards adjacent to the raised pad when the valves on the water processing facility are set to 'Stormwater Waste'.

---

## 4.1.10 Fire operations in the built-up training pad

### 4.1.10.1 Operation of the water control valves

The gate control valve that limits the run-off of water to the open drain must be closed prior to any pouring of fuels or training commencing.



Note: The 'red flag' must be flown on the bollards adjacent to the raised pad when the valves on the water processing facility are set to 'Stormwater Waste'.

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### 4.1.10.2 Operation of the fixed stairs

The fixed stairs at the rear of the mock-up are for safety and setup of exercise use only. They are not to be included as part of access during a training exercise.

## 4.1.11 Training Procedures in the mock-up area

### 4.1.11.1 Limitations

No fires are to be lit inside of the concrete border that surrounds the rear of the mock-up.

No fire truck is to drive onto the ramp leading to the concrete pad area.

### 4.1.11.2 Monitor operator responsibility

Monitor operators are to ensure that they do not aim the monitor jet at the ramp area, as this will dislodge debris onto the concrete pad.

### 4.1.11.3 Doors and stairs

The doorways have knee and chest level chains fitted. These must be in position unless the stairs or a ladder is in use at the doorways.

The opening on the handrail around the wings must be left in the closed and secured position unless a ladder is pitched for use in training.

The doors and over-wing exits when used in conjunction with ladders must be restrained by the locking chain in the fully open position.

### 4.1.11.4 Eye wash facility

A safety eyewash facility is installed for emergency use in the pumping enclosure. Maintenance procedures and timings for this are programmed on MEX.

## 4.1.12 Water and hydrocarbon retention system

### 4.1.12.1 Waste water to storm drain (rainwater)

The stormwater is diverted to the open drain by opening the discharge gate valve adjacent to the concrete pad.




- Note:
1. If this valve is open, ensure the gate valve to the processing tank is closed.
  2. The 'red flag' must be flown on the bollards adjacent to the raised pad when the valves on the water processing facility are set to 'Stormwater Waste'.
  3. Prior to being opened the pad is to be washed clean of fuel.
-

#### **4.1.12.2 Water/hydrocarbon produced as a result of training**

The water and any other products of training are to be discharged from the concrete pad into the first processing tank. (The approximate capacity of the tank is 12 000 litres.) This is controlled via the gate valve adjacent to the concrete pad.

Further procedures are listed below.

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Note : All discharge from the concrete pad into the first processing tank must sit in this tank for 24 hours before it is processed through the oil separator.

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### **4.1.13 Pumping and electrical operations**

#### **4.1.13.1 Introduction**

The fire ground has two buildings other than the mock-up. They are the:

- generator shed
- pumping enclosure.

#### **4.1.13.2 Generator shed**

The generator shed houses the:

- diesel generator
- oil separator and irrigation pumps
- irrigation control panel.

For night operations, a 12-volt light is fitted to provide safety illumination to the area.

#### **4.1.13.3 Generator**

The fuel tank capacity is approximately 30 litres. It is fitted with a manual start position on the control box adjacent to the generator.

#### **4.1.13.4 Generator shed control panel**

The generator control panel consists of:

- manual stop/start position for the generator
- stop/start for the separator and irrigation pumps.

#### **4.1.13.5 Pumping enclosure**

The pumping enclosure houses the:

- fuel tank/fuel pump
- pump controls/fuel control manifold for the pressure fuel fires
- separator for separating hydrocarbons from other liquids
- controls for remote start/stop/emergency stop of the generator.

For night operations, a 12-volt light is fitted to provide safety illumination to the area.

## 4.1.14 Pressurised fuel fire system

### 4.1.14.1 System

The pressurised fuel fire system consists of:

System compound	Details
120-litre fuel tank	Holds the fuel for supply to the pressurised fuel fires
Isolation valve	Shuts off the fuel supply from the tank
In-line fuel filter	Filters out any impurities in the fuel
Emergency cut-off valve	Operated by the emergency cut-off knob to isolate fuel flow
Manifold distribution point	Allows fuel to be distributed to any of four points on the aircraft
Fuel pump control panel	Stops and starts the generator (remotely) Stops and starts the fuel pressurisation pump Closes the emergency fuel cut-off valve

### 4.1.14.2 Operation

The following steps detail the operation of the pressurised fuel system.

- 1) Open the fuel tank isolation valve
- 2) Ensure the emergency cut-off knob is in open mode. (the knob rotates in the direction of the arrow)
- 3) Select desired outlet delivery valve/valves into the open position
- 4) Start generator with the 'Start' button
- 5) Prime fuel outlet points with sufficient fuel to enable ignition
- 6) Start the fuel pump
- 7) Control the flow using the manifold valves, by partly or fully opening, as required

### 4.1.14.3 Shut-down


The following steps detail the shut-down of the pressurised fuel system.

- 8) Stop the fuel pump
- 9) Close the distribution valve/s
- 10) Close the fuel tank isolation valve
- 11) Shut down the generator (if no water processing is to take place)



## 4.1.15 Oil Separator system operation (in generator shed)

---

Warning : After use, the water/hydrocarbons must sit in the holding tank for 24 hours before it is allowed through the oil separator.

---

### 4.1.15.1 Operation

The following steps detail the operation of the oil separator system.

- 1) Ensure
  - the generator has sufficient fuel
  - the emergency cut-off switch on the oil separator control panel is in the deactivated position. (Rotate the red knob in the direction of the arrow).
  - Press the generator "start" button
  - the switch on the generator control box is in the ON position
- 2) Press the oil separator "Start" button (green) The pump should start.

---

Note : The generator takes three - five seconds before it starts.

---

(text deleted)

### 4.1.15.2 Shut-down

The following steps detail the shut-down procedures for the oil separator system.

- 1) Press the 'Stop' button (red) on the oil separator pump control panel
- 2) Press the 'Stop' button (red) on the generator control panel

The pump stops and the generator shut down when the water level in the holding tank reaches a predetermined low level.

### 4.1.15.3 Generator running

The generator will run for approximately two hours prior to automatically shutting down.

(text deleted)

## 4.2 Reserve stock

### 4.2.1 Minimum reserves

The table below outlines minimum reserves:

Agent	Minimum reserves
Dry chemical powder (DCP)	100% of all DCP units required for category (450 kg)
Aqueous film forming foam (AFFF)	200% of operational vehicle requirement (8500 litres)
Diesel capacity	200% of operational vehicles fuel tank capacity (2000 litres)
Dry nitrogen	100% of operational vehicle requirement to meet category (4 E-size dry nitrogen cylinders)

### 4.2.2 Weekly stock check

All reserve stocks will be checked weekly as per MEX. (See note below.)

Quantities are to be recorded into the station reserve management database.

Agent	Where recorded
AFFF and DCP	Station reserve management database
Diesel Dry nitrogen	Station reserve management database

If stocks are at the reorder amounts listed below, the Station Officer/Fire Commander is to be advised to arrange purchase of stock.

(text deleted)

### 4.2.3 Aqueous film forming foam

If, for any reason, foam is required to be drained from a vehicle, it must be tested by the mechanical section and then pumped into the bulk storage tanks.

### 4.2.4 Reordering

Agent	Reorder when
AFFF	Stock reaches 9 000 litres
DCP	Stock reaches 550 kg
Diesel	Stock reaches a capacity of 2 500 litres
Dry Nitrogen (E) size cylinders	Stock reaches 5 cylinders

All deliveries are to be recorded in the station reserve management database.

The EVT will be advised on delivery of fuel to enable additive to be mixed with fuel in the storage tanks.

## **4.2.5 Diesel issue**

When replenishing vehicles staff must complete the details required on (Fuel Issue Voucher). This voucher is to be given to the Station Officer.

The completed voucher is entered in the station reserve management database, and initialled.

## **4.3 Training facilities**

### **4.3.1 Fire station training ground operating procedures**

#### **4.3.1.1 Introduction**

The following instruction details the correct procedures for operation of the fire station training ground facilities.

#### **4.3.1.2 Reference**

Operating procedures at the fire station training ground are in accordance with:

- the following instruction
- Part 2 (Environment) of this manual
- "Agreement under sub-regulation 4.02(2) Airports (Environment Protection) Regulations 1997" in relation to the emission of dark smoke.

#### **4.3.1.3 General**

The training facilities consist of the following:

- hot fire fuel gantry training facility
- hot fire training control bunker
- hot fire training ground liquid petroleum gas supply system
- hot fire training ground liquid fuel supply system
- hot fire training ground fuel control procedures
- smoke/fire training facility
- waste water retention pond
- waste water treatment/filter system
- mobile aircraft training mock-up.

This instruction is formulated to take into account:

- operational considerations
- occupational health and safety considerations
- environmental requirements and considerations.


#### 4.3.1.4 Considerations

Prior to operation of these facilities, staff is to ensure that they are fully conversant with all instructions and operating procedures.

As per instruction, prior to an exercise commencing, an ARFFS Safety Officer must be appointed.

Prior to fires being lit, the tower must be advised.

---


Note  : As these facilities are both environmentally and safety critical, the utmost care must be taken.

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### 4.3.2 Hot fire fuel gantry training facility

#### 4.3.2.1 General

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Note  : Prior to commencement of any training, the water valves in the filtration system must be placed into the appropriate positions.

---

There are four different series of training exercises that can be conducted with this facility:

- A Class fires in the fire crib
- B Class fires in fuel trays
- liquid petroleum gas (LPG)-pressurised fuel fires in eight locations
- Hydrocarbon fuel-pressurised fires in four locations.

The LPG fuel lines have non-return valves at the fuel feed isolation valves, adjacent to the fire points.

Control of the LPG supply (vapour) is via the nitrogen-driven foot pedals in the control bunker.

The fuel lines only have isolation valves adjacent to the fire points.

#### 4.3.2.2 Fuel arrangements

Hot fire training aids will be utilised for training, as follows.

Aid	Utilised for training when:
A Class fire crib	Filled with wood, hay or cardboard for extinguisher training
B Class fuel tray	Filled with kerosene for small extinguisher training
LPG-pressurised fire points	Twin cylinders for fire-impinging fire training Pressurised vapour LPG fires
Fuel-pressurised fire points	Hydrocarbon fuel fires

### 4.3.3 Control person/Safety Officer

The person in charge of all operations on the training facilities is the control person or safety officer.

Prior to being able to perform the control person/safety officer function, the person must have had a formal briefing on how the facility is operated.

The persons authorised to perform the briefings is the Fire Station Manager or delegate.

Operating instructions must be given on operation of the:

- control bunker
- waste water retention pond
- waste water treatment facility.

### 4.3.4 Hot fire training control bunker

#### 4.3.4.1 Location

The control bunker is where the controls for the pressurised fires on the training ground are situated.

#### 4.3.4.2 Responsibility

The control person/Safety Officer will be in charge of the supply of gas and liquid fuels to the training ground.

#### 4.3.4.3 Fire points

The fire points on the training ground are supplied with either Liquid Petroleum Gas (LPG) or liquid hydrocarbons. Some have the ability to operate using either fuel but they must not be operated together.

#### 4.3.4.4 Fuel supply

Fuel supply for hydrocarbons is from the bulk tank, into the fuel inlet, to the air pump, through the manifold valves, to the required fire point.

LPG vapour is from the bulk tank. The control of LPG fuel is via the nitrogen-controlled foot valves. Safety line purging is done with nitrogen. The fuel is supplied through the manifold valves to the required fuel point.

Pressurised fuel to the control bunker is supplied as follows:

Fuel	Supply
LPG vapour	2 x 190 kg cylinders
Kerosene	Fixed 1000 litre kerosene tank located inside bund

### 4.3.5 Hot fire training ground liquid petroleum gas supply system

The Liquid Petroleum Gas (LPG) fuel supply is held in 2 x 190 kg LPG cylinders remote from the training ground.

LPG is supplied to the training aids as vapour. The supply lines and supply controls are totally separate. Supply controls are operated by the dry nitrogen system sited in the hot fire training control bunker.

LPG supply in vapour form comes from the top of the tank.

Isolation valves are on the top of each cylinder to shut off the supply.

The control valve is in the pipe work between the cylinder and the ground.

### 4.3.6 Hot fire training ground liquid fuel supply system

The supply of liquid fuel (kerosene) to the control bunker comes from the bulk tank that carries 1000 litres of fuel.

The fuel is fed through flexible hoses that connect from the tank to the inlet in the control bunker.

Isolation valves are on the tanker and on the inlet on the inside of the control bunker.

Fuel is fed to the training aids by the air-operated pump. The controls for this are in the control bunker. An isolating valve is sited after the pump on the line to the training aids.

Ensure all valves are closed after use.

Care must be taken to avoid spills of fuel when disconnecting fuel hoses from bulk tank or other fitting.

### 4.3.7 Hot fire gantry fuel control procedures

The fuel gantry and pipe work system can be supplied with either vapour petroleum gas or liquid hydrocarbon fuel.

The operator of this facility must have received the appropriate instruction on the use of the fuel gantry in accordance with the Fire Station Training Ground Operating Procedures.

## **4.3.8 Liquid hydrocarbon fuel system operating procedures**

### **4.3.8.1 Start-up procedures**

The following steps detail the start up procedures for the liquid hydrocarbon fuel system.

- 1) Ensure valve is open only at the fire point to be used
- 2) Connect hoses from the fuel tank to couplings on the east external wall of the control bunker
- 3) Open the fuel shut-off valves on the tank
- 4) Open the fuel input valves in the control bunker
- 5) Open the air control valve to the air pump to create fuel flow pressurisation to the fire points
- 6) Open the fuel supply valve to the fire points
- 7) Control flow with the air valve and fuel supply valve

### **4.3.8.2 Shut-down procedures**

The following steps detail the shut-down procedures for the liquid hydrocarbon fuel system.

- 1) Ensure all fire point valves are left open
- 2) Close the valve on the bulk fuel tank, fuel input and fuel output valves

## **4.3.9 Liquid petroleum gas control system operating procedures**

### **4.3.9.1 Start-up liquid petroleum gas system**

The following steps detail the start-up procedures for the liquid petroleum gas (LPG) system.

- 1) Turn on air valve
- 2) Open the input valves from the bulk tank. For all gas, open valve on the east side of the inlet manifold
- 3) Ensure all valves at the fire points are open
- 4) Ensure all valves on the distribution manifold are closed
- 5) Select the desired fire control point valve on the control manifold and open. Remember, your foot must be on the valve pedal to hold the tank valve open.)
- 6) Select gas (on low flow) and light the fire point
- 7) To increase fire, open the valve fully

### **4.3.9.2 Shut-down LPG system**

The following steps detail the shut-down procedures for the LPG system.

- 1) Remove foot from the foot flow valve  
Open nitrogen cylinder/s
- 2) Open all distribution valves on the distribution manifold
- 3) Open all fire point isolation valves

- 4) Close nitrogen cylinder/s
- 5) Open the purge valve on the western side of the control manifold to depressurise the facility

#### **4.3.9.3 Valve operation**

Operation of the valves is by the dry nitrogen system located on the western wall of the control bunker. Two cylinders can be hooked up to provide the necessary gas supplies.

#### **4.3.9.4 Dry nitrogen**

Dry nitrogen functions are:

- open supply valves at bulk LPG tank
- purge LPG from lines to the fire points for safety.

### **4.3.10 Smoke/fire training facility (Fire House)**

#### **4.3.10.1 Introduction**

The smoke training facility has the following training areas:

- darkened environment for training
- safe smoke internal training
- hot fire (A Class) internal fires
- restricted access training via tunnel
- roof top fire fighting.

#### **4.3.10.2 Safety procedures**

The external control panel has light switches and fan ventilation control switches.

Prior to commencing training, ensure that all doors and entries/exits are unlocked.

Ground level exit lights are sited on two walls of the building.

On two sides of the building are push-out escape doors that provide emergency evacuation ability.

#### **4.3.10.3 Lighting internal fires**

Internal fires are only to be lit in the burn baskets in the fire house.

### **4.3.11 Waste water retention pond**

The waste water retention pond is surrounded by an approved pool fence. Waste water and any other liquids (and some solids) flow to the pond from the hot fire training ground and the smoke/fire training facility, into this retention pond.

The retention pond is cement-lined with bagged fill that slopes toward the sump outlet end.

Its sole purpose is to hold the liquid waste prior to treatment or release.



#### 4.3.11.1 Waste water treatment/filter system

The water treatment/filter system is where the training facility excess water flows to for processing from the retention pond.

Depending upon the type of fuel being used, the system is used to release, filter or process the water and any pollutants.

The following are types of operations producing water that is to be released or processed:

- facility not in use (wet season only rainwater outflow)
- liquid petroleum gas (LPG) gas and LPG liquid fires
- A Class fires in fire cribs
- fires in smoke training facility
- pressurised liquid fuel (hydrocarbon) fires.

Note :

1. If water is suspected of being contaminated, do not release it. Put the water through the highest level filtration and process.
2. The 'red flag' must be flown high on the fence when the valves on the water processing facility are set to 'Stormwater Waste'.

#### 4.3.11.2 Valve operation to process the liquid


##### Valve operation

The water flows from the retention pond into a pipe that has two valves. These valves direct the water either into stormwater as waste or to be processed. The valve positions (open or closed) dictate the flow direction.

Valve positions	Water direction
Valve 1 open, Valve 2 closed	Releases water to stormwater (no processing)
Valve 1 closed, Valve 2 open	Directs water into the processing system

When water from the sump is pumped into the filter system, either of the following will occur:

- processed water is directed into the stormwater drains
- processed water is directed into the sewerage system.

Note :

1. The sump for the processing system has high and low water level switches that turn the processing filter pump on and off (as required).
2. The 'red flag' must be flown high on the fence when the valves on the water processing facility are set to 'Stormwater Waste'.

### On/Off switch

The filter pump has an on/off switch for:

- isolation of the pump
- or
- switching it off.

### Valve positions

The following table details the valve positions required, depending on the training facility being used:

When:	Valve Positions
The training facility is not in use (rainwater outflow)	Valve 1 open, Valve 2 closed. <b>Note:</b> The filter pump must be switched 'off'.
Liquid petroleum gas is being used on the training facility	
Liquid hydrocarbon is being used on the training facility	<ol style="list-style-type: none"> <li>1. Valve 1 closed, Valve 2 open</li> <li>2. Filter pump from the sump switched 'on'</li> <li>3. Valve 3 closed Valve 4 open. (This directs waste water to the sewerage)</li> </ol>

Note :

1. If the water is suspected to be contaminated, process it in accordance with liquid hydrocarbon procedures.
2. Always err on the side of safety and over-process the water if uncertain.
3. Bear in mind that the cost of processing the contaminated water and pollutants is much less than the cost of an environmental clean-up, as well as the publicity costs.
4. The 'red flag' must be flown high on the fence when the valves on the water processing facility are set to 'Stormwater Waste'.

### 4.3.12 Mobile aircraft training mock-up

#### 4.3.12.1 Description

The mobile mock-up is a replica of a small aircraft or a business jet aircraft.  
It is designed to be towed to a location and used as a go-anywhere training aid.

#### 4.3.12.2 Operation of the mobile mock-up

Do not tow the mock-up with the wings in the 'folded out' position.

Do not light fires inside the aircraft, except in the trays provided.

Do not light ground external fires in areas that will cause damage to the mock-up or its wheels.

---

Note  : Be aware of the need for environmental considerations if DCP is used in training.

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### 4.3.13 Training facility operator/Safety Officer instructions checklist

Prior to operation of the facility, staff must have had instruction on its operation from the authorised instructors. The facility must also have had a pre-use safety inspection.

The following areas must be demonstrated:

Checklist	✓
LPG bulk supply tank operations	
Liquid fuel tank operations	
Control bunker operations	
Operation of fire point valves	
Operation of liquid hydrocarbon control system	
Operation of LPG vapour system	
Operation of the nitrogen control system	
Operation of the nitrogen safety system	
Operation of the waste water treatment facility	

## 5 Human resources

### 5.1 Staff qualifications and licensing

A review of qualifications and licenses shall be conducted for all staff commencing at Darwin (new/transferred staff). Local form 'Darwin ARFFS New Staff Induction Checklist.doc DNF 238 shall be used.

Completed check sheets shall be retained on staff training files.

Staff 127's is to be checked and updated regularly.

### 5.2 Ratings Progression

Transferees from other units commencing duty at Darwin ARFFS must obtain the local ratings appropriate to his/her particular position prior to assuming responsibility for that position.

The normal progression for attaining ratings shall be as follows:

- 1) staff local induction
- 2) operator (O)/ultra large fire vehicle (ULFV) Mark (Mk)8
- 3) topography
- 4) Fire Control Centre (FCC)
- 5) driver (D)/ULFV Mk8

Recruits commencing duty at Darwin ARFFS must obtain the local ratings appropriate to his/her particular position prior to assuming responsibility for that position.

The normal progression for attaining ratings shall be as follows:

- 1) staff local induction
- 2) operator (O)/ultra large fire vehicle (ULFV) Mark (Mk)8
- 3) recruit consolidation
- 4) topography
- 5) Fire Control Centre (FCC)
- 6) driver (D)/ULFV Mk8

Note  :

1. If this rating progression is to be altered to accommodate the current needs of his/her team, the Fire Station Manager should ensure compliance with ARFFS Training Guide – Operational Training ([OTng-121](#)) and Recruit Post Course Development Instruction – Operational Training ([OTng-112](#)).
2. Training for multiple ratings may occur simultaneously providing operational efficiency is not compromised

## 6 Vacant

Reserved

## 7 Work Health and Safety

### 7.1 High visibility clothing

#### 7.1.1 High visibility vests

##### 7.1.1.1 Type of vests

Vests are required to comply with AS/NZS 4602:2011.

##### 7.1.1.2 Purpose

This instruction is in accordance with Workcover, High Visibility Clothing Guide. It complements the Darwin International Airport Limited requirements.

##### 7.1.1.3 Stowage

High Visibility Vests are to be stowed as follows:

- three vests on each fire vehicle
- one vest on each Tender 5 and 6.

##### 7.1.1.4 Usage

When not dressed in personal protective equipment the vests are to be worn by all ARFFS personnel while working airside of the airport.

All first aid calls inside the terminal.

All visits and inspections in side of the terminal that accesses non public areas.

Airside areas include all aprons, ramps; movement and baggage make up areas.

### 7.2 Clinical waste and disposal procedures

The purpose of this procedure is to establish a guide for cleaning and maintenance of equipment that has been contaminated with bodily fluids.

The ARFFS are unable to determine whether a victim of any accident/incident has a transmittable infection such as Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome, Hepatitis B, C or any other communicable infection. With this in mind, procedures have been developed to minimise the risk to our officers.

#### **It is important to stress the use of proper protection**

Gloves

Face shield of helmet.

The use of cold water is preferred. (Hot water causes the blood to congeal, and HIV will survive in blood clots.)

Use one percent household bleach for cleaning purposes. Bleach is the recommended product, as it is readily available and economical.

All officers must be reminded of their responsibilities towards their own work health practices.

## 7.3 Special cleaning procedures

### 7.3.1 Applicability


These procedures apply to all incidents where ARFFS personnel handle injured or deceased persons.

### 7.3.2 Procedures

To control the spread of disease, all personnel must:

- wear Nitrile surgical gloves in every case where contact with the victim can be expected. Gloves should be changed when soiled or damaged, and before handling equipment
- use a face shield or goggles if splattering of blood or body secretions is likely
- wash hands as soon as possible after the incident
- use disposable equipment whenever possible and dispose of used equipment promptly
- disinfect non-disposable equipment after the incident
- air out the fire tender equipment in the sunlight (sunlight kills most bacteria).

---

Note : If the face is accidentally splattered with blood, rinse face, eyes and mouth with cold water.


---

## 7.4 After incident or casualty handling

### 7.4.1 Protective clothing

If splashed with blood or body fluid, protective clothing shall be placed in a Royal Darwin Hospital (RDH) linen bag, before being placed into a heavy duty red infectious linen bag, and then laundered as soon as possible.

---

Note : The RDH will launder the clothing and deliver it to the supervisor. Take care not to cram the clothing into the bags. Use more than one bag, if necessary.

---

### 7.4.2 Disposable items


Disposable items (gloves, etc) are to be incinerated. (RDH has a suitable incinerator.)

The Fire Commander is to contact the Manager Transport and Yards to arrange a suitable delivery time and incineration. Clothing for incineration is to be placed in a yellow infectious bag and delivered to the RDH loading dock. The bag is then to be handed to the incinerator staff, as arranged.

The contact details for Transport and Yards are:

Phone:   


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Note : Always remove gloves last.  
Thoroughly wash hands.  
Carry out decontamination procedure.

---

### 7.4.3 Suspected high risk contamination

When suspected or informed of a high risk of contamination (after the handling of a casualty victim), the Fire Commander must:

- notify the Fire Control Centre and log all affected attendees names
- notify the Fire Station Manager in writing, giving details of incident and attendees
- on returning to the station, decontaminate equipment
- complete an incident report
- if the uniform is contaminated, place it in a RDH linen bag before placing into a red infectious linen bag, as soon as possible.


## 7.5 Decontamination procedures

### Equipment

The decontamination cleaning procedures are as follows:

- wear gloves during the entire cleaning procedure
- thoroughly clean all contaminated or potentially contaminated equipment with cold water
- disinfect equipment with one percent bleach solution
- place other contaminated uniform items (which have been double-bagged) into a decontamination area for future cleaning, marked with the following information
  - officer's name
  - date
  - call details.

---

Note : 1. Where possible, equipment should be left exposed to direct sunlight until it is dry. Non-disposable items (such as turnout jacket) requiring special cleaning are to be placed in an RDH linen bag, then into a red infectious linen bag for laundering. The bag shall be tagged with the date, call details and officer's name. Uniform items are to be taken to a dry cleaner/laundrer by a senior officer.

2. Keep contaminated items separated from non-contaminated items. Disposable items must be taken as soon as possible to the nearest incinerator for burning (i.e. hospital - casualty).

3. For obvious spills of body fluids, use undiluted bleach/'Milton' and always remove gloves last and wash hands thoroughly using antiseptic solution.

4. One percent bleach solution can be placed in handheld spray bottles.

---



**Summary – person/equipment suggest re-write or intro**

Wash hands (or injured area) thoroughly

Encourage bleeding of an injured area (on self)

Notify the Fire Control Centre (for log) at the earliest opportunity

When ARFFS is aware, or suspects an accident/incident victim has a transmittable infection, make arrangements with the hospital (medical) for antibody testing of the infection type

Complete CIRRIIS reporting

Complete an accident/incident report and, if necessary, a Comcare claim

Use one percent bleach for sterilising equipment

Disposable contaminated items are to be incinerated

Launder contaminated clothing separately

Always use cold water

All ARFFS personnel need to be responsible for health and safety practices

## 8 Operations

### 8.1 Fire Control Centre procedures

#### 8.1.1 Fire Control Centre

Darwin's Fire Control Centre (FCC) consists of the ASA Firemon and the integrated Royal Australian Air Force Darwin (RAAF) Firemon. Both of these present onto the C4i Darwin FCC consoles. The FCC operator duties are as per Fire Control Centre ([AFFM-FC](#)), Fire Alarm Handling and Charging Procedure ([Ops-126](#)) and this document.

#### 8.1.2 Local Procedures

As per Fire Control Centre Operator responsibilities ([AFFM-FC](#) section 1.5). The FCC operator is responsible for responding the ARFFS crew to accidents and incidents within the ARFFS area of responsibility. National Contingency Fire-Line Management and Fire Alarm Handling and Charging Procedures are in place to ensure an appropriate ARFFS response.

FCC operators are to ensure that their ability to observe movements and respond to associated events is not hampered by unnecessary distractions ([AFFM\\_FC](#) section 3.2.2)

#### 8.1.3 Oncoming FCC Operators procedures

The Oncoming FCC operator must complete the following prior to assuming the position: as per AFFM-FC section 4.4

- Once installed also log onto the FCC PC to allow access to the RAAF Building location maps that will be used in the event of a fire alarm response to the Darwin RAAF Base.

#### 8.1.4 Daily inspection

**The shift 0800/1800 FCC Operator shall carry out as following**

Log on to SwitchPlus with username (operator) and password (operator)

Log into relevant station Role on Role page (Darwin Comms - Left, Darwin Dispatch - Right)

The duty operator must allocate him/her self as the User on all consoles

Ensure Station is open on the resource page (this ensures alerts and alarms activate when pressed)

Select Team/Shift

Log on oncoming duty crew

Log ICS Officer on duty FSM

ICS Officer FSM log to vehicle

ICS officer other than FSM must be logged manually

Ensure current ICS Officer is placed onto the magnetic board

Log Off old ICS Officer (if appropriate)

ICS officer other than FSM must be logged to a vehicle (one available)

Log on all available vehicles

Log off going shift OFF duty

Select appropriate Station Category

Assign crew to respective vehicles on the operations page

Assign vehicles to station on the operations page

Record 'Unit Operational' in the event log once operational checks have been completed at Shift change

Identify all vehicles onto the magnetic disposition board.

### **Daily FCC Inspections will occur at 0800 each day**

The alert system is to be operated

Test PA

Direct lines

PABX

Radios

Check Printer/fax for paper

Check operation of doors

Kitchen power shuts down

Station essential lights operate

Manual alert, bells and PA backup system to be operated

---

Note  : VHF radios are not tested until 0900 by agreement with ATC

---

Any discrepancies are to be reported to the duty Fire Commander immediately.

## **8.1.5 Weekly crash alarm procedures**

### **The crash alarm shall be tested at 1100 local time on Mondays**

RAAF ATC will initiate the tests (reminder may be needed)

Notify the duty crew of the impending tests via PA


Notify the FSM of test pending

During the ATC test, check the operation of engine bay doors, lights and kitchen power shutoff

Operate the fire station crash alarm facility

Operate the back up Crash Alarm

---

Note  : Back up crash alarm only activates station facilities

---

Operate the station back up PA (Announce that the fire station back up test is in progress)

Crash alarm will generate the Staff Notification feature. FCC operator is to cancel the dialling process once the first call has been confirmed. The first call will be directed to the Fire Station Manager (FSM)

Contact the FSM. Confirm Staff notification feature was received

Contact ATC. Confirm that all tests were received and the system reset

Ensure the Crash Alarm tone is broadcast over the UHF radio during the test

Any discrepancies to be reported to the Duty Fire Commander immediately

Advise SO to close off Work Order on MEX

### **8.1.6 Alarm escalation testing processes**

The Automatic Fire Alarm Escalation facility will be tested following the weekly crash alarm test.

The procedure for the test is as follows:


- 1) Contact the parent station (Cairns) to advise of upcoming escalation test
- 2) Activate a Fire Alarm at the Darwin Fire Station or RAAF Building alarm
- 3) Darwin Fire Control Centre operator will not acknowledge alarm and allow to escalate
- 4) Establish with parent station that alarm was received
- 5) Any discrepancies to be reported to the Duty Fire Commander immediately
- 6) Close off work order on Mex

### 8.1.7 Failure of crash alarm facilities

In the event of a failure to the fire station Crash Alarm system, the FCC operator will initiate the back up Crash Alarm procedures.

The FCC operator advises ARFFS staff of the incident details via the station back up Crash Alarm and PA system, FCC operator will then to contact ATC on direct line and provide ATC with details.

---

Note : Back up crash alarm only activates station facilities.

---

FCC operator to ensure that back up Crash Alarm button locks into position until incident completion or until advised by Fire Commander/Station Officer.

### 8.1.8 Failure of main fire station alert system

In the event of a failure to the main fire station alert system, the FCC operator will initiate the secondary alert procedures.

The following outlines the back up alert procedures:

- 1) FCC operator advises ARFFS staff of the incident details via the station back up Alert and PA system
- 2) FCC operator to ensure that back up Alert button locks into position until incident completion or until advised by Fire Commander/Station Officer, as releasing button resets station lights

### 8.1.9 Failure of main and back up fire station crash alarm and/or alert system

In the event of a failure to the main and back up fire station Crash Alarm and/or alert system, the FCC operator will initiate the contingency alert procedures.

The following outlines the contingency alert procedures:

- 1) FCC operator advises ARFFS staff of the incident details via the station PA system,, prefixing the incident message with "ATTENTION, ATTENTION", if aviation incident FCC operator to also contact Tower on direct line and advise them of incident details
- 2) Duty ARFFS staff will initiate engine bay door rising by pressing the appropriate door raise buttons adjacent doors. If this fails, ARFFS staff will use the chains to manually raise the doors until height is clear of vehicles
- 3) Engine bay lights if required will be activated by ARFFS staff

Duty ARFFS staff to ensure kitchen and cooking facilities are turned off.

### 8.1.10 FCC automatic and manually operated staff recall notification procedures

The SwitchPlus Communications and Dispatch system includes the capability to provide emergency notification to off duty ARFFS staff during an aircraft crash or incident requiring relief crew and therefore initiates a system for staff recall.

The following procedures will be adopted at Darwin ARFFS unit for staff who receive the Automatic notification message.

For manual operation the FCC operator will seek advice from the Fire Commander as to when the off duty notification of staff is to be operated.

For Automatic Crash/Incident notification the following is the process:

- 1) The activated alert will phone contact the Fire Station Manager (FSM) and all of the Darwin Fire Commanders, the ARFFS Emergency Line in Canberra and Darwin Staff
- 2) Fire Commanders are to contact the FSM or on call ICS Officer and follow directives given
- 3) If FSM or on duty ICS officer unable to be contacted. Contact FCC on (08) 8920 4899 and establish incident details, and requirement for recall.
  - **do not** under any circumstances ring the Command or Response Vehicle mobiles
  - first arriving staff member must proceed to the FCC and become the operator. They will establish communications with the Command or Response Vehicle via radio
  - no action will be required for Cancel Crash/Incident notification messages.

### 8.1.11 Fire alarms monitored on Darwin Firemon System

All Fire Alarms at ARFFS Darwin are now monitored on Switchplus/Firemon System.

- The Firemon System uses client servers which are based in Melbourne and Brisbane.
- ALL wireless alarms at Darwin go to the above Firemon client servers and then present into the C4i/Switchplus console in Darwin.
- The fire alarms will be called RAAF alarms for those from the RAAF Base and Domestic alarms for those from normal airport buildings including ASA buildings.
- The RAAF Firemon has the ability to be switched back to local only (in Darwin FCC) monitoring in the event of a communications failure in the RAAF to ASA facility. Refer procedures in RAAF failure advice below.
- All activated Fire Alarms not acknowledged within the 20 seconds escalate to another location. Note: Refer Escalation of Fire Alarms below.
- ALL Firemon actions in Darwin will be as per [Ops-126](#).

### 8.1.12 AFA activation RAAF and domestic (civilian)

There are procedures for Darwin C4i/Switchplus for both the RAAF Base Fire Alarms and the Domestic (Civilian) side of the Airport alarms.

- Both ASA and RAAF alarms now present on the ASA C4i/Switchplus panel.
- On activation of a Fire alarm the operator is to determine if it is a RAAF or Domestic Fire Alarm.
- The Operator will follow the laid down procedures for activated fire alarm that being either to a RAAF or a Domestic Fire Alarm.
- This procedure is outlined on the “Alarm Details Section” of the Alarms and Dispatch Console once the activated fire alarm has been selected/acknowledged.

- All activated Fire Alarms not acknowledged within the 20 seconds escalate to another location.

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Note  : Refer Escalation of Fire Alarms below.

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### 8.1.13 Escalation of fire alarms

In the event of the Darwin FCC being vacated and a Fire Alarm being received this Fire Alarm will “escalate” to the “Parent” station.

- This is currently ARFFS Cairns.
- Should it not be responded to within 20 seconds it will “escalate” to ALL 24/7 stations. This will be for all Fire Alarms in Darwin C4i/Firemon system both Civilian and RAAF.
- There are different responding procedures for “escalated” Fire Alarms by stations receiving them. RAAF procedures are outlined below.
- The procedures to be followed are outlined on the “Alarm Details” section of the Alarms and Dispatch Console once the activated alarm has been selected/acknowledged.
- It is essential that these procedures be followed.

### 8.1.14 Actions required on receiving Escalated RAAF Fire Alarm

The procedure on escalation of RAAF Fire Alarms is different to that for escalated Domestic Alarms.

On receipt of an escalated RAAF Fire Alarm follow the following procedures:

- ring the Darwin FCC on [REDACTED] or [REDACTED]
- if answered by NOC then ring following ARFFS mobile numbers
- Response Vehicle Mobile [REDACTED] if unanswered ring
- Command Vehicle Mobile [REDACTED] if unanswered ring
- RAAF Darwin Base Command Post (BCP) [REDACTED]
- advise BCP that a fire alarm at RAAF building name and RAAF building number has been received and request for RAAF police to investigate
- advise BCP “THAT IF FIRE OR SMOKE IS REPORTED” by RAAF Police then ring 000 and request N.T. Fire Service to attend RAAF Base Darwin.

### 8.1.15 Procedures in event of receiving Fault Activations

The following procedures are to be adopted for “fault” activations

For non RAAF Faults:

- there are ASA building and Non ASA building faults
- ALL faults are to be reported to FCC ARFFS Darwin
- ASA building faults are to be reported to the ASA Helpdesk
- it is important that the type of fault is reported

- the non ASA airport faults are to be reported to ARFFS Darwin
- these faults will be reported to the relevant building owner/occupier for rectification.

**For RAAF Faults:**

- DO NOT REPORT THESE TO ASA HELPDESK
- these are to be reported to FCC ARFFS Darwin who will report them to the reporting service
- it is important that the type of fault is reported to the Darwin FCC.

### 8.1.16 FCC procedures required in event of RAAF Communications failure to Firemon

The RAAF Firemon sends Fire Alarms and faults to the National Firemon client from the Darwin ARFFS equipment room via wireless telephone links

In the event that these Communications links fail or go into fault this will be announced on c4i/Switchplus or Firemon client in Melbourne or Brisbane:

- actions on receiving these Alarm/failures will include
- an Alarm will occur on the C4i /Firemon screen
- this is to be acknowledged
- notify the Darwin FCC
- notify the Darwin Fire Commander/Station Officer
- notify Transfield services of a fault on [REDACTED]
- email an advice notification to the Darwin Fire Station Manager.

The Darwin Fire Commander/Station officer will enter the equipment room and manually change the RAAF Firemon back to operating on the RAAF PC in the FCC. (All officers have been shown this process)



Note: Ensure F5 key or mouse is double clicked on Manned and Unmanned button at bottom left of screen to enable the alarms to sound on the RAAF Firemon PC.

### 8.1.17 Recording of events

FCC Operators will record details pertaining to events, staff and vehicles via automatic and manual entry facilities. As outlined in AFFM-FC section 5.3

- ICS Officer if not FSM will have to be manually logged on duty. This is done at each commencement of shift when team is logged on.
- Training activities will be entered onto manual log.
- EVT's activation of man-down alarm system.

### 8.1.18 EVT man-down alarm

Darwin EVTs have a man-down alarm system for when they are working alone on vehicles at the fire station workshop.

- Activation of this alarm sends a recorded message to the ARFFS Darwin Fire Line.



- FCC operators are to respond ARFFS staff to investigate call.
- The FCC operator is required to press “3” to cancel the alarm.
- Actions are to be entered on the log manually.

### **8.1.19 Non crash alarm notification**

Non Crash alarm notifications of turnouts to staff are to be carried out as follows

For FIRST AID, FIRE ALARMS AND SPECIAL SERVICES

Prior to activation of the alert system a PA broadcast “” First Aid, First Aid” (or appropriate) is to be made.

Alert system is to be activated and crews dispatched.

## **8.2 Hydrant replenishment/designated hydrants**

### **8.2.1 Reference**

Operations Manual - Part 139H (Aerodrome Rescue Fire Fighting) ([AA-OPSMAN-139H](#)) requires that ARFFS have the capacity to fill fire vehicles in case of an emergency.

The required flow rate is a minimum of 30 litres per second at the designated hydrants.

### **8.2.2 Designated hydrants**

The designated filling points are the 2 separate hydrants at the wash down bay and the hose wash area of the fire station. Darwin Airport Ltd have installed a continuous flow booster pump system with diesel backup that runs at all times and is designed to give well in excess of the required flow rate.

### **8.2.3 Hydrant testing**

The testing and recording of the flow rates is to be checked in accordance with the fire station Fire Safety MEX Schedule.

If the required minimum flow rate of 30 litres per second is not achieved at both hydrants, remedial action is to be undertaken.

The EVT's have a calibrated flow meter that will be used for the testing.

Completed flow rate tests and pressure readings are recorded on MEX and are to be signed off by the Station Officer/Fire Commander. Failure of hydrants to meet flow rate requirements MUST be reported to the Fire Station Manager via email immediately.

## **8.3 Darwin runway viewing camera system**

### **8.3.1 Reference**

For the Darwin FCC visibility to meet MOS 22.1.2.1 requirements a runway camera is required. As part of a national system a camera and 2 monitors have been installed. The system is equipped with both optical and infra-red cameras. Darwin ATC tower has visibility issues with the same area. This system is used by both the ARFFS and Tower (TWR) to overcome the visibility issues. This system is owned by Airservices Australia but uses some RAAF equipment.

### 8.3.2 Runway camera

The Runway camera is situated on a pole on the side of runway 36 adjacent to OLA 9 building. An equipment cabinet is situated adjacent to this. The camera has pan and direction ability. The controls of these are situated in both the TWR and FCC.

### 8.3.3 Operation of the camera controls

The camera operates under a master and secondary user system. The TWR has the master control and the ARFFS has secondary control. The preset viewing location is short final approach and the touch down area of the runway. This location was determined as the one that has the most visibility requirements. After panning or directional movement by either ATC TWR or ARFFS FCC operators they are required to press the (1) or (home) button on the bottom left of the control panel so the camera will return to the preset position.

### 8.3.4 Viewing monitors

There is a monitor situated in both the ATC TWR and the ARFFS FCC. Both of these see the same camera view.

### 8.3.5 Faults and maintenance


The system has programmed annual or periodical maintenance schedule that is controlled by Airservices FMS.

Failure or faults of the system observed by the TWR operators are to be reported to ARFFS.

When the Tower advice of failure of camera/monitor or FCC operator observes failure of the Camera/Monitor the following is to be completed.

- 1) Advise the Officer of a runway camera/monitor failure.
- 2) Officer raises fault on MEX.
- 3) Officer advises ASA Helpdesk 'Airways' on [REDACTED] of fault and MEX number.
- 4) Officer obtains AO number from ASA Helpdesk.
- 5) During business hours ASA Help desk will advise ACG of fault, out of hours ARFFS do notification to ACG
- 6) Officer contacts ACG Helpdesk on [REDACTED] advising the following:
  - a) problem is at Airservices Australia Fire Station Darwin Airport
  - b) problem is (whatever it is)
  - c) AO number issued
  - d) contact number of Darwin FCC
  - e) contact/Reporter is Fire Control Operator ARFFS Darwin
  - f) take down report/job number (if given).
- 7) Advise FCC to notify TWR issue has been reported
- 8) FCC Operator enters fault number onto computer log as manual entry
- 9) keep the TWR advised of any known progress and response times of repair techs.

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Note : The runway camera system IS NOT a part of the RAAF TWR technical staff's or the Transfield systems so is not to be reported to or worked on by them!

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## 8.4 Limited visibility procedure

### 8.4.1 Purpose

This instruction informs staff of the requirements and responsibilities when visibility is reduced to less than 800 metres (restricted operations).

### 8.4.2 Reference

This procedure applies to all ARFFS and is compliant with Low Visibility operations [SOP-028](#).

### 8.4.3 Air Traffic Control advice

Air Traffic Control (ATC) will advise when restricted operations apply.

Upon notification from ATC of restricted operations, the following will apply:

- 1) advise all staff of restricted operations
- 2) advise all staff to be available for immediate response.

### 8.4.4 Response to an incident

Below indicates the procedures to be followed if response to an incident is required:

- 1) all vehicles are to gain clearance from ATC if required to enter the manoeuvring area
- 2) ascertain from ATC other traffic and its position on the manoeuvring area
- 3) keep ATC informed of the number of vehicles and their location on the manoeuvring area

## 8.5 Pre-incident panning

### 8.5.1 Pre-incident pans

#### 8.5.1.1 Emergency response

Darwin ARFFS will respond to all types of emergencies listed below, taking into consideration existing agreements and strategies that may be employed during these emergencies.

#### 8.5.1.2 Emergency planning

Pre-incident plans are required for the following types of emergencies:

- aircraft incidents
- building fires/motor vehicle accidents.

For pre-incident plans, the relevant agencies and references are:

- aircraft incidents - contained in the Darwin International Airport Aerodrome Emergency Procedures (AEP)
- building fires/motor vehicle accidents, as per Darwin AEP.

### 8.5.1.3 Downgrading incidents

The incident officer-in-charge (OIC) may scale down incident resources as requires. During scaling down the OIC must ensure that adequate resources remain available to manage any unexpected or unforeseen developments. E.g. injuries or stress related conditions.

### 8.5.1.4 Mutual aid off-airport

Arrangements in place for mutual aid off-airport are detailed in the Memorandum of Understanding between ARFFS and the Northern Territory Fire and Rescue Service ([MoA NTFRS](#)).

## 8.5.2 Response to automatic fire alarm activation

### 8.5.2.1 Introduction

The following instruction details the response procedures to be followed on receipt of a fire alarm or fault in the Fire Control Centre (FCC) from a Royal Australian Air Force (RAAF) or non-RAAF fire alarm at Darwin.

### 8.5.2.2 Receipt of a building fire alarm

On receipt of a building fire alarm, the FCC operator will dispatch the response vehicle and designated crew to the appropriate location.

### 8.5.2.3 Receipt of a fault activation

On receipt of a building fire alarm fault, the FCC operator will advise the Fire Commander/Station Officer and commence fault reporting procedures.

Follow procedures as laid down in 8.1.15 and 8.5.16

ARFFS "Do Not" respond to fault activations at any Airservices or RAAF alarms.

### 8.5.2.4 Fire Commander/Station Officer response responsibilities

The Fire Commander (FC)/Station Officer will ensure that:

- transmitting the following to the Air Traffic Control (ATC) tower, immediately upon rolling if aprons or runways are to be crossed.  
"A turnout to an automatic fire alarm in building [name of building] is in progress"
- constant radio communications with the FCC using the Ultra High Frequency radios is maintained
- a senior representative of the owner/operator of the building is advised of ARFFS action
- for domestic buildings on return to station an attendance pro forma notification is to be completed and sent to the building occupier and DIA Maintenance department. (for non Airservices Australia buildings). A copy is filed in the appropriate location on the Canberra ARFFS drive
- for ASA buildings on return to station a fault report is to be raised with the ASA Helpdesk.

- for RAAF buildings on return to station a pro forma notification is to be completed and sent to BCP, DSG addressees and Transfield. A copy is filed in the appropriate location on the Canberra ARFFS drive.
- For all alarms attended on return to the station, complete the ARFFS Operations Reporting System procedure.

#### **8.5.2.5 Royal Australian Air Force alarms**

The following details the procedure to follow upon activation on the C4i fire alarm system.

ARFFS will only respond to on-base calls. On receipt of a fire alarm, the FCC operator shall:

- respond as outlined in FC responsibilities
- notify RAAF Base Darwin Command Post (BCP) advising of the need for RAAF SECPOL/police to attend.

No response is required by ARFFS to fault indications.

In the event of a systems failure or actual alarm problems after a call, notify Transfield Defence Services on 1300 658 975 and record the reference number in the C4i online log.

#### **8.5.2.6 Entry into Royal Australian Air Force buildings**

As outlined in RAAF Alarms, ARFFS will contact RAAF BCP requesting RAAF SECPOL/police attendance to the fire call with the building keys. On arrival, if police are not in attendance, ARFFS will conduct an external inspection of the building.

If no sign of fire (heat or smoke) is visible, await the RAAF Police arrival.

If there is sign of heat, smoke or other reasonable cause, ARFFS will forcibly enter the building, taking due care to minimise structural damage where possible.

### 8.5.3 Aircraft incident response

The following details the response required for the type of incident:

Incident	Attendance
Aircraft crash within the Darwin Airport boundary and extending 1,000 metres from this border, to an area adjoined by: <ul style="list-style-type: none"> <li>• Tiger Brennan Drive</li> <li>• Vanderlin Drive</li> <li>• McMillans Road/Berrimah Road/Dick Ward Drive</li> <li>• Amy Johnson Avenue</li> </ul> These roads become the natural boundaries of the response area. Some are just outside 1,000 metres.	Full turnout
Aircraft crash outside, but in close proximity (five kilometres) to the airport boundary	One - Two vehicles, at the discretion of the Fire Commander (FC)
Aircraft crash remote from airport (five plus kilometres)	FC to confirm with the Fire Station Manager
Abnormal landing	Full turnout

### 8.5.4 Response to fires on/off the airport

#### 8.5.4.1 Introduction

The ARFFS will respond to observed or notified fires or other incidents that occur on the airport. They may also receive calls for assistance to non-aviation incidents.

#### 8.5.4.2 Initial turnout

The following table is a guide only for the Fire Commander (FC) for initial turnout to specific incidents:

Incident	Attendance
Fires on-airport	Full turnout
Fires off-airport	One vehicle
Fire alarm	One vehicle
Special service	FC decision
Fuel spill	One vehicle
First aid	One vehicle
Grass fire	One vehicle
Motor vehicle accident	One vehicle
Hangar fires	Full turnout
Fuel farm fire	Full turnout

Note :

1. The Fire Station Manager or ICS on call officer must approve any ARFFS Emergency response off the airport in line with the instructions of Response to Requests for Mutual Aid ([SOP-022](#))
2. The shift FC will decide the response and vehicle to attend depending on aircraft movements.
3. For operations off the airport, FCs, SOs and drivers must be fully aware of the due diligence responsibility for driving 'heavy vehicles' as outlined in [SOP-022](#) and Driving ARFFS Vehicles ([SOP-039](#)).

### 8.5.4.3 Non-aviation operational responses

Non-aviation operational responses outside the movement area will require consideration of, and/or implementation of the following, in accordance with [SOP-022](#) and [SOP-039](#).

- Obtain details of pending aircraft movements.
- Raise a notice to airmen action, if appropriate, or advise the Northern Territory Fire and Rescue Service (NTFRS) of non-attendance.
- Upon arrival of the NTFRS, the functions of fire fighting in buildings/structures shall be handed over to the NTFRS as detailed in the Memorandum of Understanding between ARFFS and the NTFRS.

## 8.5.5 Darwin tactical plan and resources for category 8

### 8.5.5.1 References

Information regarding the following is in accordance with Tactical Plan for Civilian Aircraft Response ([SOP-002](#)) and Military Aircraft Incidents ([SOP-011](#)):

- function of vehicles
- positioning of vehicles
- initial attack or strike action.

### 8.5.5.2 Availability of resources

Darwin ARFFS provides a 24-hour Category 8 level of protection commensurable with aircraft requirements, which includes the following - Category 8:

- one Fire Commander (FC), one Station Officer (SO) and six Aviation Fire Fighters (AFFs)
- three Ultra Large Fire Vehicles Mark 8, each containing
  - 8900 (nominal) litres of water
  - 1340 (nominal) litres of aqueous film forming foam (AFFF)
  - minimum discharge rate of 7200 litres per minute
  - 225 kilograms of dry chemical powder.

(text deleted)



## 8.5.6 Standby positions

The following table details the standby positions. Any change will be at the discretion of the Fire Commander/Station Officer:

Runway	Standby positions	Vehicle
11/29	Taxiway 'B'	First response vehicle
	Taxiway 'E'	Second response vehicle
	Taxiway 'B'	Third response vehicle
18/36	Taxiway 'A' and 'C'	First response vehicle
	Taxiway 'C' opposite the RAAF OLA building	Second response vehicle
	Taxiway 'Z' intersection onto RW 18	Third response vehicle

## 8.5.7 Notification of the Fire Station Manager or Incident Command System Officer

### 8.5.7.1 Fire Station Manager notification

The Fire Commander (FC) must notify the Fire Station Manager (FSM) or on call Incident Command System (ICS) Officer as soon as is practicable, by phone, of all incidents involving:

- outside services
- serious injuries
- deaths to passengers
- deaths or serious injury to ARFFS personnel.

### 8.5.7.2 Additional occurrences requiring notification

The following occurrences also require the FSM or ICS on call officer to be notified as soon as possible to enable attendance at the scene:

- aircraft crashes involving serious injury or death
- aircraft incidents where full aerodrome emergency procedures are instigated
- building fires
- hazardous material incidents
- injuries to ARFFS personnel requiring medical attention/Comcare
- all responses to mutual aid requests.

The FSM or ICS on call officer will be incorporated into the Incident Command System (ICS) structure and initiate functions, such as:

- welfare
- Comcare incident reporting
- case management
- operational duties, as applicable.

The first line of communication is via mobile phone number [REDACTED]. If the mobile phone has a problem/fault, phone [REDACTED] (current FSM home number).

### 8.5.7.3 Fire Station Manager absent/unavailable

Should the FSM be known to be absent or when off call an officer will be rostered on call to act as the ICS Officer. This will be recorded in the C4i online operators log and the FCC operator's whiteboard.

If time permits he/she will attend and carry out such duties as to supplement the duty crew from the Incident Command Post.

If necessary, the FC will travel to the fire station to obtain:

- an ARFFS vehicle
- the spare ICS Command folder
- appropriate radios
- mobile phone (if available).

### 8.5.8 High voltage sub-station procedures

In the event of an incident or a fire refer to Structural Fire Fighting Response ([SOP-016](#)) Section 5 Electrical Hazards.

In any high voltage sub-station or involving equipment where power isolation is required the procedure is to advise the relevant authority as follows.

Building	Authority	Contact details
Airservices Australia buildings	Technical Asset Services through the Airways Service Desk <b>Note:</b> This section is responsible for call-out for Darwin Technology and Asset Services staff. It is now based in Canberra.	[REDACTED] [REDACTED]
Royal Australian Air Force buildings	Transfield Defence Services and Darwin BCP	[REDACTED]
Darwin International Airport Buildings and Facilities	DIA Operations Officers 24/7 or Airport Duty Manager 0401 005 977	[REDACTED] [REDACTED]

## 8.6 Response preparedness and response time tests

### 8.6.1 Response preparedness procedures

#### 8.6.1.1 Reference

Response preparedness checks are performed as outlined below in accordance with Response Checks and Tests ([AFFM-04](#)).

(text deleted)

#### 8.6.1.2 Instruction

Current time parameters as per [AFFM-04](#) are listed below.

From receipt of the call	
First vehicle	45 seconds
Last vehicle	70 seconds

(text deleted)

### 8.6.2 Vehicle Response Time tests and routes to be taken

#### 8.6.2.1 Reference

The following instruction details the route and procedures to be taken when performing vehicle time tests to runways([AFFM-04](#)).

#### 8.6.2.2 Instruction

The following table indicates the routes to be taken to the following runways:

Runway	Minimum discharge rate
29	Enter Taxiway Z, turn east Enter Taxiway B, turn south Enter Runway 11, travel to Threshold 29
11	Enter Taxiway Z, turn west Cross Runway 18, enter Taxiway C Enter Runway 29, travel to Threshold 11
36	Enter Taxiway Z, turn west Enter Runway 36, travel to threshold
18	Enter Taxiway Z, turn west Enter Runway 36, travel to Threshold Runway 18

## 8.7 Special risk areas

Darwin has identified a number of special risk areas. These are outlined below:

- Environment Australia Laboratories and Complex
- Royal Australian Air Force (RAAF) Explosive Ordnance Facility
- RAAF Oxygen Storage Facility.

Note :

1. These special risk areas are identified in Hazlog for the Darwin Fire Station.
2. Procedures outlined in Hazardous Materials Incidents ([SOP-017](#)) will be used as guidance for responses.

### 8.7.1 Environment Australia

The procedures for incidents involving the Environment Australia Facility are as follows.

Respond to Automatic Fire Alarm activation or Emergency call out:

- 1) Investigate the alarm or meet the caller at the site.
- 2) Find out if the call is in the office area or the laboratories.
- 3) Find out if the call is hazardous originated.
- 4) Find out if persons are in the area.
- 5) Find out if fire is involved.

#### Incident is in the office area

Treat it as per a normal building call.

#### Incident is in the Laboratories:

- 1) **Does not** have hazardous material (HazMat) involvement then treat as a building call.
- 2) **Does** have HazMat involvement:

Non-fire (i.e. spill) request Northern Territory Fire and Rescue Service (NTFRS) assistance	<p>Access hazardous storage lists and Material Safety Data sheet (MSDS):</p> <ul style="list-style-type: none"> <li>• On response vehicle.</li> <li>• At HazMat Communication Station in laboratories entrance.</li> <li>• MSDS in information box on fence at rear of complex adjacent the electric gate.</li> </ul> <p>Assess if life involved, take appropriate action.</p>
For fire, request NTFRS assistance	<p>Determine site of fire.</p> <p>Use storage data sheets to determine hazardous stored and quantities.</p> <p>If life involved take rescue action.</p> <p>Initiate firefighting activities.</p> <p>Consider evacuation for the Civil Aviation Safety Authority, Darwin International Airport administration, Australian Quarantine and Inspection Service and CareFlight International Jet Hangars.</p> <p>Consider roadblocks in area.</p>

## 8.7.2 Royal Australian Air Force explosive ordnance facility

The procedures for incidents involving the explosive ordnance facility are as follows:

- 1) In the event that ARFFS are required to respond to an emergency in the RAAF Base Australian Defence Industries (ADI) Explosive Ordnance (EO) Facility they will proceed to the EO site office sited on the perimeter road behind the fighter replenishment area (FRA).

ARFFS will contact the duty manager on [REDACTED] or Mobile [REDACTED].

Entry to the Storage site will not occur without full advice and confirmation from the ADI EO manager.

ARFFS entry to the storage site will only occur after all safety requirements and procedures have been completed.

- 2) On arrival at the EO storage facility:

For non fire	Proceed as required to complete tasks
For armaments store fire	Proceed only if safe or lives are involved
For other fires	Proceed if it is safe to do so

Advice of stored quantities and stored locations is available from the ADI Manager.

- 3) Depending on the fire involved ARFFS may withdraw to a suitable location and request mutual aid from the:

- Northern Territory Fire and Rescue Service (NTFRS)
- Northern Territory Police (NT Police).

Consideration must be given to the evacuation of the suburb of Northlakes and up to McMillans Road including KOA and Malak Caravan Parks.

## 8.7.3 Royal Australian oxygen storage facility

The procedures for incidents involving the oxygen storage facility are as follows:

- In the event of a major fire in the storage facility, the area will be evacuated.  
If the Fire Commander/Station Officer decides to commit to an offensive/defensive strategy on the storage facility, request mutual aid from supporting services, including NTFRS.
- In the event of a minor fire in the vicinity of the storage facility ARFFS will
  1. extinguish the fire as quickly as possible
  2. consider evacuation of the local area
  3. request mutual aid, as required
- If a leak involving the storage facility is detected ARFFS will immediately
  1. commence dispersing the gas
  2. consider evacuation of the local area
  3. request mutual aid, as required

When dispersing gas, ARFFS will not allow any agent to come into contact with the tank, valves or hoses as this could result in internal icing, leading to a blockage of escaping gases.

## 9 Safety Management

### 9.1 Portfolio Responsibilities

ARFFS is committed to performing its operational functions at the highest level and has introduced a range of controls to achieve this level.

One such control is the development of Portfolio Instruction ([Ops-125](#)) detailing a range of responsibilities that have been allocated to staff at Darwin ARFFS Station.

Portfolios are to be managed in accordance with [Ops-125](#).

### 9.2 On-airport driver brake demonstration procedure

As part of the introduced of the enhanced ARFFS Driving practices is a requirement for drivers to participate in vehicle braking demonstrations and vehicle braking characteristics.

Training is subject to other operational commitments:

- In the planning of these EVI's must take into consideration RAAF Base activities i.e. not during exercises.
- The EVI's conduct and are responsible for this planning and training.
- This braking demonstration is to occur prior to attending the enhanced driving course.
- The process includes a number of drive passes and brake tests.


Following consultation with RAAF the road parallel to Stuart Highway from runway 26 to the large water tower will be used for this purpose.

- Notification of planned training is to be given to RAAF Police 48 hrs in advance.
- RAAF Police will assist by blocking the roadway at either end.
- ARFFS will place a GUV vehicle blocking exit on the roadway from the RAAF Fuel Tanker Farm.

## 9.3 Off-airport driver training procedures

It has become a requirement for ARFFS vehicle drivers to drive Fire Vehicles on public roads every 90 days. To meet this requirement a permit has been granted to drive the fire vehicles for driver training purposes on public roads. This driving will ONLY be as a normal road using vehicle NOT in an emergency response type drive.

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Note  : Oversize Vehicle warning lighting and headlights are required to be activated at all times when driving.

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Training shall be subject to other operational commitments.

- Shall be carried under the guidance of authorised ARFFS Emergency Vehicle Instructors (EVI).
- The EVI's have planned out routes and roads for the training to be conducted upon.
- The spare vehicle or FCC vehicle will be utilised for the purpose.
- There are always to be 3 people in the vehicle with the seat to the right behind the driver occupied at all times.
- Crews are to ensure that they carry their suitable PPE.
- ALL Road rules and ARFFS procedures as outlined in [SOP-039](#) will be adhered to.

## 9.4 Darwin cyclone procedures

### 9.4.1 Introduction

The following instruction details the local procedures to be followed when a cyclone is declared that may affect Darwin.

### 9.4.2 References

This instruction is to be read in conjunction with the following documents:

- Darwin International Airport Aerodrome Cyclone Plan
- Darwin Contingency Plan ([DNCP\\_ARFF](#)).

### 9.4.3 Stage 1

- 1) The Fire Commander (FC) shall advise the Fire Station Manager (FSM) of a cyclone watch. If the FSM is away from Darwin, the FC or the ICS on call officer shall assume the role of coordinator
- 2) Read Darwin Contingency Plan ([DNCP\\_ARFF](#)) and amend, if required
- 3) Arrange for extra duty staff, if necessary
- 4) Ensure vehicles have full tanks (water, aqueous film forming foam and fuel)

### 9.4.4 Stage 2

- 1) remove fire hoses from the hose rack
- 2) remove and secure shade cloth away from the barbeque area

- 3) store away or secure all loose objects (empty drums, mobile mock-up, etc)
- 4) emergency Vehicle Technicians shall
  - g) ensure tools and equipment are stored in the workshop
  - h) secure the workshop building
  - i) report to the FC/FSM
- 5) FSM or delegate is to advise National Operations Centre (NOC) via ARFFS Emergency Line (██████████) "Darwin ARFFS are expecting wind gusts in excess of 90 kph 6-12 hours away - advise Manager National Operations and Manager, Northern Regional (MNR)"

### 9.4.5 Stage 3

The FC shall ensure:

- general use vehicles and the trailer are garaged in the mechanical workshop
- doors and windows are secured and locked in all ARFFS buildings.

### 9.4.6 Stage 4

The FC must proceed as follows:

- 1) ensure:
  - a notice to airmen (NOTAM) is raised with ARFFS at Category 0 due to a cyclone
  - FSM to advise the NOC via ARFFS Emergency Line  
██████████ – Advising Darwin ARFFS at Cyclone Stage 4 requesting they advise Manager National Operations and Manager, Northern Regional
  - the doors to the fire station are secure, and glass areas are taped
  - engine heaters and battery chargers are left unplugged
  - electronic equipment is covered with waterproof sheeting
  - computers are to be shut down and disconnected
- 2) release ARFFS staff to return to their homes, or shelter in the dormitory
- 3) remind staff to check in after the 'all clear' is declared
- 4) if the station is vacated, ensure it is secured

### 9.4.7 Stage 5

The FSM shall ensure that staff remains in the shelter even if the cyclone appears to have passed.

### 9.4.8 All clear

The FC shall proceed as follows:

- 1) account for all ARFFS staff
- 2) using a four-wheel drive vehicle, assist other sections and staff, as required



### **9.4.9 Post disaster - initial actions**

Post disaster initial actions are detailed in the steps below:

- 1) all fit off-duty staff are to report to the station as soon as possible
- 2) ARFFS will respond to emergency calls and any function which may be required
- 3) the FC available will assess the damage and fitness of:
  - staff
  - vehicle
  - equipment
  - water supplies
  - fuel supplies
- 4) liaise with the FSM and other Airservices Australia sections.

### **9.4.10 Post disaster – continuance**

Post disaster continuance actions are detailed in the steps below:

- 1) take care of staff welfare
- 2) reinstate appropriate level of Category  
review NOTAM if required
- 3) report to the Manager National Operations and Manager, Northern Regional at the earliest possible opportunity, via NOC (ARFFS Emergency Line [REDACTED])
- 4) maintain liaison with other sections
- 5) issue information to Airservices Australia staff
- 6) maintain morale and monitor hygiene.

# 10Security

NA

## References

All related documents referenced in this document are listed in the following table with some links to source documents as appropriate.

Number	Title
<a href="#">AA-OPSMAN-139H</a>	Operations Manual – Part 139H (Aerodrome Rescue Fire Fighting)
<a href="#">AA-PROC-SAF-0015</a>	Hazardous Chemicals
<a href="#">AFFM-04</a>	Response Checks and Tests
<a href="#">AFFM-FC</a>	Fire Control Centre
<a href="#">DNCP_ARFF</a>	Darwin Contingency Plan
<a href="#">ENV-001</a>	Environment Management
<a href="#">PROC-PROC-265265</a>	ANS and Property Management of on-ground activities
<a href="#">HR-128</a>	Contractor and Visitor Management
<a href="#">MoA_NTFRS</a>	MoA with Northern Territory Fire and Rescue Service (NTFRS)
<a href="#">Ops-125</a>	Portfolio Instruction
<a href="#">Ops-126</a>	Fire Alarm Handling and Charging Procedure
<a href="#">OTng-112</a>	Recruit Post Course Development Instruction
<a href="#">OTng-121</a>	ARFFS Training Guide – Operational Training
<a href="#">SMS-105</a>	ARFFS Change Management Procedure
<a href="#">SOP-002</a>	Tactical Plan for Civilian Aircraft Response
<a href="#">SOP-011</a>	Military Aircraft Incidents
<a href="#">SOP-016</a>	Structural Fire Fighting Response
<a href="#">SOP-017</a>	Hazardous Materials Incident
<a href="#">SOP-022</a>	Response to Requests for Mutual Aid
<a href="#">SOP-028</a>	Low Visibility Operations
<a href="#">SOP-039</a>	Driving ARFF Vehicles

## 5 Inspections

The Daily Inspection of the ULFV Mk8 is conducted in accordance with AFFM-03 Section 1.4, 120000 DCP and Vehicle Maintenance schedule and Vehicle Inventory Boards.

The inspection ensures the:

- Foam Valve Switch is set in the:
  - ON position when the vehicle is in operational standby
  - OFF position for pump operations during the Daily Inspection
  - OFF position during training to prevent unintentional foam discharge
- Hose Reel Discharge Switch is set in the OFF position:
  - prior to turning the vehicle key to the ignition position
  - at the completion of the Daily Inspection pump test

**Note:** Prior to Daily Inspections the Foam Valve Switch is set to the OFF position before the vehicle key is turned to the ignition position when foam production is not required.

**Note:** When foam has been introduced into the system all deliveries are thoroughly flushed in the same order as the Daily Inspection list.

### 5.1 Daily

#### 5.1.1 Breathing Apparatus

1. BA'S Daily Inspection.
2. Spare BA masks Daily Inspection.
3. BA board bag is checked that it is in its secured location for transportation and, bag contains:
  - the BA board
  - chinagraph pencils
  - sharpener
  - white board makers of two colours
  - whistles
4. BA control officer vest is on vehicle
5. BA timer is to be tested that alarm sounds and light flashes. Once tested the timer is to be reset to a 30 minute time frame

#### 5.1.2 Dashboard Checks:

1. Driver's Indicators and Gauges are in working order
2. Lamp test of all warning lights on operators dashboard
3. Operator's dashboard gauges indicate foam and water tanks are full to meet operational requirements
4. Compartment/locker open warning alarm is functioning

## **5.1.7 Deliveries**

### **5.1.7.1 Before engaging the vehicle pump**

Prior to engaging the pump, the monitor when required, is brought around first. Due to the potential of sticking switches, this avoids accidental discharge when released from housed position.

#### **5.1.7.1.1 Operator**

1. Places the Foam Valve Switch in the OFF position
2. Visually confirms that the Foam Valve Switch is OFF
3. Verbally notifies the driver "Foam Switch OFF"

#### **5.1.7.1.2 Driver**

Verbally confirms "Foam Switch OFF"

### **5.1.7.2 Static**

The Daily Inspection vehicle pump test is conducted in the order below on a hardstand in the following order.

1. Hose reel.
2. Undertruck nozzles.
3. Ground sweep nozzles.
4. Delivery outlets.
5. Bumper monitor, where fitted.
6. Roof Monitor.

**Note:** Completing the static test first ensures any inadvertent foam discharge is contained to a minimal area on the hardstand.

The following procedures apply during the daily vehicle static inspection.

1. Engage parking brake.
2. Place transmission in neutral.
3. Driver unhouses bumper and roof monitor.
4. Engage pump to static.
5. Allow pump to reach full pressure and check via gauge.
6. Operator alights from vehicle and conducts visual external safety check around the ULFV.
7. Operator signals the driver that they are conducting the hose reel inspection.
8. Operator checks hose reel.
9. Operator stows hose reel.
10. Operator ensures that the hose reel discharge valve is in the OFF position at the completion of the inspection.
11. Operator comes back to driver's line of sight and signals hose reel test complete.
12. Once it is confirmed no foam is being produced the outlets are tested as detailed.

**Note:** If foam has been introduced into the system all deliveries are thoroughly flushed in the same order as the Daily Inspection list.

13. Driver switches pump to manual and dials down to minimal pressure.
14. Operator places himself within driver's line of sight.
15. Driver tests undertruck nozzles.
16. Driver tests ground sweeps.
17. Operator signals driver that they are moving around to check the regulated delivery deliveries followed by the unregulated delivery.
18. For regulated deliveries pump is dialled to 800kPa as indicated by the pump pressure gauge, driver communicates with operator over testing of the front regulated to ensure operator is not in line of contact with delivery.
19. For unregulated delivery, pump is dialled back to minimal pressure before being tested.
20. Once side deliveries are tested, the operator ensures they are not in the movement / discharge area at the front of ULFV.
21. Driver tests bumper monitor range of movement and ability to diffuse, at full and reduced pressure being mindful of water usage.
22. Driver tests roof monitor range of movement and ability to diffuse, at full and reduced pressure being mindful of water usage.
23. Driver tests windscreen deluge.
24. Driver houses monitors.
25. Driver turns pump off.
26. Operator checks outlets for Morris washers.

#### **5.1.7.3 Mobile**

The following procedures apply during the daily vehicle pump roll inspection.

1. Driver and operator conduct visual external safety check around the ULFV.
2. Operator engages pump to Pump Roll.
3. Operator tests ground sweeps at full and reduced pressure being mindful of water usage.
4. Operator disengages pump.
5. Replenish water.
6. Reattach filler cap.

### **5.1.8 Completion of Pump Operations**

#### **5.1.8.1 Operator**

1. Places the Foam Valve Switch in the ON position
2. Visually confirms that the Foam Valve Switch is ON
3. Verbally notifies the driver "Foam Switch ON"

#### **5.1.8.2 Driver**

Verbally confirms "Foam Switch ON"

## Part 4 - Fire Station

### Contents

#### Large Mock-Up Training Ground Operating Procedures

Introduction.....	4-2
Frequency of Use .....	4-3
Fires .....	4-4
Exercise Safety Officer.....	4-4
Air Traffic Control Approval to Light Requirements.....	4-5
Facility Use Limitations .....	4-5
Hydrocarbon Fuel Storage at the Site.....	4-6
Access to the Facility from the Sealed Perimeter Road .....	4-6
Environment .....	4-7
Fire Operations in the Built-Up Training Pad .....	4-8
Training Procedures in the Mock-Up Area .....	4-9
Water and Hydrocarbon Retention System .....	4-10
Pumping and Electrical Operations .....	4-11
Pressurised Fuel Fire System.....	4-12
Oil Separator System Operation (in Generator Shed) .....	4-13
Irrigation Control System Operation .....	4-14

#### Reserve Stock

Reserve Stock .....	4-15
---------------------	------

#### Training Facilities

Fire Station Training Ground Operating Procedures.....	4-17
Hot Fire Fuel Gantry Training Facility.....	4-18
Control Person / Safety Officer .....	4-19
Hot Fire Training Control Bunker .....	4-20
Hot Fire Training Ground Liquid Petroleum Gas Supply System .....	4-21
Hot Fire Training Ground Liquid Fuel Supply System .....	4-22
Hot Fire Gantry Fuel Control Procedures.....	4-23
Liquid Hydrocarbon Fuel System Operating Procedures.....	4-23
Liquid Petroleum Gas Control System Operating Procedures .....	4-24
Smoke / Fire Training Facility (Fire House) .....	4-26
Waste Water Retention Pond.....	4-27
Waste Water Treatment / Filter System.....	4-27
Valve Operation to Process the Liquid.....	4-28
Mobile Aircraft Training Mock-Up.....	4-30
Training Facility Operator / Safety Officer Instructions Checklist .....	4-30

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*NRFC 14696*

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## Large Mock-Up Training Ground Operating Procedures

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### Introduction

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**Location**      The large mock-up training ground is situated north-west of the main fire station, on a 12.3 hectare site leased from the Department of Defence.

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**Operating procedures**      In accordance with the lease requirements, specific instructions are issued pertaining to the use of this facility. These include information regarding the following:

- frequency of use
  - fires
  - fax notification of intended usage
  - Air Traffic Control approval to light requirements
  - usage of facility limitations
  - safety officer
  - hydrocarbon fuel storage at the site
  - access to the facility from the sealed perimeter road
  - environmental instructions.
- 

*RFC/04/0880*



## Frequency of Use

<b>Training area open / closed</b>	<p>The training ground will only be used between 1 April and the onset of the wet season (possibly December).</p> <p>The Senior Fire Commander, in consultation with the Australian Defence Force environmental officer, will declare the training area open / closed.</p> <p>Hot fire training will take place at a secondary training facility at the rear of the fire station, if the above is not available.</p>
<b>Wet season training</b>	Wet season training will not take place due to possible environmental damage.
<b>Large external fires</b>	Training exercises with large external fires will only take place on Mondays, Tuesdays, Wednesdays, Thursdays and Fridays.
<b>Deleted</b>	<i>Block: Multi-vehicle monitor attack</i>

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## Fires

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<b>External fires</b>	Fuel for external fires will consist of authorised liquid hydrocarbon fuel only.
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<b>Internal fires</b>	Fuel for internal fires will consist of hay only.
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<b>Multi-vehicle attack</b>	Fires for a multi-vehicle attack will consist of no more than 150 litres of fuel on either side of the mock-up, as per agreement with the Australian Defence Force.
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<b>Single vehicle attack</b>	Fuel usage for single vehicle attack will be limited to 150 litres of fuel on one side of the mock-up.
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<b>Engine, wheel and auxiliary power unit fires</b>	Fuel burners will be used to simulate engine, wheel and auxiliary power unit fires.
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## Exercise Safety Officer

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<b>Appointment</b>	Prior to operation of the training facility, an exercise safety officer must be appointed to be responsible for the safety control of operations on the site.
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<b>Inspection</b>	A pre-ignition inspection of the facility must be undertaken by the designated exercise safety officer.
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<b>Controls operation</b>	Operation of the controls for the training aid must only be undertaken by staff who have received the operation and familiarisation briefing on the use and safety aspects of the facility.
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## Air Traffic Control Approval to Light Requirements

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### Air Traffic Control approval

Prior to the lighting of fires in the training ground, approval will be obtained from the tower. The tower permission criteria will relate to the:

- wind direction,
  - aircraft movements,
- or
- other physical conditions,
- that would adversely affect the safe operations of the airport.

The wind direction notification is obtained from the tower. When wind direction is indicated as 070 degrees to 110 degrees, **no fires** are to be lit around the mock-up.

If, in the opinion of the tower supervisor, the wind direction is likely to encroach in the 070 degree to 110 degree arc during the anticipated training time, approval to light **will not** be given.

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*RFC/04/0880*

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## Facility Use Limitations

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### Facility use limitations

Where possible, all fires are to be contained within the concrete pad areas of the training area.

Specific fires that are set in steel trays outside of the concrete pad are to have the residue fuels / foam, etc., disposed of onto the concrete pad for environmental safety.

**External fires on the concrete pad are to have a maximum of 300 litres of fuel per exercise.**

Training exercises with large external fires are only to be held on Mondays, Tuesdays, Wednesdays, Thursdays and Fridays as per agreement with the Australian Defence Force.

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*RFC/09/0201*

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## Hydrocarbon Fuel Storage at the Site

### Hydrocarbon fuel storage

On-site hydrocarbon fuel storage will be limited to the contents of the 120-litre storage tank attached to the fuel pump for the burners. This is housed inside the control enclosure which is within a bunded area.

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*RFC/09/0201*

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## Access to the Facility from the Sealed Perimeter Road

### Access to the facility

Access to the training facility from the sealed perimeter road will only be via the designated entry / exit points. These points are to be marked by two white posts adjacent to the roadway.

Maintenance of the ground at these entry points is the responsibility of ARFF Services.

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*RFC/04/0880*

## Environment

### Concrete pad confinement

Specific fires that are set in steel trays outside of the concrete pad are to have the residue fuel disposed onto the concrete pad for processing.

*(Text deleted)*

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### Training exercise waste

All waste after training exercises is to be retained within the first settling tank for a period of 24 hours, prior to being processed through the separators.

The first settling / separating tank will be emptied of any hydrocarbon products at three-monthly intervals.

Sampling for hydrocarbons in the waste water will be done annually, taken from the discharge outlet of the final separator. These results will be sent to Facilities Management Services (Brisbane).

### Prior to the wet season

Prior to the onset of the wet season, the concrete pad will be hosed free of hydrocarbons, and the discharge of rain water will be diverted via the 'stormwater waste valve' to the leased site. This is achieved by operation of the control gate valves.

**Note:** The 'red flag' must be flown on the bollards adjacent to the raised pad when the valves on the water processing facility are set to 'Stormwater Waste'.

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*Block: Foam application outside bunded areas*

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## Fire Operations in the Built-Up Training Pad

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**Operation of  
the water  
control valves**

The gate control valve that limits the run-off of water to the open drain **must** be **closed** prior to any pouring of fuels or training commencing.

**Note:** The 'red flag' must be flown on the bollards adjacent to the raised pad when the valves on the water processing facility are set to 'Stormwater Waste'.

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**Operation of  
the fixed stairs**

The fixed stairs at the rear of the mock-up are for safety and setup of exercise use only. They are not to be included as part of access during a training exercise.

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*RFC/09/0201*

## Training Procedures in the Mock-Up Area

<b>Limitations</b>	<p><b>No fires</b> are to be lit inside of the concrete border that surrounds the rear of the mock-up.</p> <p><b>No fire truck</b> is to drive onto the ramp leading to the concrete pad area.</p>
<b>Monitor operator responsibility</b>	<p>Monitor operators are to ensure that they <b>do not</b> aim the monitor jet at the ramp area, as this will dislodge debris onto the concrete pad.</p> <p><i>(Text deleted)</i></p>
<b>Doors and stairs</b>	<p><i>(Text deleted)</i></p> <p>The doorways have knee and chest level chains fitted. These <b>must</b> be in position unless the stairs or a ladder is in use at the doorways.</p> <p>The opening on the handrail around the wings must be left in the closed and secured position unless a ladder is pitched for use in training.</p> <p>The doors and over-wing exits:</p> <ul style="list-style-type: none"> <li>when used in conjunction with ladders, must be restrained by the locking chain in the fully open position.</li> </ul>
<b>Eye wash facility</b>	<p>A safety eyewash facility is installed for emergency use in the pumping enclosure. Maintenance procedures and timings for this are programmed on MEX.</p>

NRFC 14696

## Water and Hydrocarbon Retention System

### Waste water to storm drain (rainwater)

The stormwater is diverted to the open drain by opening the discharge gate valve adjacent to the concrete pad.

#### Notes:

1. If this valve is open, ensure the gate valve to the processing tank is **closed**.
2. The 'red flag' must be flown on the bollards adjacent to the raised pad when the valves on the water processing facility are set to 'Stormwater Waste'.
3. **Prior to being opened the pad is to be washed clean of fuel.**

### Water / foam / hydrocarbon produced as a result of training

The water and any other products of training are to be discharged from the concrete pad into the first processing tank. (The approximate capacity of the tank is 12,000 litres.) This is controlled via the gate valve adjacent to the concrete pad.

Further procedures are listed below.

**Note:** **All** discharge from the concrete pad into the first processing tank **must** sit in this tank for 24 hours before it is processed through the oil separator.

NRFC 14696



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## Pumping and Electrical Operations

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**Introduction**      The fire ground has two buildings other than the mock-up. They are the:

- generator shed
- pumping enclosure.

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**Generator shed**

The generator shed houses the:

- diesel generator
- oil separator and irrigation pumps
- irrigation control panel.

For night operations, a 12-volt light is fitted to provide safety illumination to the area.

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**Generator**      The fuel tank capacity is approximately 30 litres. It is fitted with a manual and automatic start position on the control box adjacent to the generator.

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**Generator shed control panel**

The generator control panel consists of:

- manual stop / start position for the generator
  - stop / start for the separator and irrigation pumps.
- 

**Pumping Enclosure**

The pumping enclosure houses the:

- fuel tank / fuel pump
- pump controls / fuel control manifold for the pressure fuel fires
- separator for separating hydrocarbons from other liquids
- controls for remote start / stop / emergency stop of the generator.

For night operations, a 12-volt light is fitted to provide safety illumination to the area.

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*RFC/09/0201*

## Pressurised Fuel Fire System

### System

The pressurised fuel fire system consists of:

System compound	Details
120-litre fuel tank	Holds the fuel for supply to the pressurised fuel fires
Isolation valve	Shuts off the fuel supply from the tank
In-line fuel filter	Filters out any impurities in the fuel
Emergency cut-off valve	Operated by the emergency cut-off knob to isolate fuel flow
Manifold distribution point	Allows fuel to be distributed to any of four points on the aircraft
Fuel pump control panel	Stops and starts the generator (remotely)  Stops and starts the fuel pressurisation pump  Closes the emergency fuel cut-off valve

### Operation

The following steps detail the operation of the pressurised fuel system:

1. Open the fuel tank isolation valve.
2. Ensure the emergency cut-off knob is in open mode. (the knob rotates in the direction of the arrow).
3. Select desired outlet delivery valve / valves into the open position.
4. Start generator with the 'Start' button.
5. Prime fuel outlet points with sufficient fuel to enable ignition.
6. Start the fuel pump.
7. Control the flow using the manifold valves, by partly or fully opening, as required.

### Shut-down

The following steps detail the shut-down of the pressurised fuel system:

1. stop the fuel pump
2. close the distribution valve/s
3. close the fuel tank isolation valve
4. shut down the generator (if no water processing is to take place).

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## Oil Separator System Operation (in Generator Shed)

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**IMPORTANT** After use, the water / hydrocarbons must sit in the holding tank for 24 hours before it is allowed through the oil separator.

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**Operation** The following steps detail the operation of the oil separator system:

1. Ensure:
  - the generator has sufficient fuel
  - the switch on the generator control box is in the automatic position
  - the oil separator pump switch is in the automatic position
  - the emergency cut-off switch on the oil separator and irrigation panel is in the deactivated position. (Rotate the red knob in the direction of the arrow)
2. Press the generator 'Start' button (green).

**Note:** The generator takes three - five seconds before it starts.
3. Press the oil separator 'Start' button (green). The pump should start.

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**Shut-down** The following steps detail the shut-down procedures for the oil separator system:

1. press the 'Stop' button (red) on the oil separator pump control panel
2. press the 'Stop' button (red) on the generator control panel.

The pump stops, and the generator shuts down when the water level in the holding tank reaches a predetermined low level.

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**Generator running** The generator will run for approximately two hours prior to automatically shutting down.

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NRFC 14696

## Irrigation Control System Operation

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*Blocks: Capacity  
Irrigation*

**Operation**

The irrigation system is not to be used until approved by Airservices Environment section. When this is achieved, new procedures will be included in Darwin ARFF Local Instructions

The holding tanks are to be emptied and treated by WasteMaster - The Senior Fire Commander will arrange collection as required.

**D****Deleted**

*Blocks: Shut-down  
Generator running*

NRFC 14696

## Reserve Stock

### Reserve Stock

#### Minimum reserves

The table below outlines minimum reserves:

Agent	Minimum reserves
Dry chemical powder (DCP)	200% of all DCP units (1,350 kg)
Aqueous film forming foam (AFFF)	200% of operational vehicle requirement (8,500 litres)
Diesel capacity	200% of operational vehicles fuel tank capacity (2,000 litres)
Dry nitrogen	200% of operational vehicle requirement (12 E-size dry nitrogen cylinders)

#### Weekly stock check

All reserve stocks will be checked weekly as per MEX. (See note below.)  
Quantities are to be recorded into the station reserve management database.

Agent	Where recorded
AFFF and DCP	Station reserve stock record folders
Diesel	Mechanics checking system
Dry nitrogen	Reserve equipment form (weekly)

If stocks are at the reorder amounts listed below, the Station Officer / Fire Commander is to be advised to arrange purchase of stock.

**Note:** Do not include the DCP located in the reserve vehicle in the reserve stock.

#### Aqueous film forming foam

If, for any reason, foam is required to be drained from a vehicle, it must be tested by the mechanical section and then pumped into the bulk storage tanks.

*Continued on next page*

**Reserve Stock**, continued**Reordering**

Agent	Reorder when:
AFFF	Stock reaches 9,000 litres
DCP	Stock reaches 1,600 kg
Diesel	Stock reaches a capacity of 2,500 litres

All deliveries are to be recorded in the station reserve management database.

The EVT will be advised on delivery of fuel to enable additive to be mixed with fuel in the storage tanks.

**Diesel issue**

Staff who replenish vehicles will complete the details required on (Fuel Issue Voucher).

The completed voucher is entered in the station reserve management database, and initialled.

NRFC 14696

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## Training Facilities

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### Fire Station Training Ground Operating Procedures

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**Introduction** The following instruction details the correct procedures for operation of the fire station training ground facilities.

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**Reference** Operating procedures at the fire station training ground are in accordance with:

- the following instruction
- Part 2 (Environment) of this manual
- "Agreement under sub-regulation 4.02(2) Airports (Environment Protection) Regulations 1997" in relation to the emission of dark smoke.

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**General** The training facilities consist of the following:

- hot fire fuel gantry training facility
- hot fire training control bunker
- hot fire training ground liquid petroleum gas supply system
- hot fire training ground liquid fuel supply system
- hot fire training ground fuel control procedures
- smoke / fire training facility
- waste water retention pond
- waste water treatment / filter system
- mobile aircraft training mock-up.

This instruction is formulated to take into account:

- operational considerations
  - occupational health and safety considerations
  - environmental requirements and considerations.
- 

*Continued on next page*

## Fire Station Training Ground Operating Procedures, continued

**Considerations** Prior to operation of these facilities, staff are to ensure that they are **fully** conversant with all instructions and operating procedures.

As per instruction, prior to an exercise commencing, an ARFF Services safety officer must be appointed.

Prior to fires being lit, the tower must be advised.

**Note:** As these facilities are both environmentally and safety critical, the utmost care **must** be taken.

RFC/04/0880

## Hot Fire Fuel Gantry Training Facility

**General** **Note:** Prior to commencement of any training, the water valves in the filtration system must be placed into the appropriate positions.

There are four different series of training exercises that can be conducted with this facility:

- A Class fires in the fire crib
- B Class fires in fuel trays
- liquid petroleum gas (LPG)-pressurised fuel fires in eight locations
- hydrocarbon fuel-pressurised fires in four locations.

The LPG fuel lines have non-return valves at the fuel feed isolation valves, adjacent to the fire points.

Control of the LPG supply (vapour) is via the nitrogen-driven foot pedals in the control bunker.

The fuel lines only have isolation valves adjacent to the fire points.

*Continued on next page*



## Hot Fire Fuel Gantry Training Facility, continued

### Fuel arrangements

Hot fire training aids will be utilised for training, as follows.

Aid	Utilised for training when:
A Class fire crib	Filled with wood, hay or cardboard for extinguisher training
B Class fuel tray	Filled with kerosene for small extinguisher training
LPG-pressurised fire points	Twin cylinders for fire-impinging fire training Pressurised vapour LPG fires
Fuel-pressurised fire points	Hydrocarbon fuel fires

NRFC 14696

## Control Person / Safety Officer

### Control person / safety officer

The person in charge of all operations on the training facilities is the control person or safety officer.

Prior to being able to perform the control person / safety officer function, the person **must** have had a formal briefing on how the facility is operated.

The persons authorised to perform the briefings are Senior Fire Commander [REDACTED]

Operating instructions must be given on operation of the:

- control bunker
- waste water retention pond
- waste water treatment facility.

NRFC 14696

## Hot Fire Training Control Bunker

<b>Location</b>	The control bunker is where the controls for the pressurised fires on the training ground are situated.
<b>Responsibility</b>	The control person / Safety Officer will be in charge of the supply of gas and liquid fuels to the training ground.
<b>Fire points</b>	The fire points on the training ground are supplied with either Liquid Petroleum Gas (LPG) or liquid hydrocarbons. Some have the ability to operate using either fuel <b>but they must not be operated together.</b>

**Fuel supply** Fuel supply for hydrocarbons is from the trailer tank, into the fuel inlet, to the air pump, through the manifold valves, to the required fire point.

LPG vapour is from the bulk tank. The control of LPG fuel is via the nitrogen-controlled foot valves. Safety line purging is done with nitrogen. The fuel is supplied through the manifold valves to the required fuel point.

Pressurised fuel to the control bunker is supplied as follows:

Fuel	Supply
LPG vapour	2 x 190 kg cylinders
Kerosene	Fixed 400-litre kerosene tank located inside bund

NRFC 14696

## Hot Fire Training Ground Liquid Petroleum Gas Supply System

### Liquid petroleum gas fuel supply

The Liquid Petroleum Gas (LPG) fuel supply is held in 2 x 190 kg LPG cylinders remote from the training ground.

LPG can be supplied to the training aids as either vapour. The supply lines and supply controls are totally separate. Supply controls are operated by the dry nitrogen system sited in the hot fire training control bunker.

LPG supply	
<i>(Text deleted)</i>	
Vapour	<p>LPG supply in vapour form comes from the top of the tank.</p> <p>Isolation valves are on the top of each cylinder to shut off the supply.</p> <p>The control valve is in the pipework between the cylinder and the ground.</p>

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## Hot Fire Training Ground Liquid Fuel Supply System

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### Liquid Fuel

The supply of liquid fuel (kerosene) to the control bunker comes from the bulk tank that carries 400 litres of fuel.

The fuel is fed through flexible hoses that connect from the tank to the inlet in the control bunker.

Isolation valves are on the tanker and on the inlet on the inside of the control bunker.

Fuel is fed to the training aids by the air-operated pump. The controls for this are in the control bunker. An isolating valve is sited after the pump on the line to the training aids.

Ensure all valves are closed after use.

Care must be taken to avoid spills of fuel when disconnecting fuel hoses from bulk tank or other fitting.

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## Hot Fire Gantry Fuel Control Procedures

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**Procedures** The fuel gantry and pipework system can be supplied with either vapour petroleum gas or liquid hydrocarbon fuel.

The operator of this facility **must** have received the appropriate instruction on the use of the fuel gantry in accordance with the Fire Station Training Ground Operating Procedures.

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## Liquid Hydrocarbon Fuel System Operating Procedures

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**Start-up procedures** The following steps detail the start up procedures for the liquid hydrocarbon fuel system:

1. ensure valve is open **only** at the fire point to be used
2. connect hoses from the fuel tank to couplings on the east external wall of the control bunker
3. open the fuel shut-off valves on the tank
4. open the fuel input valves in the control bunker
5. open the air control valve to the air pump to create fuel flow pressurisation to the fire points
6. open the fuel supply valve to the fire points
7. control flow with the air valve and fuel supply valve.

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**Shut-down procedures** The following steps detail the shut-down procedures for the liquid hydrocarbon fuel system:

1. ensure **all** fire point valves are left open
2. close the valve on the bulk fuel tank, fuel input and fuel output valves.

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## Liquid Petroleum Gas Control System Operating Procedures

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### Start-up nitrogen system

The following steps detail the start-up procedures for the nitrogen system:

1. open the cylinder valve
  2. check that there are sufficient contents in the cylinder to complete the exercise
  3. change over to the second cylinder and check contents (if fitted)
  4. set pressure on '+ / -' dial to maximum settings
  5. open the dry nitrogen valve to the distribution control valves
  6. ensure the purge valve to the fire points is closed
  7. operate the foot control to check that it is operational.
- 

### Start-up liquid petroleum gas system

The following steps detail the start-up procedures for the liquid petroleum gas (LPG) system:

1. Open the input valves from the bulk tank. For all gas, open valve on the east side of the inlet manifold.
  2. **Ensure all** valves at the fire points are open.
  3. Ensure all valves on the distribution manifold are closed.
  4. Select the desired fire control point valve on the control manifold and open. (Remember, your foot must be on the valve pedal to hold the tank valve open.).
  5. Select gas (on low flow) and light the fire point.
  6. To increase fire, open the valve fully.
- 

*Continued on next page*

## Liquid Petroleum Gas Control System Operating Procedures, continued

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### Shut-down LPG system

The following steps detail the shut-down procedures for the LPG system:

1. remove foot from the foot flow valve
2. open all distribution valves on the distribution manifold
3. open **all** fire point isolation valves
4. close nitrogen cylinder/s
5. open the purge valve on the western side of the control manifold to depressurise the facility.

**Note:** The LPG system can supply LPG vapour to the fire points.

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### Valve operation

Operation of the valves is by the dry nitrogen system located on the western wall of the control bunker. Two cylinders can be hooked up to provide the necessary gas supplies.

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### Dry nitrogen

Dry nitrogen functions are:

- open supply valves at bulk LPG tank
  - purge LPG from lines to the fire points for safety.
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NRFC 14696

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## Smoke / Fire Training Facility (Fire House)

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**Introduction**      The smoke training facility has the following training areas:

- darkened environment for training
  - safe smoke internal training
  - hot fire (A Class) internal fires
  - restricted access training via tunnel
  - roof top fire fighting.
- 

**Safety  
procedures**

The external control panel has light switches and fan ventilation control switches.

Prior to commencing training, ensure that **all** doors and entries / exits are unlocked.

Ground level exit lights are sited on two walls of the building.

On two sides of the building are push-out escape doors that provide emergency evacuation ability.

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**Lighting  
internal fires**

Internal fires are **only** to be lit in the burn baskets in the fire house.

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## Waste Water Retention Pond

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### Waste water retention pond

The waste water retention pond is surrounded by an approved pool fence. Waste water and any other liquids (and some solids) flow to the pond from the hot fire training ground and the smoke / fire training facility, into this retention pond.

The retention pond is cement-lined with bagged fill that slopes toward the sump outlet end.

Its sole purpose is to hold the liquid waste prior to treatment or release.

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RFC/04/0880

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## Waste Water Treatment / Filter System

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### Waste water treatment / filter system

The water treatment / filter system is where the training facility excess water flows to for processing from the retention pond.

Depending upon the type of fuel being used, the system is used to release, filter or process the water and any pollutants.

The following are types of operations producing water that is to be released or processed:

- facility **not** in use (wet season only rainwater outflow)
- liquid petroleum gas (LPG) gas and LPG liquid fires
- A Class fires in fire cribs
- fires in smoke training facility
- pressurised liquid fuel (hydrocarbon) fires.
- *(Text deleted)*

### Notes:

1. If water is suspected of being contaminated, **do not** release it. Put the water through the highest level filtration and process.
  2. The 'red flag' must be flown high on the fence when the valves on the water processing facility are set to 'Stormwater Waste'.
- 

NRFC 14696

## Valve Operation to Process the Liquid

### Valve operation

The water flows from the retention pond into a pipe that has two valves. These valves direct the water either into stormwater as waste or to be processed. The valve positions (open or closed) dictate the flow direction.

Valve positions	Water direction
Valve 1 open, Valve 2 closed	Releases water to stormwater (no processing)
Valve 1 closed, Valve 2 open	Directs water into the processing system

When water from the sump is pumped into the filter system, either of the following will occur:

- Processed water is directed into the stormwater drains.
- Processed water is directed into the sewerage system.

### Notes:

1. The sump for the processing system has high and low water level switches that turn the processing filter pump on and off (as required).
2. The 'red flag' must be flown high on the fence when the valves on the water processing facility are set to 'Stormwater Waste'.

**On / Off switch** The filter pump has an on / off switch for:

- isolation of the pump,
- or
- switching it off.

*Continued on next page*

## Valve Operation to Process the Liquid, continued

**Valve positions** The following table details the valve positions required, depending on the training facility being used:

When:	Valve Positions
The training facility is not in use (rainwater outflow)	Valve 1 open, Valve 2 closed.
Liquid petroleum gas is being used on the training facility	<b>Note:</b> The filter pump must be switched 'off'.
Liquid hydrocarbon is being used on the training facility	<ol style="list-style-type: none"> <li>Valve 1 closed, Valve 2 open</li> <li>Filter pump from the sump switched 'on'</li> <li>Valve 3 closed, Valve 4 open. (This directs waste water to the sewerage)</li> </ol>
(Text deleted)	

### Notes:

- If the water is suspected to be contaminated, process it in accordance with liquid hydrocarbon procedures.
- Always err on the side of safety and over-process the water if uncertain.
- Bear in mind that the cost of processing the contaminated water and pollutants is much less than the cost of an environmental clean-up, as well as the publicity costs.
- The 'red flag' must be flown high on the fence when the valves on the water processing facility are set to 'Stormwater Waste'.

NRFC 14696

## Mobile Aircraft Training Mock-Up

**Description** The mobile mock-up is a replica of a small aircraft or a business jet aircraft.  
It is designed to be towed to a location and used as a go-anywhere training aid.

**Operation of the mobile mock-up** **Do not** tow the mock-up with the wings in the 'folded **out**' position.  
**Do not** light fires **inside** the aircraft, except in the trays provided.  
Do not light ground external fires in areas that will cause damage to the mock-up or its wheels.

**Note:** Be aware of the need for environmental considerations if DCP is used in training.

NRFC 14696

## Training Facility Operator / Safety Officer Instructions Checklist

**Instructions** Prior to operation of the facility, staff must have had instruction on its operation from the authorised instructors. The facility must also have had a pre-use safety inspection.

The following areas must be demonstrated:

Checklist	✓
LPG bulk supply tank operations	
Liquid fuel tank operations	
Control bunker operations	
Operation of fire point valves	
Operation of liquid hydrocarbon control system	
Operation of LPG vapour system	
Operation of the nitrogen control system	
Operation of the nitrogen safety system	
Operation of the waste water treatment facility	

NRFC 14696

# **APPENDIX 8**

## **Airservices National Procedures**

# **ARFFS Environment Management**

## **Procedure**

### **ENV-001**

### **Version 16**

### **Effective 16 November 2017**

Prepared:

██████████

Senior Operational Standards Specialist

Endorsed:

██████████

Environment Systems and Assurance Manager

Authorised:

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Operational Standards Manager

## Change summary

Version	Date	Change description	NRFC
16	16 November 2017	This version incorporates the following changes: <ul style="list-style-type: none"> <li>• Endorsement by the Environment Systems and Assurance Manager</li> <li>• Reference to ENV-GUIDE-0021 on p14 has been marked as a hyperlink</li> <li>• New para 2.9 Product Stewardship</li> <li>• 4.1.4: New lead paragraph included</li> <li>• 4.11.7: New paragraph to clarify the requirement for reporting an operational response</li> <li>• 5.1.3: New section on Environmental Performance</li> <li>• Definition of ARFFS Site Manager amended</li> <li>• Definition of NABERS added</li> <li>• Appendix B.9: Links to Visitor and Contractor Induction Checklists have been corrected.</li> </ul>	36086

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## Table of contents

<b>1</b>	<b>Part 1: Overview .....</b>	<b>5</b>
1.1	Purpose .....	5
1.2	Scope .....	5
1.3	Context .....	6
1.4	ARFFS Accountabilities .....	6
1.5	Other Airservices Accountabilities .....	11
1.6	General controls .....	11
<b>2</b>	<b>Part 2: Planning and Design .....</b>	<b>14</b>
2.1	Outcomes .....	14
2.2	Storage and distribution systems .....	14
2.3	Pollution prevention .....	15
2.4	Waste water management .....	16
2.5	Energy Use and Infrastructure Performance .....	19
2.6	Water use and infrastructure performance .....	21
2.7	Landscaping .....	22
2.8	Heating, ventilation and air conditioning (HVAC) .....	22
2.9	Product Stewardship .....	22
2.10	Procurement of material and consumables .....	22
<b>3</b>	<b>Part 3: Construction and Project Delivery .....</b>	<b>24</b>
3.1	Projects and changes in practice .....	24
3.2	Contamination assessment .....	24
3.3	Management of excavated materials on ARFFS sites .....	25
3.4	Construction/Project Site Waste Disposal .....	25
3.5	Demolition works plan .....	25
3.6	Construction Environmental Management Plan .....	25

3.7	Commissioning.....	26
3.8	Practical completion .....	27
3.9	Defects liability .....	27
3.10	Asset lifecycle monitoring and performance .....	27
3.11	Disposal .....	28
<b>4</b>	<b>Part 4: Operations and Maintenance.....</b>	<b>29</b>
4.1	General site maintenance .....	29
4.2	Environment Manifests and Site Inductions.....	29
4.3	Fuel Management .....	30
4.4	Foam management.....	33
4.5	DCP, dangerous goods and hazardous chemicals.....	37
4.6	Other chemical and potential contaminants.....	38
4.7	Waste management and disposal.....	38
4.8	Site condition monitoring.....	41
4.9	Vehicle and equipment management .....	41
4.10	Training .....	42
4.11	ARFFS environment occurrence management .....	46
4.12	Environmental records management .....	49
<b>5</b>	<b>Part 5: Assurance.....</b>	<b>51</b>
5.1	Environmental Assurance .....	51
<b>6</b>	<b>Definitions.....</b>	<b>54</b>
<b>7</b>	<b>References .....</b>	<b>57</b>
<b>Appendix A</b>	<b>Guidance for developing local instructions .....</b>	<b>58</b>
A.1	Manifests .....	58
A.2	Fuel storage .....	58
A.3	Refuelling vehicles and refilling storage tanks.....	59
A.4	Foam storage .....	59
A.5	Foam refilling of vehicles and storage tanks.....	59
A.6	Dangerous Goods, Hazardous Materials and other Chemicals .....	60
A.7	Waste management and disposal.....	60
A.8	Vehicle wash down .....	60
A.9	Foam and monitor testing .....	60
A.10	Extinguisher training.....	61
A.11	Hot fire training (where hot fire training facilities exist) .....	61
A.12	Dark smoke management (where hot fire training facilities exist) .....	61
<b>Appendix B</b>	<b>Fire Station Monthly Checklists .....</b>	<b>62</b>
B.1	January Checklist.....	62
B.2	February Checklist .....	63
B.3	March Checklist.....	64
B.4	April Checklist .....	65
B.5	May Checklist.....	66
B.6	June Checklist.....	67
B.7	July Checklist .....	68



B.8	August Checklist .....	69
B.9	September Checklist.....	70
B.10	October Checklist.....	71
B.11	November Checklist.....	72
B.12	December Checklist.....	73

# 1 Part 1: Overview

## 1.1 Purpose

The purpose of this procedure is to prescribe the environmental management requirements associated with Aviation Rescue Fire Fighting Service (ARFFS) and facilities including:

- Site and facilities management and use
- Vehicle and equipment management
- Training
- Operational response
- ARFFS environmental occurrence and emergency management
- Environmental values management
- Procurement and service provision
- Reporting, documentation and records.

## 1.2 Scope

This procedure applies to all ARFFS staff.

Staff with particular accountabilities need to have a more detailed understanding of the sections of this procedure which are most likely to impact on their actions and decisions. In the first instance, staff should focus their reading of this procedure as follows:

- **Part 1: Overview**  
All managers, ARFFS SLT, environmental specialists and environment portfolio holders
- **Part 2: Planning and Design**  
Asset Lifecycle Planning staff  
Portfolio Delivery staff (including Project Managers and Facilities Managers)
- **Part 3: Construction and Project Delivery**  
Operational staff (LOMs, ROMs, & Environment Portfolio Holders)  
Maintenance staff, especially EVTs in charge of workshops  
Portfolio Delivery staff (Facilities Managers)
- **Part 5: Assurance**  
Operational Risk and Assurance Manager and Assurance staff  
Operational staff (LOMs, ROMs, & Environment Portfolio Holders)  
Maintenance staff, especially EVTs in charge of workshops

## 1.3 Context

ARFFS is bound to comply with and implement Airservices Environmental Management System as defined in [Environmental Management System Objectives and Requirements \(AA-NOS-ENV-0001\)](#). The [EMS](#), which is aligned to ISO 14001, establishes an Airservices system for environmental management and associated requirements to meet environmental management obligations and performance goals. This procedure highlights the key elements of the EMS that relate to ARFFS, and is aligned with the National Operating Standard AA-NOS-ENV-0001.

While Environmental Management is a priority for ARFFS within routine operations operational response and requirements to respond to aviation incidents specified within [CASA Manual of Standards MOS-139H](#) and safety requirements may take precedence over environmental management policies and procedures outlined within this document.

The significant environmental issues associated with ARFFS operations and activities include:

- Management of fluoro surfactant contaminated sites, including projects and construction involving contaminated soils at active locations and decommissioning of legacy contaminated sites
- Waste-water management including fire training ground waste, truck wash, contaminated rainwater/stormwater management and disposal
- Diesel and kerosene fuel storage
- ARFFS operational response particularly when AFFF foam is used
- Resource usage and operating costs for ARFFS facilities.

## 1.4 ARFFS Accountabilities

### 1.4.1 General

Specific environmental management accountabilities are outlined in AA-NOS-ENV-0001. These accountabilities are wide ranging and comprehensive.

ARFFS' primary environmental responsibilities are to establish and maintain management processes, practices and procedures, and conduct operations to:

- Ensure compliance with all relevant local, state, territory and federal legal and other requirements.
- Minimise adverse impacts on the environment and associated risks to a level as low as reasonably practicable.
- Implement Airservices' EMS requirements and related management practices and controls relevant to ARFFS.
- Maintain appropriate consultation with relevant airport lessee companies, airport environment officers and other relevant regulators and airport owners.

In accordance with [AA-NOS-ENV-0001](#), all staff are accountable for:

- Sound environmental management including resource usage and waste minimization.
- Reporting immediately to management if they observe an environmental occurrence or potential environmental risk.

- Exercising the environmental accountabilities relevant to their role.
- Ensuring they are aware of any environmental risks associated with their work and implementing the associated controls and procedures as required.
- In the event of an occurrence, staff are to take immediate action to minimise the environmental impact (e.g. contain a spill), commence corrective action as appropriate and notify their manager of the occurrence. The personal safety of all staff and site visitors always takes priority.
- Understanding and compliance with all relevant SDS.

Specific roles and responsibilities for ARFFS environmental management are provided below.

### 1.4.2 Executive General Manager ARFFS

As specified in Executive [Environmental Management Accountabilities \(AA-NOS-ENV-0003\)](#), EGM ARFFS is accountable for ensuring appropriate environmental management and performance, and implementation of the EMS in respect to provision of ARFFS operations (operational response, training, provision and maintenance of vehicles, use of Airservices' assets and property).

These accountabilities and the lead units to implement them are detailed in the flowing table:

<b>Executive General Manager, Aviation Rescue Fire Fighting Service (ARFFS) Environmental Accountabilities</b>		
<b>Accountabilities</b>		<b>Execution (lead Branch)</b>
1	Ensuring the delivery of ARFFS (including operations, maintenance, infrastructure development and training) in a manner which avoids or minimises harm to the environment	Through ROMs, CVBP and ARFFS PC Through the publication of ENV001 (by OCFO)
2	Ensuring the adequacy of environmental incident (occurrence) and emergency planning preparedness and response relating to respective business group services	Through ROMs, LOMs and OCFO
3	Ensuring effective interfaces with emergency response agencies to assure appropriate environmental management and accountability during ARFFS responses and mutual aid provision	Through ROM negotiation of MOAs (template being developed by OCFO)
4	Ensuring business activities and change proposals that could have a significant impact on the environment are assessed for impact and controlled.	Through CVBP
5	Ensuring that relevant Federal, State and Territory environmental Regulatory obligations for business activities (including approval and permitting requirements) are identified and met.	Through maintaining ENV001 as a current document (by OCFO with advice from Airservices Environment Systems and Assurance Unit)
6	Facilitating a culture, and establishing appropriate procedures, to ensure the general environmental duties to not pollute, and specific legislative requirements, are met in all facets of business activities	Through CFO, ROMs, CVBP and PC

<b>Executive General Manager, Aviation Rescue Fire Fighting Service (ARFFS) Environmental Accountabilities</b>		
<b>Accountabilities</b>		<b>Execution (lead Branch)</b>
7	Ensuring the management and communication of PFAS pollution and contamination issues at current and former ARFFS sites	Through CVBP
8	Ensuring accurate and complete monitoring of energy consumption and emissions, and regulated Ozone Depleting Substances, related to relevant activities, products and services of the respective business groups.	Through CVBP
9	Delivery environmental performance reporting in accordance with legislated obligations (including under the EPBC Act 1999 and NGER Act 2007)	Through CVBP
10	Ensuring that ARFFS complies with contractual environmental management obligations and other commitments made to third parties (including conditions of leases and other tenancy agreements)	Through CVBP
11	Ensuring that for ARFFS, contracts of service, and contracting suppliers and personnel achieve appropriate environmental outcomes	Through CVBP
12	Assuring ARFFS compliance with the requirements of the Environment Policy and EMS	Through CFO (Assurance)
13	Ensuring that ARFFS staff are appropriately trained and competent to conduct their environmental obligations	Through ARFFS PC (Training)
14	Ensuring the monitoring of relevant environmental performance against set targets of the respective business group	Through SLT monitoring of the ARFFS Dashboard and adoption of remedial actions to rectify deficiencies
15	Ensuring ARFFS implementation of preventative and corrective action to address performance deficiencies, elevated risk levels and secure future environmental targets	Through SLT monitoring of the ARFFS Dashboard and adoption of remedial actions to rectify deficiencies
16	Ensuring that managers and staff within the respective business group are aware of, and are held accountable for, their environmental performance	Through the publication of ENV001 (by OCFO)
17	Providing regular reports on respective business group environmental performance to the Executive and Board where required	Through all branches as required

### 1.4.3 Regional Operations Managers

In accordance with [AA-NOS-ENV-0001](#), Regional Operations Managers (ROMs), are accountable to EGM ARFFS for ensuring procedures and work practices within their regions comply with:

- Airservices environmental policies and procedures; and
- This procedure.

This includes:

- minimising the impact of their operations on the environment as far as practicable
- complying with environmental legal and regulatory requirements
- ensuring all Airservices environmental requirements and related management practices and controls relevant to their area of accountability are implemented, including ensuring:
  - roles, accountabilities and authorities are defined, documented, communicated and understood by staff
  - environmental accountabilities of staff and contractors within their area of accountability are fulfilled if someone is absent, a position vacant or if, for some other reason, someone is unable to fulfil their accountabilities
  - all staff and contractors have appropriate environmental competencies and have undertaken appropriate environmental training, as required by their role
  - all environmental occurrences are reported in CIRRIIS
  - significant environmental occurrences and issues are escalated to Environmental Systems & Assurance (ESA) and reported to EGM ARFFS
  - environmental performance is monitored and reported.

### 1.4.4 ARFFS Site managers

ARFFS Local Operations Managers (LOMs), the ARFFS Training Manager and EVT's in charge of independent workshops are designated as Site Managers (SMs).

All ARFFS Site Managers (SMs) ensure that:

- Site specific procedures have been established. For the LOM, these are promulgated in Local Instructions consistent with the guidance contained in this procedure ([Appendix A](#))
- Where practices outlined in this procedure cannot be applied for any reason an Application to Vary Practice is submitted to the Operational Standards Manager for assessment
- Site specific environment manifests are up-to-date, accurate and promulgated to inform all staff and visitors of site specific environmental values and issues
- On-site personnel are trained in the implementation of site specific procedures
- Environmental risks at their respective locations are recorded through the CIRRIIS database and the record is current and accurate
- Environmental occurrences are reported in accordance with [Environmental Occurrence Management, Emergency Preparedness and Response \(AA-NOS-ENV-0002\)](#) [http://orbit/sites/doccentre/Pages/SearchResults.aspx - Default={\"k\":\"DocNumber:AA-NOS-ENV-0002\"}](http://orbit/sites/doccentre/Pages/SearchResults.aspx - Default={\) and recorded in CIRRIIS

- The details of all Trade Waste Agreements in each location are understood and complied with by all staff in each location.

LOMs and the ARFFS Training Manager are also accountable for:

- managing environmental issues to ensure compliance with:
  - this procedure
  - Deed of Agreement - Agreement for the emission of dark smoke (DARK SMOKE)
- ensuring that specific environmental management responsibilities have been assigned to a suitable portfolio holder
- Fire Stations, training grounds and workshops under their control are well managed such that environmental risks are understood, documented and controlled
- ensuring that environmental occurrences are appropriately investigated at the local level and referred to Environmental Systems & Assurance Unit (ESU) through ROMs where they are deemed sensitive or significant
- closing environmental occurrences:
  - after seeking advice from environmental SMEs, and
  - when they are satisfied that the CIRRIIS record contains sufficient documentary evidence to provide context and to support recommendations

EVT Team Leaders are also accountable for ensuring that:

- workshop supervisors conduct inspections in accordance with [Independent Workshops Environmental Inspection \(EM-019\)](#)
- identified issues are managed.

### 1.4.5 ARFFS environment portfolio holders

An Environment Portfolio Holder is appointed at each ARFFS Fire Station to perform the following duties:

- Supporting SMs in managing environmental issues to ensure compliance with:
  - This procedure
  - [Deed of Agreement - Agreement for the emission of dark smoke \(DARK SMOKE\)](#)
- Monitor the Fire Station, workshop and training grounds on a regular basis and notify the LOM of any issues in relation to Environment Management
- Liaise with the operational staff and Emergency Vehicle Technicians (EVTs) to ensure environmental management equipment is being maintained in accordance with Local Instructions
- As required, seek guidance from environmental SMEs in ARFFS or the Environmental Systems & Assurance Unit in Safety & Assurance Group
- Conducting the monthly ARFFS Environment Self-Assurance Program (AESAP)
- Entering environment management issues on the CIRRIIS database
- Providing advice on the requirements of any Trade Waste Agreements in their location
- Conduct awareness sessions with the staff to increase awareness of environmental policy and issues

- Keep local environment manifests accurate and up to date.

## **1.5 Other Airservices Accountabilities**

### **1.5.1 Safety & Assurance Group (Environmental Systems & Assurance Unit)**

Safety & Assurance Group accountabilities are outlined in [AA-NOS-ENV-0001](#). Key roles and responsibilities related to ARFFS environmental management include:

- Establishing and documenting the standard for environmental management of ARFFS activities
- Leading the development and maintenance of the Environment Policy, and the Environment Strategy
- Developing and maintaining the EMS Framework (and relevant supporting documents)
- Providing subject matter expertise and support including environmental management, environmental risk assessment, advice and occurrence investigation services
- Conducting assurance assessments to determine compliance with relevant environmental management accountabilities, including those described in this procedure
- Providing appropriate environmental training
- Maintaining a register of environmental legal requirements, and evaluating environmental legal compliance.

## **1.6 General controls**

### **1.6.1 Principles**

This procedure has been developed to ensure that provision of ARFFS (including operations conducted within ARFFS facilities) are undertaken and managed to minimise adverse effects on the environment.

Environmental Management is a priority for ARFFS within routine operations. It is noted however that operational response and requirements to respond to aviation incidents specified within CASR Manual of Standards Part 139H (MOS-139H) and safety requirements may take precedence over environmental management policies and procedures outlined within this procedure.

While the practices outlined in this document reflect sound environmental practice, it is recognised that some may be aspirational and may not be achieved at ARFFS locations due to infrastructure limitations. Where practices outlined within this document are not feasible, the procedures outlined in paragraph [1.6.3](#) below apply.

It is recognised that there may be practices other than those documented in this procedure that meet all environmental legal and other requirements and represent sound management. If such practices are approved by Operational Standards Manager, no further treatment is required in relation to these practices.



Where further information is required in regard to best practice environmental management and options, advice may be sought from the Operational Standards Manager.

## **1.6.2 Local Instructions**

The environment component of Local Instructions are intended to contain all necessary location specific information necessary to implement this procedure and to ensure that environmental risks are minimised as far as practicable within the constraints of the current facilities and operating conditions.

LIs are:

- developed as per guidance provided in [Appendix A](#)
- consistent with this procedure

Where the practices outlined within this procedure are considered impractical, LOMs are to seek approval to develop LIs that reflect the best practical environmental management options available to minimise risks as far as practicable. Approval of any variation in practice is to be submitted to the OSM as per Section [1.6.3](#).

When developing Local Instructions, LOMs are to consider any additional requirements based on site specific conditions, requirements and context (including Airport Environment Strategies, lease conditions and any requirements specified in Environmental Management Plans (prepared by Airservices)).

## **1.6.3 Non-standard Practices**

It is recognised that there may be practices other than those documented in this procedure that meet all environmental legal and other requirements and represent sound management. Where a SM identifies that practices outlined in this procedure cannot be applied, an [Application to Vary Environmental Practice \(ARFF-FORM-144\)](#) is used to:

- advise OSM of a situation which cannot be managed in accordance with the guidelines in this document; and
- seek approval from the OSM to vary the practice.

If the OSM approves such practices no further treatment is required.

## **1.6.4 ARFFS Environment Management Working Group**

The ARFFS Environment Management Working Group (EMWG) is a forum for sharing knowledge on environmental matters within ARFFS. The scope of issues considered by the EMWG include:

- Planned changes to this procedure
- Trends in environmental occurrences
- Trends emerging from assurance activities
- Progress of environmentally focussed investment programs/projects
- Investigating options and making recommendations to address environmental issues.

The EMWG is chaired by OSM, or representative.

The EMWG is convened on an as-required basis, but at least twice per year.



Membership of the EMWG includes representatives from the following internal ARFFS stakeholder groups:

- LOMs (one per Region)
- Environment Portfolio Holders (one per region)
- Operational Standards Unit (OCFO)
- ARFFS Environmental SMEs
- Asset Lifecycle Planning
- Asset Lifecycle Maintenance
- Portfolio Delivery (including Facilities Managers)

Representatives from the ESA are also be invited to attend.

## **2 Part 2: Planning and Design**

### **2.1 Outcomes**

The planning and design of ARFFS facilities/equipment is intended to deliver capabilities that:

- satisfy all WHS obligations and comply with all relevant Australian Standards
- support environmentally compliant outcomes, reflecting the legal obligations that apply in each jurisdiction
- are simple to use and robust in design with minimum down time for failure or maintenance
- provide a cost effective whole-of-life solution

### **2.2 Storage and distribution systems**

#### **2.2.1 Foam and Diesel Fuel**

ARFFS has an operational requirement to hold significant quantities of firefighting foam as the principle firefighting agent for aviation fuel fires. ARFFS also has a requirement to ensure a reliable source of diesel fuel to ensure sustained vehicle operations.

These requirements are described in the ARFFS Foam and Fuel Concept of Operations.

Specifications of storage and distribution systems for foam and fuel are defined by the Business Manager - Asset Strategy, ARFFS. For further information please contact the Service Adviser, ARFFS.

Environmental outcomes associated with the storage and distribution of foam and fuel described in [Environmental Guidelines on Fuel Storage \(ENV-GUIDE-0017\)](#).

#### **2.2.2 Kerosene**

ARFFS maintains significant quantities of kerosene at designated hot fire training grounds to support ARFFS operational training activities. These requirements are described in the ARFFS Training Fuels Concept of Operations.

Specifications of storage and distribution systems for kerosene are defined by the Business Manager - Asset Strategy, ARFFS. For further information please contact the Service Adviser, ARFFS.

Environmental outcomes associated with the storage and distribution of foam and fuel described in ENV-GUIDE-0017.

## 2.3 Pollution prevention

All facilities are to include pollution prevention measures to minimise risk of accidental release of pollutants to environment during their operation.

### 2.3.1 Drainage Systems and Stormwater Management

Rain water entering the stormwater system or discharged from site is to be clean.

The facility and site layout is to be adequately planned to segregate clean and dirty runoff areas.

#### *Considerations for Dirty Areas*

- Dirty areas are operational areas where fuel and chemicals or other pollutants are stored, handled or dispensed and waste water is generated.
- Rainwater is to be prevented from entering the dirty area
- The dirty area generally, and dispensing and refilling area specifically, is designed in accordance with the pollution control principles applicable to the forecourt of a service station (i.e. all spills and leaks are contained within the dirty area)
  - All dispensing and refilling is to be undertaken on a dedicated hardstand area with some form of containment. It is preferred that the dispensing area is also the vehicle wash-down area.
  - The dirty area is to be provided with containment at the site level ensuring contaminated water does not leave the area. At a minimum, grading of the sealed surface to form a contained area is required. The addition of secondary containment is highly recommended. For example use of walls, speed humps, curbing, or flexible rubber barriers. Containment can also be used to exclude clean rainfall runoff from entering the dirty area and becoming contaminated.
  - The hardstand is to be graded in a direction so any incidental spills/runoff within the dirty area is directed to a sump/retention basin.
  - Where possible, the dirty area is to be roofed to shelter the area from severe weather to exclude stormwater and rainwater, including windblown rain.
  - Non-roofed parts of the dirty area require additional first flush design measures to minimise stormwater ingress to the Waste Water System and associated treatment and disposal costs. The first flush system is to be designed and tested to ensure water discharged to the environment does not exceed principals or criteria specified in [Water Quality Monitoring Guidelines for Wastewater and Rainfall Runoff \(ENV-GUIDE-0021\)](#).
  - Dirty areas are to be made of an impervious material and all cracks and gaps filled. Asphalt is not a suitable material.
- A dedicated waste water treatment system is to be provided to collect waste water, including oily water runoff, incidental spills and polluted runoff, from the dirty area and prevent contamination of the stormwater systems, sewer systems, water ways and soil.
  - The waste water system and site containment is to direct spills and contaminated water to an underground collection sump / pit.
  - The sump is to be adequately sized for the activities occurring within the dirty area; for example, to contain the volume equivalent of the largest on-site tank. In an un-roofed area, sump sizing assesses inclusion of adequately sized holding tanks for first flush stormwater diversion and foam degradation.

- The waste water system may require additional measures to divert and manage foamy waste water in a foam water capture tank as foamy water impedes separator performance.
- Waste water is to be treated by an on-site waste water treatment system and discharged to sewer under a trade waste agreement, or discharged to storage tanks for collection and treatment by a licensed contractor.
- Waste water treatment is to be adequate to manage all pollutants within the dirty area and to meet legislative or trade waste approval conditions.
- Additional treatment may be required for older facilities that have PFAS contamination; that is, a polishing measure to remove PFAS from waste water
- Where discharge to sewer is impracticable, discharge to the environment can only occur where regular monitoring is performed in accordance with the requirements outlined in [ENV-GUIDE-0021 Water Quality Monitoring Guidelines for Wastewater and Rainfall Runoff](#). If this monitoring records any exceedance of discharge criteria, discharge to the environment is to cease until the situation is rectified. Consequently, such systems will require an intermediate storage between the treatment system and discharge point.
- Where the dirty area is a training ground, the waste water system is to include flame traps to prevent migration of fire.

#### ***Considerations for Clean areas***

- Clean areas such as roofs and grassed areas outside the contained dirty area.
  - Water from clean areas can be harvested for non-potable reuse on-site
  - Water from clean areas can be discharged to stormwater offsite
  - Clean water is to be diverted around the dirty area.

## **2.4 Waste water management**

ARFFS generates waste water, known as trade waste, of various quality and quantity at all operational sites.

The pollutant load within waste water varies depending on source, location and activity. At many ARFFS sites the treatment of wastewater is based on outdated technology, based on in-ground sediment traps and triple interceptors.

Waste water and storm water management is required at:

- all hot fire training grounds
- all Fire Stations precincts
- all truck wash facilities
- where applicable, independent workshops precincts

ARFFS Property Services manages trade waste in a manner that complies with all legislative requirements, on a jurisdiction-by-jurisdiction basis. Property Services ensures that all necessary permits and authorisations (e.g. trade waste agreements etc) are current and appropriate, given the substances being released to sewer/stormwater.

### 2.4.1 Waste water system design

Wherever possible, waste water generated by ARFFS is disposed of as trade waste via a connection to sewer or tankering by a licensed trade waste contractor to a licensed waste receiver.

All waste water generated by ARFFS is to be pre-treated prior to release to sewer.

It is noted that triple interceptor pits are no longer approved as appropriate treatment units for most ARFFS activities. Fire Stations that have facilities that rely on triple interceptors are to note the constraints of relying on these systems and ensure that routine maintenance is scheduled and performed to ensure adequate environmental performance.

Waste water treatment systems should address the following minimum requirements:

- A pre-treatment arrangement of:
  - a dry basket arrestor or screen is to be fitted to all floor waste drains, to strain out gross solids such as sediment, rags and packaging.
  - A collection well and non-emulsifying pump is required to collect:
    - water used for washing of vehicles, mechanical equipment or parts
    - floor wash-down
    - foam discharge
- Oil/water separators, such as a coalescing plate interceptor (CPI/CPS) with a minimum capacity of a 1500 L/h or a vertical gravity separator (VGS) sized according to the influent flow rate, are also to be installed to treat the wastewater.
- Where persistent intractable pollutants, such as PFAS, are in the waste water:
  - a secondary (polishing) system is required, or
  - the CPI is to be replaced with a system capable of removing both hydrocarbons and soluble pollutants from the waste water.

#### Notes:

Assistance in this matter can be sourced from ARFFS Environment (PFAS) Program Manager

An oil arrestor/separator is more efficient if detergents are not used, e.g. cleaning is done using high water pressure. If the use of detergents cannot be avoided, only quick-break detergents are to be used. Degreasers are not to be discharged into the waste water system. Further, only non-emulsifying pumps are to be used to pump the liquid waste to the separator.

## 2.4.2 Other considerations

### ***Foam***

Where significant quantities of foam may be discharged to the waste water system (such as at a hot fire training facility), a diversion system and holding tanks are to be included to allow the foam to break down before it progresses further in the treatment train. The nominal holding time for foamy water is 30 days and the holding tanks system are designed to capture foamy water. Tank capacity of tanks is to be sufficient to contain all training waste water for the minimum period, taking into account the frequency and scale of training being conducted at the site.

### ***Detergents***

Only quick-break detergents are to be used in any washing process. Systems that cause detergent to re-foam will not function correctly, i.e. gravity drop, excessive volume and velocity, or use of emulsifying pumps or hydrocyclones. The system requires adequate holding time to allow any detergent to break down, which may require a holding tank or large sump.

### ***Draining of radiator coolant***

Large quantities of ethylene glycol have the potential to upset the operation of the sewerage system and therefore are not to be discharged to the system. Further, large quantities of ethylene glycol increase the emulsification of oils and greases and thereby reduce the efficiency of the separator systems. All radiator coolant is to be collected and securely stored for recycling or disposal to an appropriate treatment facility.

### ***Use and disposal of solvents***

Solvents are often used for the cleaning of parts. Spent solvents are not to be discharged to the treatment system. Instead they are to be collected and taken off site for recovery or disposal.

The area used for parts washing is not to drain to the treatment equipment. However, final rinse water can be discharged to the sewerage system via the treatment equipment, provided that the parts are dried and wiped clean before rinsing.

## 2.4.3 Oil/Water separators

The oil water separator is to be located within a bunded impervious area. The area and bund height is to be adequate to allow maintenance of the separator and safe removal and replacement of the slops drums.

The construction of oil/water separators are to be structurally robust to relevant Australian Standards. Where the intent is discharge to sewer, the design of the separator is to be confirmed with the relevant trade waste entity as part of design review and acceptance.

The separator is to be readily accessible for inspection, maintenance, cleaning and sampling.

Access is to be provided for removal and maintenance of components, including parallel plates, tubes, coalescing filters, and other devices inserted into the separation chamber.

These devices require frequent cleaning. The design is to include appropriate water, power and drainage services at the location of the oily water separator for maintenance purposes.



The maintenance schedule is to be provided and adequate performance monitoring of the system confirmed at regular intervals during the defects liability period.

#### 2.4.4 Stormwater and stormwater first flush systems

Discharge of uncontaminated stormwater to a waste water treatment system is to be avoided. Discharge of stormwater to sewer is illegal, unless it can be shown that the stormwater is contaminated and is to be treated as trade waste (with a Trade waste Permit in place).

Contaminated first flush water from a dirty area is to be contained and directed through the waste water treatment system.

First flush water system design is to ensure that:

- Adequate first flush capacity is maintained during normal trade waste generating activities (i.e. the holding tank for first flush capacity is in addition to the capacity required to manage other waste water sources).
- A failsafe is built into the first flush system. This may include temporary storage capacity to enable testing prior to release (resource-intensive) or some form of filter sock or similar system to capture any breakthroughs as a result of a system failure.
- The discharge to stormwater in a first flush system is regularly tested to ensure compliance for release to the environment.

The definition of first flush water may vary depending on the trade waste agreement. A nominal design is to be of a capacity that allows for the storage of potentially contaminated stormwater generated in the first 10mm of a rainfall event from an impervious unroofed trade waste generating (dirty) area.

A maintenance schedule is to be provided and adequate performance monitoring of the system confirmed at regular intervals during the defects liability period.

All sediment and gross pollutants are to be routinely removed from all sumps to ensure the waste water system and first flush system operate effectively.

## 2.5 Energy Use and Infrastructure Performance

All ARFFS Facilities are to be comply with 4.5 Stars NABERS. This requirement extends to all temporary offices and accommodation or locker facilities

Potential design options may include:

- Compliance with energy efficiency requirements of section J of the Building Code of Australia (BCA). This includes thermal insulation provided to the roof, external walls and floor.
- Replacement of all inefficient light fittings to T5 rating, or other "Green "lighting, Note: T4 may be acceptable in the engine bay.
- Lighting is zoned.
- Task lighting is used where possible
- Natural light and light surfaces are used where possible
- New air conditioning (A/C) units are capable of "zoned" operation.
- Non-essential appliances are controlled by timers where possible
- Installation of solar hot water heating
- Design incorporates ventilation by natural convection.

- All new electrical equipment purchased is to achieve at least the market average energy efficiency star ratings as follow:
  - refrigerators  $\geq 4$  stars
  - clothes dryers  $\geq 5$  stars
  - washing machines  $\geq 3.5$  stars
  - dishwashers  $\geq 4.5$  stars
  - fridge/freezers  $\geq 4$  stars
  - freezers –  $\geq 3.5$  stars
  - air-to-air heat pumps and air conditioners  $\geq 4.5$  stars if less than 4kW and  $\geq 3.5$  stars if greater than 4kW
  - televisions  $\geq 4$  stars

### **2.5.1 Performance monitoring and metering**

Airservices uses the 'Envizi' platform to track and report on electricity usage.

Design of new facilities, including training facilities, and significant upgrades are to include an energy metering strategy for electricity, gas and other fuels use.

Sub-metering new infrastructure or major refurbishment projects are to be in accordance with BCA, Section J, Energy Efficiency.

Annual energy consumption for all infrastructure is to be estimated as part of 100% schematic design report, specifications and drawings.

### **2.5.2 Renewable and alternative energy**

All proposed new facilities and significant upgrades are to assess the potential for alternative and renewable energy sources.

Use of a renewable or alternative energy source is to be implemented if:

- It meets design performance requirements,
- Net present value is comparable with other options, and
- Payback is achievable in less than seven years.

Options for domestic hot water for new or refurbished infrastructure is to include whole of life (WOL) assessment of the viability of including the following heating systems for suitability with solar boost integration:

- instantaneous gas
- gas storage
- heat pump
- electric storage

Options for new or existing traditional fuel generators (e.g. diesel) in remote areas that supply power and/ or a back-up power supply are to consider hybrid power generation systems that supplement power supply.

## 2.6 Water use and infrastructure performance

Investment or upgrade of infrastructure are to deliver design options for the building to reduce the operational costs of water over the life of the upgrade.

The recommended option is to include options for water efficient systems and equipment. This requirement extends to all temporary offices and accommodation or locker facilities

Potential design options may include:

- Rain water collection system for use of recycled water around the facility including flushing toilets, fire vehicle washing, ULFV water tank replenishment, washing floors and watering gardens
- Upgrade all toilets to water saver units and installation of waterless urinals where possible.
- Installation of solar hot water heating
- All new water using appliances, shower heads, taps and toilets have at least the following Water Efficiency and Labelling Standards (WELS) star rating:
  - showerheads  $\geq 5$  stars
  - toilets and urinals  $\geq 5$  stars
  - washing machines  $\geq 5$  stars
  - dishwashers  $\geq 5$  stars
  - taps and flow controllers  $\geq 5$  stars

### 2.6.1 Performance monitoring and metering

Airservices uses the 'Envizi' platform to track and report on water usage.

Design of new facilities, including training facilities, and significant upgrades is to include a water metering strategy for all water sources (i.e. potable, rain water harvesting and recycled water).

Sub-metering new infrastructure or major refurbishment projects are to be in accordance with BCA Section J Energy Efficiency.

Annual water consumption for all infrastructure is to be estimated as part of 100% schematic design report, specifications and drawings.

### 2.6.2 Alternative water sources

All proposed new facilities and significant upgrades are to assess, on a WOL basis, potential for alternative non-potable water sources, such as rainwater or fit-for-purpose recycle water, for uses including but not limited to:

- Sanitary flushing
- Vehicle and equipment washing
- ULFV washing
- ULFV water tank replenishment, washing floors and watering gardens

Use of an alternative water source is to be implemented if:

- Its meets design performance requirements,
- Net present value is comparable with other options, and
- Payback is achieved in less than seven years.

## **2.7 Landscaping**

Preference is to be given to native, locally and regionally appropriate, drought tolerant plants with low ongoing watering requirements, while reflecting the best plants for the purpose.

Consideration is to be given to avoiding landscaping that can be attractive to birds and flying-fox which are a hazard to aircraft. This may be especially so where landscaping may create a different habitat to that generally found in the local airport environment

Consult with the Airport Environment Officer for advice.

## **2.8 Heating, ventilation and air conditioning (HVAC)**

Refurbishment projects with HVAC systems containing non-compliant refrigerants are to demonstrate that the existing system(s) are converted to systems that utilise zero-ODP refrigerants viably and without loss of refrigerant to the atmosphere.

## **2.9 Product Stewardship**

Product stewardship involves ensuring that materials associated with Airservices products, goods and services are managed in a way that reduces their environmental impact throughout their lifecycle.

The Product Stewardship Act 2011 (federal) provides the framework for effectively managing the environmental, health and safety impacts of products, and in particular those impacts associated with the disposal of wastes.

The principles of environmental product stewardship shall be embedded throughout all ARFFS business processes and particularly throughout asset lifecycle management activities associated with procurement and waste disposal. Key requirements include, but are not limited to:

- Ensuring materials and consumables are purchased in accordance with the Australian Government's sustainable procurement guide (2013);
- Ensuring the engagement of contractors with a proven commitment to environmental principles and practices;
- Verifying appropriate lifecycle management of waste products collected by contractors (including receipt of evidence that collected regulated waste is received by appropriately licenced disposal facilities).

## **2.10 Procurement of material and consumables**

All ARFFS Facilities designs are to aim to minimise consumption, and maximise reuse and recycling of materials.

Material selection is to ensure:

- fitness for purpose,
- a low pollutant output over the entire lifecycle of the material, including disposal,
- low energy input in their fabrication, and
- the energy required for their transportation to the project site has been assessed

Where practicable, ARFFS staff are to purchase 'environmentally friendly' products such as phosphate free detergents and other products that have a neutral effect on the environment.

Without affecting operational capacity, any new products or services introduced for operational, training or maintenance purposes are to:

- have minimal or no impact on the environment
- be supported by a Safety Data Sheet (SDS) or similar (where necessary)
- be procured in accordance with the Australian Government's Sustainable Procurement Guide (2013)

## 3 Part 3: Construction and Project Delivery

### 3.1 Projects and changes in practice

Prior to implementing any new projects, changes in practice or upgrades to ARFFS managed facilities that may impact the environment, Project Managers (PMs) ensure that the actions required in the following guidance are applied:

- [Environmental Assessment of Changes to On-Ground Activities \(AA-NOS-ENV-2.200\).](#)
- [Environmental Impact Screening and Assessment Criteria for Changes to On-ground Activities \(AA-REF-ENV-0010\).](#)

PMs contact ARFFS Environment (PFAS) Program Manager who conducts the environmental assessment and ensure that this is recorded in CIRRIIS.

### 3.2 Contamination assessment

Contamination assessments are to be undertaken:

- When an uncontrolled release to the environment of any potentially harmful substance may have occurred;
- When acquiring or divesting of land or property; or
- As required under relevant State/Federal legislation for a specific land use (e.g. underground petroleum storage).

ARFFS Environment Management (PFAS) Program is responsible for the management of contamination assessments performed for specific land uses, and for the acquiring or divestment of land or property.

SMs are to ensure that:

- The required site/facility is available for all necessary environmental investigation works.
- Training and maintenance requirements do not conflict or impede any contamination assessment works.
- ARFFS Property Services, the Senior Property Manager and the ARFFS Environment (PFAS) Program Unit are advised of potential and known contamination.

#### 3.2.1 Contaminated asset management

In the event that an ARFFS site contains soil, air or groundwater contamination at concentrations that exceed relevant State or Federal regulatory guideline threshold criteria, on-going management and/or remediation of the site may be required.

The management or remediation works of contaminated assets are to be undertaken by the ARFFS Environment (PFAS) Program Unit.

Where management/remediation of a contaminated asset is required, SMs are to ensure that the required site/facility is available for all necessary management and/or remediation works and that all ongoing environmental management requirements are adhered to.

### 3.3 Management of excavated materials on ARFFS sites

Soils, sediment and groundwater at all ARFFS sites are potentially impacted by per- and poly- fluorinated alkyl substances (PFAS, previously referred to as PFCs or poly fluorinated chemicals) as a result of the historic use of aqueous film forming foam (AFFF). PFASs are also routinely detected on land immediately adjacent to ARFFS sites.

The following documents provide guidance to ensure that environmental risks associated with potentially PFAS contaminated soils are minimised to the greatest extent practicable:

- [Managing PFC Contamination at Airport: Interim Contamination Management Strategy and Decision Framework \(ENV-GUIDE-0013\)](#)
- [Management of PFC Impacted Sites \(ENV-PROC-0005\)](#).

Prior to any excavations at ARFFS sites, ARFFS Environment (PFAS) Program Manager is to be consulted. In particular, any soil or other material excavated or generated from intrusive works on sites known or suspected of being impacted by PFASs are to be stockpiled and assessed for contamination status before its future re-use or disposal option is determined. For excavations at ARFFS sites, PFAS contamination is assumed until it is proven otherwise.

### 3.4 Construction/Project Site Waste Disposal

Where site works are under the formal control of a Project Manager (PM), the PM is to be accountable for managing project related waste disposal. This includes:

- Containers which have been used to store hazardous chemicals are to be disposed of in accordance with [Hazardous Chemicals \(AA-PROC-SAF-0015\)](#).
- Clinical waste is to be disposed of as per [Management of Clinical Waste \(Ops-135\)](#) and LIs.
- Hazardous substances or dangerous goods (including liquid waste) is to be stored as per Section [4.5](#) Dangerous Goods and Hazardous Chemicals.
- All prescribed waste collections is to be undertaken on areas of hard stand or sealed surfaces to ensure cross contamination of unsealed areas does not occur.

### 3.5 Demolition works plan

For any works that require demolition and associated activities (e.g. demolition waste disposal), a demolition works plan is to be prepared in accordance with AS2601 – 2001 (The Demolition of Structures) and relevant Commonwealth and State / Territory regulatory requirements.

### 3.6 Construction Environmental Management Plan

All works projects are to develop a Construction Environmental Management Plan (CEMP), which addresses the requirements of Airservices Environmental Management System (EMS), applicable Airport Operator, State / Territory and Commonwealth requirements, and details and highlights any existing or potential environmental issues or risks associated with the Project. The CEMP is to include suitable measures that are to be implemented by the project to mitigate risks and demonstrate compliance with all relevant Commonwealth and State / Territory legislation and Airservices EMS.

The CEMP may also require submission to the relevant Airport Environment Officer for approval.

### **3.6.1 Waste Management Plan**

As part of the CEMP, all works projects are to incorporate a Waste Management Plan which illustrates the proposed methodology for the management and segregation of waste onsite, disposal or recycling of all building materials, redundant equipment, batteries and cabling and other waste. The Waste Management Plan is to include a target of 80% (excluding contaminated soil and rubble) of materials by weight for recycling, and is to require a certificate from an appropriately licensed recycling facility, to provide evidence of correct disposal of all of the items removed from Site, including regulated wastes.

The Waste Management Plan is also to address the security of all waste and bins such that no rubbish or debris can be blown around or off-site.

### **3.6.2 Compliance during construction**

The works project is to comply with the CEMP at all times, including demonstrating that specified controls have been implemented. In accordance with the CEMP, the project is required to undertake routine inspections, monitoring and reporting tasks and provide adequate evidence to demonstrate compliance with the CEMP and that mitigation measures in the CEMP have been effectively implemented.

## **3.7 Commissioning**

Commissioning requirements are to be addressed during business case development and refined during the planning phase. The nominated systems for a facility include but are not limited to:

- Lighting controls;
- Hydraulic systems (such as gas and water supply distribution systems, rainwater, greywater, blackwater,, stormwater, and water recycling systems);
- Mechanical systems (such as HVAC and refrigeration systems; mechanically operable systems such as blinds and actuated shading devices);
- Building Management and Control System (BMCS);
- Any other system that has an impact on the energy & water consumption, and indoor environmental quality of the building;
- Systems designed to prevent environmental harm during the operation of the facility, including all pollution prevention measures.



### **3.8 Practical completion**

Practical completion includes any performance reports as required, including:

- A report that demonstrates the ESD requirements, if required, have been delivered.
- As-built drawings with ESD requirements.
- If applicable, an updated Metering Strategy Report that tracks any changes since the design completion and includes drawings showing the layout and parent-child relationships between meters referenced in the ESD Metering Strategy.
- Building User & Maintenance Guides
- Any reporting requirements to support Airservices meeting its conditions of approval

Appropriate evidence of waste tracking and compliance with the CEMP is to be submitted prior to Practical Completion of the last Separable Portion of the works contract to achieve Practical Completion.

### **3.9 Defects liability**

Facility tuning occurs during the defects liability period to provide continuity after the commissioning process to ensure sound operability of the facility systems 12 months after building is occupied.

The tuning of the systems:

- Verifies optimal performance of systems during all variations in climate
- Updates O&M Guides as necessary due to the testing
- Reviews the current building operation with the Airservices Facility Manager and Maintenance Authorities
- Reviews outstanding issues from original commissioning testing; successful completion of all NCDs.
- Provides a facility tuning report that includes:
  - results of the ESD benchmarks assessment, the process for completing ESD self-assessment, and any additional advice to maintain the ESD performance requirements of the building; and
  - results of a pollution prevention audit, including sampling and analysis of waste water systems and all points of discharge to demonstrate waste water management is in accordance with specifications.

### **3.10 Asset lifecycle monitoring and performance**

Facilities and assets that have been assessed and rated against an environmental rating system are to ensure this rating is maintained during operation. Assessment and audits of occupant operation, maintenance practices and condition assessment are to include environmental initiatives such as energy, water and pollution prevention.

### 3.11 Disposal

Eventual disposal of facilities and assets is routinely assessed and planned as part of the asset management strategy to ensure asset maintenance and asset lifecycle are integrated. All proposed disposals are to comply with the following guidance:

- [Environmental Management of Changes to On-ground Activities \(AA-NOS-ENV-2.200\)](#)
- [Environmental Impact Screening and Assessment Criteria for Changes to On-ground Activities \(AA-REF-ENV-0010\)](#)

## **4 Part 4: Operations and Maintenance**

### **4.1 General site maintenance**

SMs are to ensure that all general site maintenance (including gardening, mowing, minor building repairs, painting, pest control etc) undertaken by ARFFS staff is conducted in a manner that minimises negative environmental effects on the Site and surrounding environment, including the environmental values identified on the Environment Manifest.

Where possible environmentally friendly products are to be used during maintenance activities.

Details of all location specific procedures are to be documented in LIs.

### **4.2 Environment Manifests and Site Inductions**

#### **4.2.1 Manifests**

Environment Manifests are a key control in assuring that all staff working at or visiting a location understand, respect and avoid any sensitive areas, including those:

- identified as habitat for endangered species,
- having heritage values,
- which are culturally significant, or
- any other areas designated as 'No Go' areas or areas where vehicle operations are restricted

Local Operations Managers (LOM) are to ensure that Environmental Manifests for the site (including Fire Station precinct, training grounds and workshops):

- are accurate and up to date
- represent the environmental conditions and requirements of the site
- are displayed and made available for Site Visitors as part of the induction process

All staff and site visitors have an obligation to respect environmental values and ensure they are not disturbed unless:

- written approval/permit has been obtained from all relevant regulatory authorities, and
- in relation to indigenous values, the relevant indigenous custodians or authority

If any suspected or previously unidentified environmental values are identified, all activities within the vicinity are to cease immediately. No further disturbance to potential indigenous heritage values is to occur before ESA has been advised and made a determination in relation to the environmental values of the site.

## 4.2.2 Inductions

SMs are to ensure that all visitors and contractors receive:

- a site induction is conducted in accordance with ARFFS Contractor and Visitor Management ([HR-128](#)) including completion of [ARFFS Visitor Induction Checklist](#) or [ARFFS Contractor Induction Checklist](#); and
- a briefing on the Environmental Manifests

All contractors that may undertake unsupervised works must complete the Airservices online contractor induction program.

## 4.3 Fuel Management

### 4.3.1 Fuel storage

Fuel storage within ARFFS facilities is to be managed to minimise adverse impacts on the local environment, particularly through spills, or other releases to the environment.

To achieve this objective:

- Fuel storage system design is to comply with the Design principles identified in Part 2.
- Fuel storage procedures are to be consistent with Airservices; and [Environment Guidelines on Fuel Storage \(ENV-GUIDE-0017\)](#).
- Details of the local procedures for fuel storage are documented in LIs.

#### 4.3.1.1 Managing bunded fuel storage facilities

Liquids (fuel and/or rainwater) collected within the bund around storage tanks are to be disposed of in one of two ways:

- Through an onsite oil/water separator, connected to sewer, providing an appropriate Trade Waste Agreement (TWA) is in place at the Site and disposal of the waste is consistent with the requirements of the TWA; or
- Where an oil/water separator and a TWA do not exist within the Site, collected liquids within the bunded area may be recovered and disposed as prescribed waste by a suitably licensed subcontractor to a licensed waste disposal facility.

Monitoring of potential contamination and compliance with TWAs is the responsibility of ARFFS Property Services.

The SM is to notify the Operational Standards Manager of the need to seek approval for a nonstandard practice as per Section [1.6.3](#) if compliance with the above requirements would require additional expenditure (e.g. additional cost for more frequent collection of liquid waste by licensed waste provider).

#### 4.3.1.2 Temporary fuel storage

Where a requirement exists for the temporary storage of fuel, SMs are to ensure that:

- The bunded area:
  - has a capacity of 110% of the largest container stored in the bund
  - where practicable, is to be located away from high traffic areas to minimise the risk of vehicle damage to containers
  - used for temporary fuel storage are managed as per [4.3.1.1](#) and inspected weekly to ensure that bunds and storage containers are intact and structurally sound
- Containers of fuel are to be stored in a sheltered location that avoids direct exposure to light, wherever possible. Tarpaulins may be used as an interim measure, however, if tarps are used they are to be kept in good condition (i.e. tarps with holes/tears are to be replaced)
- Drums/containers are a minimum of 1m from the bund wall.
- If an issue is identified from an inspection, it is to be reported as an Environmental Hazard in CIRRIIS and an action assigned to rectify the problem.

If storage in a bunded area is not possible, and the risk of a spill entering the environment is low, and there is an appropriate spill response kit nearby, the following options are permitted:

- Fuel/oil in containers up to and including 205 litres drums (to a total volume of 820 litres) may be stored on bunded pallets in covered areas and on sealed surfaces.
- Fuel/oil in containers up to and including 20 Litre capacity (i.e. equivalent to a jerry can) can be stored in self bunded flammable/combustible storage cabinets in covered areas and on sealed surfaces.
- Fuel/oil in containers up to and including 20 Litres capacity (to a maximum of 10 containers) may also be temporarily located on sealed surface.

#### 4.3.1.3 Fuel for Generators

To minimise the risk of a fuel spill, generator sets of the self bunded type are preferred.

For generators and fuel tanks that are not self bunded, there are two options for locating generators and associated fuel:

- The preferred option is for all generators and related containers of fuel to be located within a bunded area. The capacity and management of bunded areas are to comply with AS1940.
- If it is not possible to place generators in a bunded area, and the risk of a spill entering the environment is low and there is an appropriate spill response kit nearby, SMs may approve the placement/storage of generators on a sealed surface.

#### 4.3.1.4 Signage

All fuel container and tanks are to be labelled as per Airservices' [Environment Guidelines on Fuel Storage \(ENV-GUIDE-0017\)](#) and [Hazardous Chemicals \(AA-PROC-SAF-0015\)](#).

In addition, SMs are to ensure that signs are in good condition and clearly legible. Significantly faded or damaged signs are to be replaced as soon as practicable.

#### **4.3.1.5 Weekly Checks**

All permanent and temporary fuel storage facilities are to be checked weekly using the following steps:

- Check for external corrosion including support stands and rectify as required.
- Check condition of drip trays/bunds and water traps.
- Check that vent passages are clear and any relief valves are operating correctly.
- Where fuel can be readily drained or pumped back to the bulk storage, inspect for sludge deposits and internal corrosion and clean/rectify as required.
- The bund around the storage area has impervious walls and floor including sealed joins.

#### **4.3.1.6 Reconciliation of fuel delivery and usage**

The SM is to:

- ensure that fuel stored in all fuel storage facilities is spot-checked on a monthly basis and the quantities are reconciled against recorded delivery volumes and usage
- the scheduling and tracking of fuel reconciliation is managed through the reserve stock management system

#### **4.3.1.7 Annual condition testing**

Monitoring and testing of fuel storage facilities is managed by ARFFS Property Services on an annual basis.

### **4.3.2 Refuelling vehicles and refilling storage tanks**

Fuel dispensing infrastructure (e.g. bowzers and associated pipe work), and associated refuelling activities are to be located/undertaken on sealed surfaces where any spillage can be captured and appropriately managed.

During refilling of storage tanks and other equipment, the fuel delivery vehicle and associated hoses are to be located on sealed surfaces.

After any spill, the sealed area is to be cleaned in a manner that does not allow the waste to enter stormwater or unsealed areas.

Where facilities do not exist to enable any of the above to occur, an Application to vary practice is to be submitted.

Spill kits of an appropriate type and capacity are made readily available to contain any spills as per Managing and reporting leaks and spills Section [9](#). Spill kits are to comply with ENV-GUIDE-0003. Details of the local procedures are to be documented in LIs as per Section [1.6.3](#).

### 4.3.3 Managing and reporting leaks and spills

Spills and leaks are frequent causes of environmental occurrences (e.g. if they result in contamination of an unsealed area).

Spill kits are to be readily available to contain any spills and comply with ENV-GUIDE-0003.

All environmental occurrences are to be managed as per Section [4.11](#), (including immediate response to contain the spill, recording occurrence in CIRRIIS, occurrence investigation and development of corrective and preventative action).

The SM is to ensure that:

- leaks are reported as quickly as possible through the chain of command and ARFFS Property Services so the leak can be fixed as quickly as possible
- LIs outline the site specific practices and requirements for the management and reporting requirements of leaks and spills

Waste associated with a fuel spill (including fuel contained in bund) is to be recovered and disposed of using a suitably licensed subcontractor to a licensed waste disposal facility as per Waste management and disposal Section [4.7](#).

## 4.4 Foam management

Foam storage within ARFFS facilities is managed to minimise adverse impacts on the local environment, particularly through spills or other releases to the environment.

To achieve this objective, foam is stored in one of the following configurations:

- Bulk storage
- Interim storage
- Temporary storage

Foam concentrate is typically delivered to ARFFS facilities in 1000 L plastic composite intermediate bulk storage containers (IBCs) or in 205 L drums. These are stored in a bunded area.

Foam storage is indicated by signage that complies with [Hazardous Chemicals \(AA-PROC-SAF-0015\)](#).

Foam and fuel may be stored in the same bunded area if deemed appropriate.

Details of the local procedures for foam storage are to be documented in LIs.

#### 4.4.1 Bulk storage

Where a bulk storage facility is provided to store foam concentrate, foam liquids (i.e. foam concentrate and rainwater) captured in a bunded area is to be managed in one of two ways:

- Where the bunded area has been contaminated with AFFF foams, the liquid is to be:
  - discharged to sewer, providing an appropriate TWA is in place at the Site and disposal of the waste is consistent with the requirements of the TWA, or
  - managed as a prescribed waste and is pumped out using a suitably licensed subcontractor and removed to a licensed waste disposal facility
- Where a bunded area has not been contaminated with AFFF foams (i.e. new bunds which have only stored Solberg RF6), the liquid is to be:
  - discharged to sewer providing an appropriate TWA is in place at the Site and disposal of the waste is consistent with the requirements of the TWA' or
  - discharged to stormwater or the environment, if the volume is small (i.e. <50L of foam concentrate) and the discharge area is lightly soaked with water over several days to aid breakdown

Foam liquids are not to be diverted through an onsite oil/water separator prior to being released to sewer unless the liquid also contains hydrocarbons (e.g. fire training waste water). Oil/water separators do not extract foam, and the foam may liberate residual hydrocarbons from the separator. Any residual foam in a separator may decrease its subsequent effectiveness. If foam has passed through a separator system it is to be washed with low pressure water.

Monitoring of potential contamination and compliance with TWAs is the responsibility of ARFFS Property Services.

The SM is to ensure that:

- a visual inspection of all permanent foam storage facilities is undertaken monthly using the checklist in Section [4.3.1.5](#)
- if an issue is identified from the inspection which has not resulted in an Environmental Occurrence, it is reported as an Environmental Hazard in CIRRIIS and an action assigned to rectify the issue
- an 'Application to Vary Practice is submitted as per Section [1.6.3](#) if local facilities do not enable compliance with the above requirements
- details of the local procedures are documented in LIs as per Section [1.6.2](#)

#### 4.4.2 Interim storage

The intention of interim foam storage arrangements is to provide an environmentally responsible, medium-to-long term, alternative solution to the storage of foam in permanent bulk storage facilities.

The priority is to establish interim foam storage solutions at locations where AFFF is still maintained as the operational foam. The establishment of interim foam storage solutions at other locations are assessed on a case-by-case basis.



Where a requirement exists for the interim storage of foam, the following applies:

- Facilities are either:
  - Based on commercially available, purpose-built, self-bunded storage containers (such as chemical storage containers, hazardous materials containers or 'enviro-containers) or
  - a purpose-built, bunded, protected storage facility designed for the long term storage of foam in IBCs
- The bund for an interim storage facility has a capacity of 110% of the largest container stored in the bund.
- To avoid any leakage though an open door, totes etc stored in the container are set back from the doors by a distance of approximately 1m.
- Storage containers used to store foam are inspected weekly to ensure that bunds and storage containers are intact and structurally sound using the checklist for inspections in Section [4.3.1.5](#).
- If an issue is identified from the inspection, it is reported as an Environmental Hazard in CIRRIIS and an action assigned to rectify the problem.

#### **4.4.3 Temporary storage**

The intention of temporary foam storage arrangements is to provide an environmentally responsible, short-to-medium term, alternative solution to the storage of foam under more permanent arrangements.

Where a requirement exists for the temporary storage of foam, the following applies:

- Single skinned tanks and storage containers are to be located in a bund with the following characteristics:
  - Tanks/containers are to be a minimum of 1m from the bund wall unless they have an approved cover fitted. Where approved covers are fitted to totes they may be stored close to, but not touching the bund wall.
  - The bunded area has a 110% capacity of the largest container stored in the bund.
  - Where possible, containers of foam are to be stored in a sheltered location that avoids direct exposure to light. Tarpaulins may be used as an interim measure, however, if tarps are used they are to be kept in good condition (i.e. tarps with holes/tears are replaced).
  - Where practicable, the bunded area is located away from high traffic areas to minimise the risk of vehicle damage to containers.
  - Temporary bunds used for foam are inspected weekly to ensure that bunds and storage containers are intact and structurally sound. The checklist for inspections is as per Section [4.3.1.5](#).
  - If an issue is identified from the inspection, it is reported as an Environmental Hazard in CIRRIIS and an action assigned to rectify the problem.

#### 4.4.4 Ansulite Aqueous Film Forming Foam (AFFF)

By direction from Defence, ARFFS continues to use Ansulite AFFF at Darwin and Townsville for operational purposes only.

In addition to the requirements already outlined in this Section, SMs in Darwin and Townsville are to ensure that the following requirements apply to all stocks of AFFF and anything which is potentially contaminated with AFFF including, but not limited to, empty containers, equipment, soil, water, or waste:

- Storage is to minimise the risk of release of AFFF to the environment (e.g. in undercover/bunded areas).
- All Ansulite AFFF foam generated by testing and maintenance activities is to be captured and disposed of through a Defence-approved trade waste arrangement.
- No disposal of containers is to occur without the express, written permission of OSM.
- No disposal of AFFF or associated contaminated water is to be released to sewer, stormwater or the environment. Removal by a licensed waste provider is only to occur with the express written permission of Defence and OSM, with advice provided by ESA.
- OSM is to be advised of any changes to AFFF stockholding or storage arrangements. OSM is to notify ESA of such changes.

The above requirements do not apply to the use of AFFF for operational response in Darwin and Townsville.

Details of the local procedures are to be documented in LIs as per Section [1.6.2](#).

The ordering of any additional stocks of AFFF is to be managed through the Senior Operational Standards Specialist.

When receiving any additional AFFF foam at Darwin or Townsville, SM is to ensure that the containers transporting foam concentrate are intact prior to accepting receipt of the consignment.

#### 4.4.5 Foam refilling of vehicles and storage tanks

Refilling of vehicles and storage tanks with foam is conducted on sealed surfaces where any spillage can be readily captured and appropriately managed. The sealed area is to be cleaned after any spill in a manner that does not allow the waste to enter stormwater or unsealed areas.

Hoses used for decanting foam are to have cut-off valves fitted to minimise the risk of spillage.

Spill kits are to be made readily available to contain any spills as per Section [4.3.3](#) Managing and reporting of leaks and spills. Spill kits are to comply with Spill Kit ENV-GUIDE-0003.

Details of the local procedures are to be documented in LIs as per Section [1.6.2](#).

## 4.5 DCP, dangerous goods and hazardous chemicals

Most ARFFS locations hold stocks of the following hazardous chemicals:

- Firefighting foam
- DCP
- Diesel
- Kerosene (only locations with Hot Fire Training Grounds)
- ULP
- LPG
- Oils and lubricants
- Coolant
- Battery acid.

Details of any local procedures for managing hazardous chemicals are to be documented in LIs as per Section [1.6.2](#).

### 4.5.1 Storage, Labelling and Signage

Diesel, kerosene, firefighting foam, oils and lubricants may be stored in bulk quantities.

Other chemicals and potential contaminants are kept in household quantities only and stored in the manufacturer's packaging. These chemicals are to be stored securely and separately in appropriate chemical storage containers.

DCP is to be stored under cover in the manufacturer's containers.

SMs are to ensure that hazardous chemicals (including oils, some lubricants waste products, acids etc) are stored and used in a manner that is consistent with AA-PROC-SAF-0015). This includes:

- Appropriate bunding is in place to minimise the risk of spills to soil or water. The preferred option is for containers of Dangerous Goods and Hazardous Materials to be located within a bunded area with a minimum capture capacity of 25% of the total stored volume to ensure leaks/spills are not released into the environment.
- Spill kits of an appropriate type and capacity are made readily available to contain any spills as per Managing and reporting of leaks and spills Section [4.3.3](#). Spill kits comply with ENV-GUIDE-0003
- A register of all hazardous chemicals and dangerous goods is maintained by each SM and available at the site. See Chemical Register ([AA-TEMP-SAF-0031](#)).
- All chemicals are clearly labelled in accordance with the Globally Harmonized System (GHS) of Classification and Labelling. Labels can be printed using the Chem Alert application which can be found on the Horizon's web page [click the dropdown box in APPLICATIONS & TOOLS and Select Chem Alert]. Once the application has been launched, click Anonymous User, then:
  - Click Search and type the chemical name in the search bar and press enter.
  - Click on the Product and Manufacturer / Supplier of required label.
  - Click the Reports tab.
  - Click LABELS.
  - Click appropriate size for the container.
  - Click Label Placement

- Select the number and position of label/s requiring printing
- Click OK
- Click View / Print
- Print Label on appropriately sized adhesive label

#### **4.5.2 Safety Data Sheets**

All staff are to be made aware that SDS sheets are available from Chem Alert on Horizons and Data Chem. 24 hour access to Data Chem is available by contacting the Townsville, Brisbane or Adelaide Fire Stations.

#### **4.5.3 Purchasing**

If a current Safety Data Sheet (SDS) is not in the SDS register obtain one from the supplier.

### **4.6 Other chemical and potential contaminants**

Chemical and other potential contaminants that may not be classed as a dangerous good or hazardous substance (e.g. some paints, etc) are to be managed in a manner that minimises possible adverse impacts on the local environment.

In particular, chemicals are to be:

- Stored in a manner that minimises the risk of spill to stormwater or to any unsealed area (including storage on a bunded pallet or in a purpose built bunded cabinet).
- Kept in labelled containers that are appropriate for storing the particular substance.

Details of the local procedures are to be documented in LIs as per Section [1.6.2](#).

### **4.7 Waste management and disposal**

Details of the local procedures for waste management and disposal are to be documented in LIs as per Section [1.6.2](#). LIs include any requirements specified in a current TWA.

#### **4.7.1 General**

SMs are to ensure that:

- No storage of burnt material is permitted where contaminants in the material could enter the environment.
- Recycling of waste products is undertaken where practicable.

## 4.7.2 Prescribed waste disposal

SMs are to ensure that arrangements are in place for the management of prescribed waste as follows:

- Workshop waste (usually managed by EVT's), including:
  - Tyres
  - Batteries (acid)
  - Waste oil, oily rags and oil filters
  - Coolant
- Water that has been captured from hot fire training grounds, bunds, sumps and other tanks is managed by ARFFS Property Services under the national contract with Transpacific Waste.
- Any soil, groundwater or rubble from removed sealed surfaces at training ground, Fire Stations and mechanical workshop are potentially contaminated with AFFF and is managed in accordance with Section [4.4.4](#) AFFF.

## 4.7.3 Disposal of Ansulite AFFF storage containers

Drums, totes or other containers that have contained AFFF are not to be reused for any purpose. They are to be stored in a bunded area until they are disposed of under nationally managed arrangements. SM are not to enter into local arrangements for the disposal of AFFF contaminated containers under any circumstances.

It is to be made clear to a waste management organisation disposing of AFFF contaminated containers that the containers have contained industrial chemicals (and specifically AFFF) and are not to be used for any other purposes.

No agreement is to be entered into without prior consultation with the Manager ARFFS Environment (PFAS) Program.

## 4.7.4 Disposal of Solberg Foam storage containers

Drums, totes or other containers that have contained Solberg RF6 and Training foam may be recycled for industrial usage by a certified waste management organisation. The LOM manages this under local arrangements.

It is important that a waste management organisation receiving Solberg RF6 totes understands that the totes have contained industrial chemicals, specifically Solberg RF6, and that the totes are not to be used to hold food/water for human consumption. To this end, ARFFS only disposes of empty Solberg RF6 totes to an agency subject to the completion of a [Solberg RF6 IBC Disposal Certificate and Acknowledgement Form. \(ARFF-FORM-205\)](#) Completed forms are to be retained on file.

Prior to disposal, the totes are rinsed and the resulting waste water is to be managed as trade waste under local arrangements. Once rinsed, used Solberg totes do not require storing in a bunded area prior to disposal.

## 4.7.5 Disposal of DCP

DCP that has exceeded its operational life and empty DCP storage containers are disposed of under agreed prescribed waste arrangements.

#### 4.7.6 Waste water management and disposal

SM are responsible for ensuring that any observed faults or issues requiring maintenance/repair associated septic and sewer systems are reported to ARFFS Property Services.

ARFFS Property Services is accountable for:

- The management and servicing of oil/water separators.
- The management of the waste water at the hot fire training grounds.
- The outflow from other oil/ water separators, and monitoring potential contamination and compliance with the TWA.

Where routine monitoring undertaken by ARFFS Property Services identifies concentrations of contaminants that exceed prescribed levels, OSM, ARFFS Environment (PFAS) Program Manager and the SM are to be advised immediately. OSM will advise the SM if any change in practice is required.

Waste water generated within an ARFFS facility is to be disposed of as follows:

- Non contaminated stormwater is disposed of via the onsite stormwater system.
- Waste water that may be contaminated with oils including all waste water from a wash down bay, hot fire training ground where Class B fires are used, fuel storage bunds are disposed of to the sewer, providing an appropriate trade waste agreement (TWA) is in place and the waste disposal is in accordance with the TWA.
- Where there is no TWA at a Site (or the TWA does not allow for disposal of specific liquid wastes), waste water is disposed by a suitably licensed subcontractor to a licensed waste disposal facility.

**Note:**

1. A TWA is not required for domestic sewage - laundry, bathroom and kitchen waste.
2. Some sewer providers do not accept rainwater (e.g. water collected in bund or form a hot fire training ground) due to contamination with fluoro surfactants.

To ensure development of appropriate monitoring programs the SM is responsible for ensuring that ARFFS Property Services is advised of:

- Any water treatment systems requiring maintenance or repair.
- All locations where potentially contaminated water is disposed of to the stormwater or unsealed areas so that appropriate monitoring programs can be developed.

Where ARFFS is involved in the management of the waste water or operation of waste water systems, details of the local procedures are to be documented in LIs as per Section [1.6.2](#).

#### 4.7.7 Removal and storage of refrigerant gases

Maintenance works involving the removal or temporary storage of refrigerant gasses are to comply with 'The Australian Code of Practice 2008: Control of refrigerant gases during manufacture, installation, servicing or decommissioning of motor vehicle air conditioners'.

## **4.8 Site condition monitoring**

During routine use of ARFFS facilities, staff are to report any visual indications of damage or decay of sealed surfaces, bunds, training pads etc to the SM. This requirement does not apply if the use is related to a current operational response.

SM is to ensure that any changes or anomalies identified during monthly Site Condition Monitoring are reported to ARFFS Property Services as soon as practicable to enable further potential environmental assessment works.

ARFFS Property Services is responsible for annual water and site contamination monitoring at all locations where hot fire training is conducted.

Where routine monitoring undertaken by ARFFS Property Services identifies concentrations of contaminants that exceed prescribed levels, ARFFS Environment (PFAS) Program Manager, ESA and the SM are to be advised immediately. Environment (PFAS) Program Manager will advise the SM if any change in practice is required.

## **4.9 Vehicle and equipment management**

### **4.9.1 Vehicle wash down**

Details of the local procedures for managing the washing of vehicles is to be documented in LIs as per Section [1.6.2](#).

Washing and steam cleaning of ARFFS vehicles is only to be conducted over designated wash-down bays where:

- The waste water (including potential oil contaminants) are fed through an oil/water interceptor or separation systems.
- The treated waste water is disposed of to the sewer.
- A trade waste agreement (TWA) with the local water authorities is in place.
- The disposal of waste water is in accordance with the TWA.
- The wash down pad is adequately sized to capture the wash run off.

All detergents and other vehicle wash additives are to be bio-degradable, phosphate free, 'Quick-break' (i.e. they quickly release the oils and dirt from emulsion allowing the oil to quickly separate from the waste water) and otherwise environmentally friendly where possible.

Where a dedicated wash bay is not available or adequately sized, the LOM is to submit an Application to Vary Practice to seek approval for an alternative solution.

## 4.9.2 Vehicle and equipment maintenance

Vehicle and equipment maintenance activities are to be conducted in designated maintenance bays.

Drainage lines within and, adjacent to, designated maintenance areas are to be connected to an approved/licensed trade waste collection system and/or oil/water separator to ensure any potential leaks or spills do not enter stormwater drains or unsealed areas.

Cleaning of the maintenance area is to be undertaken, in a manner that does not allow the waste to enter stormwater or unsealed areas.

All collected waste water is to be disposed of in accordance with Waste water management and disposal Section [4.7.6](#).

All collected/stored waste oils and fuels are to be handled in accordance with Temporary Fuel Storage Section [4.3.1.2](#).

Any spills or leaks that occur during vehicle or equipment maintenance are handled as per Managing and reporting leaks and spills Section [4.3.3](#).

Spill kits are to be made available in accordance with Section [4.3.3](#). Spill kits are to comply with ENV-GUIDE-0003. All ARFFS staff involved in vehicle and equipment maintenance are to be competent in the use of spill kits.

## 4.9.3 Foam and monitor testing

ARFFS testing and maintenance activities that involve the production and discharge of firefighting foam is to be conducted in a manner that ensures minimal environmental impact to the ground, groundwater or surface water.

All foam and monitor testing is to be undertaken over designated wash down or bunded training ground areas.

Foam dispersal is not to extend beyond the boundary of these areas.

Refer to Sections [4.7.3](#) for waste water treatment requirements within training grounds.

For Darwin and Townsville, all Ansulite AFFF foam generated by testing and maintenance activities are to be captured and disposed of through a Defence-approved trade waste arrangement.

## 4.10 Training

Hot fire training is only to occur at facilities that are purpose built for hot fire training (e.g. hot fire training grounds, purpose built extinguisher pads and hot fire smoke houses).

Only fires using Class B fuels are permitted on hot fire training grounds.

Waste water is to be processed through an oil/water separator to ensure the risk to the environment is minimised and compliance with legal requirements.

Foam products are not to be used during training in non-approved sites at any time.



### 4.10.1 Training facilities

All ARFFS staff responsible for ensuring that training activities do not encroach on, or disturb environmentally sensitive or important areas (in terms of heritage values, threatened species etc) without the necessary approvals from the airport and/or regulators.

Where applicable, the location of sensitive heritage and conservation sites are to be communicated to all training participants prior to the commencement of training activities to ensure participant awareness and to prevent accidental encroachment of 'no go' areas in accordance with Section [4.2](#).

For requirements concerning waste water treatment systems, see Section [4.7.6](#) Waste water management and disposal.

Detailed drawings and/or plans of the training ground and operation of waste water treatment (separator) systems are to be maintained by ARFFS Property Services as per Section [4.12](#) Environmental Records Management.

### 4.10.2 Fire training water and other waste

A trade waste agreement is to be obtained from the local waste water authority where treated waste water is released to sewer.

SM are to ensure that any hydrocarbons (e.g. unburnt kerosene) separated from the water and not reused as fuel are disposed of as a controlled waste as per Section [0](#) Prescribed waste disposal.

Fire training waste water, water captured on training grounds, and discharges from training ground inceptor traps or separation systems, is to be managed as per Section [4.7.6](#) Waste water management and disposal.

All water from hot fire training facilities is to be managed as contaminated waste unless monitoring has demonstrated otherwise.

### 4.10.3 Foam and water based training

Hot fire training is only permitted at hot fire training facilities.

Hot fire training conducted at the Large Hot Fire Training Ground operated by the Learning Academy uses water and Solberg Training Foam only.

Foam Behaviour Training at local hot fire training grounds uses Solberg RF6 in limited quantities through a hand line.

All other hot fire training conducted at local training grounds is water-based only.

Under no circumstances is Ansulite AFFF used in training.

All training areas are to have training procedures that minimise the risk of foam overthrow onto unsealed areas.

LIIs are to include procedures that ensure:

- water released during training is confined as far as practicable to the training pad or smoke hut,
- contamination (hydrocarbon contaminated waters etc) is not released into the environment , and
- captured water is directed through a 'fit for purpose' treatment system prior to discharge.

When foam enters the environment as a result of 'over shooting' the FTG pad during training, the discharge is to be reported as an Environmental Occurrence in CIRRIIS.

When foam is used for training purposes and foam does not enter the environment (i.e. foam does not leave the pad), the foam discharge there is no requirement to raise a record in CIRRIIS.

#### **4.10.4 Dry Chemical Powder (DCP) training**

Testing of Dry Chemical Powder (DCP) and training using DCP is to be avoided on windy days, and if wind direction may carry DCP onto neighbouring properties or affect airport operations.

Where practicable DCP training/testing is:

- Coordinated with scheduled equipment testing or hot fire training.
- Conducted on the bunded area at the hot fire training ground.
- Scheduled immediately prior to the cleaning of the separator system, as DCP can 'clog;' the system and decrease its effectiveness.

Unless approval has been granted in writing by the OSM for the use of an alternative DCP, 'Purple K' is the only DCP used for training or operational purposes.

#### **4.10.5 Extinguisher training**

Foam extinguisher training is only permitted where:

- only non-fluorinated foams/detergents are used, and
- it is undertaken at hot fire training ground or purpose built extinguisher pads with 'fit for purpose separator'
- only Class A fuel is used and unburnt fuel is contained and disposed of appropriately

Unless approval has been granted in writing by the OSM 'Purple K' is the only DCP used for DCP fire extinguisher training.

The preferred practice for DCP and CO2 extinguisher training follows the requirements described in Section [4.10.4](#)

DCP and CO2 extinguisher training is to be conducted at:

- a purpose built training facility with 'fit for purpose separators', or
- a sealed surface which:
  - has been identified in LIs as an extinguisher training area
  - does not drain directly to stormwater

#### **4.10.6 Training and smoke management**

LIs are to ensure that as far as practicable, smoke generated during training activities does not affect neighbouring properties.

Where possible, training involving the creation of smoke is to be avoided on windy days if the wind may carry smoke onto neighbouring properties or affect airport operations.

The Officer conducting the training is to gain approval from the on-duty tower controller prior to lighting training fires to ensure aircraft operations are not adversely affected.

#### **4.10.6.1 Airports regulated by the Airports Act**

Fire training at Airports regulated by the [Airports Act 1996](#) is conducted in accordance with an Agreement under sub-regulation 4.02(2) [Airports \(Environment Protection\) Regulations 1997](#) in relation to the emission of Dark Smoke dated 8 May 2012. This agreement includes five primary obligations:

- Sub regulation 4.02(2)(a) – provides for education of the public, the airport lessee company and airport tenants about fire training activities;
- Sub regulation 4.02(2)(b) – provides for telling the airport-lessee company and the airport environment officer before a fire training event;
- Sub regulation 4.02(2)(c) – provides for limiting fire training in unsuitable weather conditions;
- Sub regulation 4.02(2)(d) – provides for telling the airport environment officer of any environmental occurrence caused by fire training activities; and
- Sub regulation 4.02(2) (e) – promotes the extent of night fire training events.

The obligation in sub regulation 4.02(2) (e) is subject to:

1. the realistic fire training needs of ARFFS staff;
2. consideration of the safety and security of any person or property; and
3. Airservices having access to sites suitable for the conduct of night fire training.

LOMs at Adelaide, Alice Springs, Brisbane, Canberra, Gold Coast, Darwin, Hobart, Launceston, Melbourne, Perth and Sydney are to ensure that training complies with the [Deed of Agreement - Agreement for the emission of dark smoke](#).

#### **4.10.6.2 Airports not regulated by the Airports Act**

ARFFS SMs located at airports not regulated by the [Airports Act 1996](#) are to inform local State/Territory Government of activities that may cause dark smoke emissions.

### **4.10.7 Management of vehicles as training aids**

To avoid leaks and spills, SMs are to ensure that as far as practicable, training vehicles are free of all fuels and fluids prior to use in hot fire training or cutting exercises.

All vehicles used as training aids are to be stored on sealed surfaces to minimise the potential effects from leaks of fuels and other waste products onto unsealed surfaces.

All fluids that leak or spill from a training vehicle are to be contained to the pad and captured using a spill kit.

Once training aid vehicles are no longer required, vehicles are to be disposed of to a licensed metal recycler.

All disposal documentation is to be maintained and archived where necessary as auditable documentation.

## 4.11 ARFFS environment occurrence management

### 4.11.1 Environmental Occurrences

Environmental occurrences may include (but are not limited to):

- Operational or accidental use of firefighting agents
- Environmental damage to flora, fauna, land, air or water
- Known or suspected breaches of legal or other obligations
- Public complaints

All questions related to Occurrences are directed to the Airservices Environment Systems and Assurance Unit for clarification.

### 4.11.2 Environmental Occurrence Management Procedure

[Environmental Occurrence Management, Emergency Preparedness and Response \(AA-NOS-ENV-0002\)](#) is the primary procedure governing occurrence management within Airservices.

Within ARFFS, LOMs are to ensure that all environmental occurrences are managed in accordance with [AA-NOS-ENV-0002](#).

Where lives or property are at risk, any overarching Emergency Management Plans such as Airport Emergency Plans or Contingency Plans take precedence. However, the requirements of [AA-NOS-ENV-0002](#) still apply with respect to the management of environmental issues.

In summary, [AA-NOS-ENV-0002](#) identifies the following steps in managing an occurrence:

- Immediate Response
- Containment and Control
- Recovery

### 4.11.3 Immediate Response

The LOM (or duty FC) are to ensure that ARFFS responds effectively and safely to an environmental occurrence.

Preparedness to respond to an environmental occurrence is a function of planning and practice.

To accelerate the response to an occurrence all ARFFS stations are to have an Environmental Occurrence Response Plan (EORP) in place. EORP:

- provide guidance on how to respond to environmental occurrences at the local level
- are reviewed, tested and updated regularly

Other plans to be considered in a response to an environmental occurrence include:

- Airport Emergency Plans - provide guidance on managing a range of aviation related incidents including major environmental occurrences (or incidents) at an airport. AEPs are practiced under airport arrangements to validate their effectiveness.

- Targeted Response Procedures – describe actions taken for a particular type of occurrences (e.g. Solberg Spill) or environmental sensitivity relevant to the site.
- [Local Instructions](#) - provide the guidance for the routine management of environmental obligations to ensure that local practice accords with the requirements specified in this procedure.
- [Local Contingency Plans](#) provides the framework for managing a range of scenarios that could impact on ARFFS operations including larger scale spills and responses to other environmental occurrences. ARFFS Contingency Plans are reviewed annually and practiced in accordance with [ARFFS Business Continuity Plan \(C-BCP0077\)](#) to validate their effectiveness.

#### 4.11.4 Containment and Control

As far as is practicable within the limitations of an operational response ARFFS personnel should:

- avoid uncontrolled dispersal of extinguishing agents
- cease flows of extinguishing agents when they are no longer required

Where the tactical situation allows, run-off containing extinguishing agents should be diverted away from sensitive areas such as open stormwater drains or native grasslands.

In responding to an occurrence, the ARFFS OIC will assess the options for containment and seek support if the scale or nature of the occurrence exceeds ARFFS resources.

Containment of small spills/occurrences may be managed using on site spill kits in the first instance.

Containment of larger scale spills/occurrences are likely to require additional capabilities from other agencies. Where this occurs, the ARFFS OIC is to confirm who is providing support, what the plan for support entails and when it will be implemented.

The actions taken in response to the release of firefighting foam into the environment are described in, [Managing Fire Fighting Foam Released into the Environment \(ENV-GUIDE-0004\)](#).

#### 4.11.5 Recovery

In the Recovery Phase, the LOM takes all necessary steps to:

- return the unit to its necessary level of operational preparedness; and
- ensure that the occurrence has been fully reported using the Occurrence Reporting module in CIRRIIS. (Refer to CIRRIIS User Guide.)

The duty FC responding to an incident raises the occurrence report, providing sufficient context and detail to enable the reader to understand the:

- scope of the occurrence (including what happened, when it happened, where it happened, what contaminants may have been involved and in what quantities))
- Immediate response (including who initiated the task, what actions were taken)
- Containment and Control (including who was responsible for containment and what steps were taken)

Documentary evidence to support the information in the Occurrence report includes:

- The relevant ORS Report
- Photographs of the incident site demonstrating the scope of the occurrence and any actions taken in immediate response and as part of containment and control)

A CIRRIIS notification is initiated as soon as circumstances allow and no later than the conclusion of a shift.

In the event of an incident occurring outside of the period 0900-1700 AEST, the incident is reported through the Network Coordination Centre (NCC).

CIRRIIS occurrences are initially investigated by the LOM. The LOM seeks advice from ESA before closing an occurrence.

ESA determines whether an occurrence is environmentally significant, which may lead to notification of EPAs or other authorities including the Airport owner, the AEO or other regulatory authorities.

LOMs notify Manager ARFFS Environment (PFAS) Program Manager as soon as they become aware of an occurrence which may involve PFAS contamination.

LOMs also notify EGM ARFFS through their ROMs of any occurrences that might be sensitive or significant. The Executive/CEO and Board are advised of major occurrences as soon as practicable.

Environmental Occurrences are not closed in CIRRIIS until an environmental specialist has confirmed that the occurrence can be closed.

#### **4.11.6 Spills and contamination on airports regulated under the Airports Act**

Spills and Contamination on airports regulated under the [Airports Act 1996](#) are managed in accordance with the [Airports Act 1996](#) and [Airports \(Environment Protection\) Regulation 1997](#) including reporting spills to the airport lease company and AEO.

Airservices adopts a 'good corporate citizen' approach, and if the contamination would trigger State/Territory reporting requirements, then Airservices informs the State/Territory authority as a matter of courtesy.

All Spills and Contamination on non-Airport Act operated land are managed in accordance with the relevant State/Territory requirements.

#### **4.11.7 Reporting an operational response**

All 'operational responses' (see Definitions) are to be reported as Environmental Occurrences using CIRRIIS (in accordance with [ENV-PROC-0006](#)) when:

- Foam, DCP or water is dispersed from Fire Fighting Vehicles; and/or
- Potential environmental impacts may have been caused (e.g. soil disturbance, destruction of vegetation, fauna mortality etc).

ARFFS has an obligation to report all operational responses as Environmental Occurrences in a timely and complete manner.

The duty FC is to ensure that the ARFFS Chain of Command and ARFFS Environmental Specialists are aware of all reportable situations.

Where water is used for operational purposes (e.g. for firefighting purposes including replenishing other fire vehicles) it is to be reported as an Environmental Occurrence in CIRRIIS as follows:

- The title of the occurrence is to include the words 'Operational use of water'
- The report is to include a completed ARFFS Form 142 ([Report of the Operational Use of Water](#)) and a copy of the relevant ORS report

Environmental Occurrences are not to be closed in CIRRIIS without confirmation from an ARFFS Environmental Specialist.

## 4.12 Environmental records management

### 4.12.1 ARFFS

The SM is to ensure that auditable records and supporting documentation is maintained including:

- Visitor inductions
- Record of completion of procedures (e.g. in MEX) and recording of compliance (e.g. in respect to regular inspections)
- EPA dockets for any controlled waste disposal, proof of the waste provider is appropriately licensed etc
- Applications for variation of environmental practice and related determinations
- Records of discussions with external stakeholders including any complaints
- Foam usage
- Fuel reconciliation in regard to underground fuel storage
- Record of completion of procedures (e.g. in MEX) and recording of compliance (e.g. in respect to regular inspections)
- Environmental training

### 4.12.2 Portfolio Delivery (Property Services)

ARFFS Property Services is to ensure that auditable records and supporting documentation are maintained including:

- EPA dockets for any controlled waste disposal, proof of the waste provider is appropriately licensed etc.
- Trade Waste Agreements (TWA).
- Leases and property boundaries.
- Monitoring results, contaminated site assessment and management.
- Plans of ARFFS facilities – Fire training grounds, separator systems etc.
- Record of completion of procedures (e.g. in SAP or MEX) and recording of compliance (e.g. in respect to regular inspections).

**Note:** Detailed drawings and/or plans of the training ground and operation of new facilities are to be made readily available. In relation to existing facilities a search of records is undertaken to locate available plans. All records are to be maintained, updated as necessary and be readily available. Where plans are not available the knowledge of staff in relation to the facilities are to be documented. This is the responsibility of Property Services.

ARFFS Property Services is responsible for managing permits and approvals related to sewer and stormwater.

Facilities Managers are to:

- Provide SMs with:
  - a hard copy of all environmental permits, licenses, and approvals to be kept at the station or
  - access to a centralised register of these permits.
- Implement a program to maintain and track the currency of these permits.

All necessary authorities are to be informed as soon as practicable, if there is an expected change or recorded occurrence which results in noncompliance with the permit. This is to be coordinated by Manager responsible for the management of the licence e.g. Manager Property Services.

### **4.12.3 ESA**

The ESA:

- Ensures that auditable records and supporting documentation is maintained in relation to Management for fluoro surfactant contamination management.
- Facilitates the accessibility of environmental reports by publishing them on Horizons.



## 5 Part 5: Assurance

### 5.1 Environmental Assurance

#### 5.1.1 Three-tiered assurance framework

ARFFS maintains a three-tiered assurance framework:

- **Level One: Management Oversight and Assurance.** Level One Assurance is managed by Local Operations Managers to provide them with a clear understanding of the environmental risks and the controls that need managing to minimise those risks at their location. This is the most important level of assurance in managing environmental risk across ARFFS. Assurance activities at this level include:
  - ARFFS Environment Self Assurance Program (AESAP)
  - routine checking of infrastructure and identification of faults/issues
  - routine reporting of environmental occurrences
  - local actions to minimise risk and correct deficiencies
  - escalation of issues that require National intervention
- **Level Two: National ARFFS Assurance.** Level Two Assurance activities include:
  - Coordination of AESAP and provision of a forum for issues needing discussion and clarification and periodic review of checklist results to determine if there are particular issues at a location or trends reflecting a national problem (by OSM)
  - Managing the process of Applications to Vary Practice to identify national trends and assign priorities for resolving issues (by OSM)
  - routine inspections and facilities maintenance programs (designed and implemented by Asset Lifecycle Maintenance Manager in conjunction with Property Services)
  - delivery of programs of work to address environmental issues (by Program Delivery Manager)
  - Monitoring trends and issues within the framework of the ARFFASSURE program (managed by ORAM)
- **Level Three: National Airservices Assurance.** Level Three Assurance provides corporate level oversight. Assurance activities at this level include:
  - A rolling assurance spot checking program (conducted by ESA)
  - Annual 14001 site audits (conducted by ESA)
  - Airservices internal audit program

### 5.1.2 ARFFS Environment Self-Assurance Program (AESAP)

The ARFFS Environment Self-Assurance Program (AESAP) is managed within ARFFS as follows:

- **ARFFS Operational sites:** A monthly compliance check is conducted by local Environmental Portfolio Holders and reviewed and approved by LOM. The monthly checklist is supported by routine teleconferences which provide an opportunity to clarify requirements, and address issues.
- ARFFS sites managed by Maintenance and Logistics, an annual compliance check of independent workshops is conducted by Maintenance Team Leaders as detailed in Maintenance Manual (EM-001), as follows:
- Team Leaders:
  - Complete the Independent Workshops Environmental Inspection (EM-019) form and identify any issues that need correcting.
  - Raise a CIRRIIS Inspection for the relevant location (referring to the CIRRIIS User Guide) and answer the questions in the Inspection
  - Attach the completed form EM-019 and evidence of any corrective action that has been initiated into the CIRRIIS entry for the inspection.
- Maintenance Manager:
  - Signs-off the inspections when they are complete and correct.
  - Directs any questions to an ARFFS environmental specialist for clarification.

### 5.1.3 ARFFS Environmental Performance

ARFFS will track its environmental performance against the following objectives:

Focus area	Objective	Target/KPI
1. Environmental Surveillance & Assurance	Effectiveness of environmental performance at ARFFS fire-stations and facilities is regularly assessed and improved through 1st level assurance activities	<ul style="list-style-type: none"> <li>The monthly program of internal environmental assurance assessments is conducted each year at each ARFFS fire stations to assess environmental controls and performance.</li> <li>The annual program of internal environmental assurance assessments is conducted each year for each ARFFS independent workshops to assess environmental controls and performance.</li> </ul>
2. Environmental awareness & capability	ARFFS fire station staff are appropriately trained and aware of their relevant environmental management obligations	All ARFFS staff receive annual environmental awareness training
3. Environmental Risk assessment & Management	ARFFS fire station environmental risks are regularly reviewed with controls continuously improved as required	ARFFS' environment risks are reviewed and updated annually
4. Local site documentation	Documentation of local site environmental sensitivities is regularly reviewed and improved	Local instructions and environmental manifests are reviewed and updated annually
5. Environmental Emergency & Occurrence Management	Site based Environmental Emergency and Occurrence Management protocols and procedures are regularly tested and improved	<ul style="list-style-type: none"> <li>Local Occurrence Response Plans are reviewed and updated annually</li> <li>An environmental emergency/occurrence response exercise is conducted periodically</li> <li>All environmental occurrences are reviewed and actioned by an environment SME within 2 working days</li> </ul>

## 6 Definitions

Term	Definition
ARMS	Airservices Risk Management System, the system previously used for the identification, assessment and management of risks associated with organisational activities. This system has been replaced by CIRRIIS
Accountability	<p>Accountability is defined in the Leaders Leading program as: "A situation where an individual can be called to account for his or her actions to another individual or body authorised both to do so and give recognition to the individual for those actions."</p> <p>Accountability exists where:</p> <ul style="list-style-type: none"> <li>• an outcome is defined</li> <li>• responsibility is clear</li> <li>• Appropriate authority is granted.</li> </ul>
ARFFS Facilities	Those Airservices facilities operated by ARFFS for the purpose of delivering aviation related rescue and fire fighting services. These include Fire Stations, workshops, training grounds and related training facilities.
ARFFS Site Manager	Usually this is the Local Operations Manager. However, when a workshop is located in a different location to a Fire Station, this term also applies to an EVT Team Leader responsible for managing such a workshop.
ARFFS Environment Portfolio Holder	The ARFFS member designated to support the SM in the exercise of environmental management responsibilities.
Bund Bunded area Bunded compound	<p>Bunded areas or compounds are often colloquially referred to simply (though inaccurately) as bunds.</p> <p>A bunded area (or compound) is generally regarded as incorporating ALL of the following:</p> <ul style="list-style-type: none"> <li>• an impervious wall (bund) surrounding the facility or tank</li> <li>• an impervious floor within the wall</li> <li>• sealed joins in the bund/floor</li> <li>• associated facilities to empty the sealed area of liquids/wastes without polluting the environment</li> <li>• sufficient net capacity to contain at least the capacity of the largest enclosed tank or storage plus 10% (AS1940:2004, s 5.8.2)</li> </ul>
CIRRIIS	<a href="#"><u>Corporate Integrated Reporting and Risk Information System</u></a> – Airservices integrated database for the management of occurrences, risks, obligations and safety issues. CIRRIIS replaced ARMS in 2013.

Term	Definition
Emergency	<p>An emergency, as defined in the Australian Emergency Management Glossary is 'an event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response'.</p> <p>Essentially, an environmental emergency can be considered as an environmental occurrence which:</p> <ul style="list-style-type: none"> <li>• Has a substantially heightened consequence level</li> <li>• Requires an immediate and coordinated response to prevent significant environmental impact.</li> </ul>
EVT	Emergency Vehicle Technician. Specially trained technical staff responsible for the maintenance and repair of ARFFS specialist equipment.
LOM	Local Operations Manager. The ARFFS Officer-In-Charge of an airport Fire Station.
Incident	For the purposes of environmental management, the term 'Incident' has been replaced by 'Occurrence'.
Liquids	For the purposes of this document a liquid means any substance which is captured by a bund. The substances which are likely to be captured in a bund include the substance which is stored in the bund (e.g. fuel or foam) and rain water.
NABERS	<p>National Australian Built Environment Rating System</p> <p>NABERS is a national rating system that measures the environmental performance of Australian buildings, tenancies and homes. NABERS measures the energy efficiency, water usage, waste management and indoor environment quality of a building or tenancy and its impact on the environment.</p>
Occurrence	<p>An environmental occurrence (traditionally referred to as an incident) is any unplanned or abnormal event that impacts adversely on the environment.</p> <p>An environmental occurrence can include (but is not limited to):</p> <ul style="list-style-type: none"> <li>• Spills of fuel, foam or waste oil</li> <li>• ARFFS use of foam at an operational response to an aviation incident</li> <li>• Site damage (such as erosion or sedimentation)</li> <li>• Impacts to flora and fauna (including vegetation removal, and wildlife mortality).</li> </ul>
Operational Response	<p>For the purposes of environmental management, the term "Operational Response" includes all instances where foam or water is used for fighting fires other than in a training situation.</p> <p>This includes support to hazard reduction, mutual aid (including provision of water to other agencies), wild fire firefighting and response to fuel spills.</p>
Prescribed Waste	Is any waste listed or otherwise identified in waste legislation in various jurisdictions
Responsibility	The state of ownership resulting from the performance of an activity or action.

Term	Definition
Trade Waste	Is any liquid waste that can be sent to sewer under an approved Trade Waste Agreement (TWA)
TWA	Trade Waste Agreement. An agreement with a sewer authority to release liquid waste, such as fire training waste water, to sewer.

## 7 References

Title	Number
Administer Facilities	<a href="#">IMS-PRCS-0407</a>
Air Navigation Services (ANS) and Property Services (PS) - Environmental Management of On-ground Activities	<a href="#">PROC-265</a>
ARFF Technical and Property Support Responsibilities	<a href="#">LoA 3171</a>
Australian Code of Practice 2008: Control of refrigerant gases during manufacture, installation, servicing or decommissioning of motor vehicle air conditioners	
CASA Manual of Standards MOS-139H	
Contractor and Visitor	<a href="#">HR-128</a>
Deed of Agreement under sub regulation 4.02(2) Airports (Environment Protection) Regulations 1997 in relation to the emission of dark smoke	<a href="#">Dark Smoke</a>
Environment Impact Screening & Assessment Criteria for Changes to On-ground activities	<a href="#">AA-REF-ENV-0010</a>
Environmental Assessment of Changes to On-ground Activities	<a href="#">AA-NOS-ENV-2.200</a>
Environmental Audit Tool and Inspection Checklist	<a href="#">ENV-GUIDE-0018</a>
Environmental Guidelines on Fuel Storage	<a href="#">AA-REF-ENV-0017</a>
Environmental Impact Screening & Assessment Criteria for Changes to On-ground activities	<a href="#">AA-REF-ENV-0010</a>
Environmental Management System Requirements and Accountabilities	<a href="#">AA-NOS-ENV-0001</a>
Environmental Occurrence Management, Emergency Preparedness and Response	<a href="#">AA-NOS-ENV-0002</a>
Environmental Risk Management Procedure	<a href="#">ENV-PROC-0004</a>
Hazardous Chemicals	<a href="#">AA-PROC-SAF-0015</a>
Management of Clinical Waste	<a href="#">Ops-135</a>
Management of PFC Impacted Sites	<a href="#">ENV-PROC-0005</a>
Managing Fire Fighting Foam Released into the Environment	<a href="#">ENV-Guide-0004</a>
Managing PFC Contamination at Airport: Interim Contamination Management Strategy and Decision Framework	<a href="#">ENV-GUIDE-0013</a>
Spill Kit Management Guide	<a href="#">ENV-GUIDE-0003</a>
The storage and handling of flammable and combustible liquids	AS 1940

## Appendix A Guidance for developing local instructions

### Local Environmental Management

ARFFS Local Operations Managers (LOMs) are accountable for environmental management at their site. The following documents are intended to support LOMs to achieve these environmental accountabilities on site:

- Manifests
- Environment Occurrence Response Plans
- Local Instructions

### Purpose of Local Instructions in Environmental Management

The purpose of Environment Local Instructions (LIs) is to describe the local implementation of environmental requirements specified in ENV001 and any additional local requirements driven by Airport operators (including Airport Environment Strategies and lease conditions).

Local Instructions are not intended to replicate ENV001 by copying information that already resides in this document or other national policy and procedures.

Local Instructions reflect the local implementation of national policy and procedures to ensure that ARFFS routine activities and operations minimise environmental risks. Specifically, LIs need to address the subject areas listed in this Appendix as they apply locally.

### A.1 Manifests

The SM ensures that information in the manifests remains accurate and current and is reviewed annually.

LIs identify where manifests are displayed.

### A.2 Fuel storage

LIs are to describe:

- the capacity of bunds
- local arrangements for bund maintenance
- frequency and procedures for maintaining separators, including scheduling pit pump out
- procedures for managing rainwater collected within a bund and related trade waste management procedures including procedures to address significant seasonal variations, such as high rainfall during a wet season
- a schematic of the fuel storage system
- any non-standard practices that are subject to the Application to Vary Practice process



## **A.3 Refuelling vehicles and refilling storage tanks**

LIs are to detail:

- the location for all vehicle refuelling on Site
- vehicle refuelling procedures, including any requirement for escorting and supervision
- tank refilling procedures, including the requirement to supervise the process
- spill procedures including:
  - the location of spill kits
  - reporting requirements (as specified by the Airport operator)
- any non-standard practices that are subject to the Application to Vary Practice process (e.g. use of spill trays)

## **A.4 Foam storage**

LIs are to describe:

- the type of foam, how and where it is stored (bulk, interim or temporary storage), supported by imagery
- the capacity of bunds
- local arrangements for bund maintenance
- frequency and procedures for maintaining separators, including scheduling pit pump out (e.g. annually and after DCP usage)
- procedures for managing rainwater collected within a bund and related trade waste management procedures including procedures to address significant seasonal variations, such as high rainfall during a wet season
- any non-standard practices that are subject to the Application to vary Practice process

## **A.5 Foam refilling of vehicles and storage tanks**

LIs are to detail:

- the location for all vehicle foam replenishment on Site
- vehicle foam replenishment procedures, including any requirement for escorting and supervision
- bulk foam tank refilling procedures, including the requirement to supervise the process
- spill procedures including:
  - the location of spill kits
  - reporting requirements (as specified by the Airport operator)
- any non-standard practices that are subject to the Application to vary Practice process

## **A.6 Dangerous Goods, Hazardous Materials and other Chemicals**

LIs are to detail:

- the location of chemical storage containers
- local procedures to manage:
  - separation of chemicals
  - restriction on quantities to be held
- local spill procedures including:
  - the location of spill kits
  - the location of eyewash facilities
  - reporting requirements (if specified by the Airport operator)
- maintenance of the chemicals register including:
  - location of/access to the register
  - local accountabilities
  - local spot checking program

## **A.7 Waste management and disposal**

LIs are to detail:

- local waste management arrangements for:
  - General Household Waste
  - Recyclable Wastes
  - Prescribed Waste
  - Waste Water
- procedures for ensuring that waste management complies with local trade waste agreements

## **A.8 Vehicle wash down**

LIs are to detail:

- local arrangements for vehicle wash down, including designated wash down points, operating procedures and any limitations on usage
- which approved detergents are to be used
- any non-standard practices that are subject to the Application to Vary Practice process

## **A.9 Foam and monitor testing**

LIs are to specify the location in which all foam and monitor testing is authorised to occur.

## **A.10 Extinguisher training**

LLs are to detail the location at which extinguisher training is authorised to occur and procedures to contain and dispose of unburned fuel.

## **A.11 Hot fire training (where hot fire training facilities exist)**

LLs are to details

- operating procedures for waste water treatment systems, oil/water separators and interceptors
- training ground procedures to ensure that all potentially contaminated water is not released to the environment, including any limitations on water discharged from monitors and handlines during training to minimise overthrow from the training area
- training ground procedures to ensure unburned fuel is contained and disposed of appropriately

## **A.12 Dark smoke management (where hot fire training facilities exist)**

LLs are to detail procedures:

- for checking that training is not subject to a fire ban or smog alert
- for notifying AEO/Airport operations, tower and others of planned hot fire training that emit Dark Smoke

## **Appendix B Fire Station Monthly Checklists**

### **B.1 January Checklist**

There is no checklist to be completed in January.

## **B.2 February Checklist**

### **Documentation – Local Instructions**

1. Do Local Instructions describe the hazardous material storage procedures?
2. Do Local Instructions describe the foam refilling procedures?
3. After discussion with the LOM are Local Instructions compliant with ENV-001 or has approval been received from OSM for a variation?
4. Do Local Instructions outline site specific spill management and reporting procedures?
5. Do Local Instructions describe procedures for use of fire training facilities?
6. Do Local Instructions describe the location and sensitivity of any heritage and conservation sites?
7. Do Local Instructions describe the operation of the water treatment system?
8. Do Local Instructions describe extinguisher training procedures?
9. Do Local Instructions outline procedures to ensure unburned fuel is contained and disposed of?
10. Do Local Instructions outline procedures to comply with requirements of trade waste agreements?

### **Generators (including portable)**

11. Are the visible fuel lines, day-tanks, fuel valves, etc. in good condition?
12. Are the above ground storage tanks (pipes, inspection plates, etc) in good condition?
13. Is the area clear of fuel/oil/coolant leakage or water contamination in the fuel tank?
14. Are there suitable locks on tanks?
15. If a spill was to occur, will the flow be contained within the building, or flow to an interceptor drain/wastewater treatment plant or be contained on a hardstand area?
16. Are all generators and related containers of fuel located within a bunded area?
17. Is signage appropriate, as per Airservices Guidelines for Fuel Storage and Hazardous Substances?

## **B.3 March Checklist**

### **Hot Fire Training – Kerosene use and storage**

18. Is hot fire training only undertaken at hot fire training facilities?
19. Are fires using only class B fuels used at the training facilities where the waste water is processed through an oil/water separator?
20. Is there evidence that weekly checks as per ENV-001 are being conducted at the hot fire training grounds?
21. Where issues have been raised during weekly checks, have they been addressed?
22. Are visible fuel lines, day-tanks, fuel valves, etc. in good condition at hot fire training grounds?
23. Not used
24. Is the hot fire training ground clear of fuel/oil leakage or water contamination in the fuel tank?
25. Is the bunding for the kerosene tanks at the hot fire training ground in good condition?
26. Are bund valves at the hot fire training ground closed and locked where available?
27. Is bund water disposal at the hot fire training ground managed to minimise pollution?
28. Is the bund at the hot fire training ground able to contain 110% of the tank capacity?
29. Is the kerosene tank at the hot fire training ground double skinned?

## B.4 April Checklist

### Fuel Storage

30. Are all bulk fuel storage tanks:
  - double skinned steel construction, and
  - located on a hard stand/sealed surface, or
  - located within bunded areas with a minimum volume of 110% of the maximum fuel capacity?
31. Can you confirm that contaminated storm water from the bulk storage area is not released directly to the environment?
32. Can you confirm that bund water is:
  - disposed of via an oil/water separator to sewer and subject to a Trade Waste Agreement (TWA); or
  - collected in a tank and disposed of by a licensed subcontractor?
33. Can you confirm that where containers up to 205 litres are stored in a non-bunded area, the following applies;
  - stored fuel does not exceed 820 litres (i.e. 4x 205litre drums) and
  - it is stored on bunded pallets in a covered area on sealed surfaces?
34. Can you confirm that containers up to 20 litres in capacity (i.e. equivalent to a jerry can) are stored as follows:
  - in self bunded flammable/combustible storage cabinets in covered areas; and
  - on sealed surfaces?
35. Is signage appropriate, as per ASA Guidelines for Fuel Storage and Hazardous Substances at the following locations:
  - At the bulk diesel storage area?
  - At the bulk kerosene storage area?
  - At the fuel container storage area?
36. Is the refuelling infrastructure and refuelling area located/undertaken on sealed surfaces?
37. Confirm there are no unusual odours coming from soils on site, or odours or visual contamination of soils in service trenches either on or off-site?
38. Confirm there are no unexplained dead or distressed animals or dead or dying plants on, or in the vicinity of the site?
39. If a spill during refuelling occurs can it be contained in such a manner that it will not enter storm water or unsealed areas?
40. Are spill kits readily available to contain any spills?
41. Are weekly fuel storage inspections being conducted as per [ENV-001](#)?
42. Have all issues identified during weekly fuel storage inspections been identified and raised for resolution?

## **B.5 May Checklist**

### **Documentation - Comms records for external stakeholders (including complaints)**

43. Are there records of environmental complaints received from external stakeholders available?

### **Documentation - Foam usage records**

44. Are foam usage records available and up-to-date?

### **Documentation - Records of Fuel reconciliation of underground fuel storage**

45. Are fuel reconciliation records available and up-to-date?

### **Documentation - Dangerous Goods and Hazardous Materials**

46. Is there a register of all hazardous chemicals and dangerous goods maintained and available at the site?
47. Are details of the local procedures for hazardous material storage documented in LIs?
48. After discussion with the LOM can you confirm there has been no unexplained loss of stored chemicals or dangerous goods?



## **B.6 June Checklist**

### **Foam Storage**

49. For all bulk foam storage containers (tanks, interim or temporary) does the bunded area have a minimum volume totalling 110% of the maximum foam capacity of the largest container in the bund?
50. Are spill kits readily available to contain any foam spills for storage and refilling?
51. Is refilling of vehicles and equipment (inclusive of storage tanks) conducted on sealed surfaces?
52. Do hoses used for decanting foam have cut-off valves fitted to minimise the risk of spillage and are they stored within the bunded areas?
53. Are weekly foam storage inspections being conducted as per ENV-001?
54. Have all issues identified during weekly foam storage inspections been identified and raised for resolution?
55. Not used
56. Can you confirm there is no sign of deterioration, damage or leakage to containers storing contaminated water on-site?
57. Is a TWA in place for any contaminated wastewater (including from wash-down bay) disposed of to the sewer?
58. Where there is no TWA in place is wastewater disposed by a suitably licensed contractor?
59. Are spill kits readily available to contain any wastewater spills?
60. Is signage for stored wastewater appropriate, as per ASA Guidelines for Fuel Storage and Hazardous Substances?

## **B.7 July Checklist**

### **Vehicle wash-down bays**

61. Is washing and steam cleaning of ARFFS vehicles only conducted over the designated wash-down bay?
62. Is wastewater from vehicle wash-down activity (potential oil contaminants) fed through an interceptor or separation systems?
63. Is the treated wash-down wastewater disposed of to the sewer?
64. Is the disposal of waste water in accordance with the TWA i.e. only approved chemicals and waste types sent to sewer?
65. If a dedicated wash bay is not available or adequately sized for the required ARFFS vehicles is an exemption in place and approved by the OSM for alternative arrangements?
66. Are appropriate detergents ['Quick Release'] which flow into the interceptors being used?

## **B.8 August Checklist**

### **ARFFS Maintenance Shed**

- 67. Is DCP stored in supplied buckets and containers in secure individual packaging?
- 68. Is the miscellaneous equipment shed (e.g. lawn mowers, power tools) maintained in good condition?

### **Docs - Environmental Lease Commitments**

- 69. Have all environmental-related lease conditions been identified and complied with? (E.g. EMP, Tenant Contract agreements, audits etc).

**Note:** The ARFFS Senior Property Manager will need to be contacted to provide this information.

- 70. Is a copy of any relevant Environmental lease requirements available for reference?

## B.9 September Checklist

### Documentation - Site Manifest

71. Is there a printed copy of the site manifest displayed onsite?
72. Is the site manifest up to date (what is latest date)?
73. After discussions with the LOM does the site manifest address all relevant heritage and ecological matters?

### Site Access

74. Have all visitors received the site induction? (In accordance with [ARFFS Contractor and Visitor Management](#) (HR-128)):
  - [ARFFS Visitor Induction Checklist](#)
  - [ARFFS Contractor Induction Checklist](#)
75. Have all contractors undertaking unsupervised works completed the Airservices Contractor Induction program?

## **B.10 October Checklist**

### **Hot Fire Training – Facilities and Environmental Management Procedures**

- 76. Is hot fire training ground pad and bunding in good condition and not showing signs of loss of integrity? (Are there cracks or gaps?)
- 77. Are diversion/first flush valves in place at the hot fire training ground and in working order?
- 78. Is the bund at the hot fire training ground able to adequately contain water from training exercises?
- 79. Is a relevant Trade Waste Agreement in place at the hot fire training ground where treated water is released to sewer or licensed contractor for removal of contaminated water?
- 80. Is a wash down and cleaning procedure conducted after conclusion of training exercises?
- 81. Confirm there is no burnt material stored where contaminants in the material could enter the environment?
- 82. Are training procedures followed to minimise the risk of foam overthrow onto unsealed areas?

### **DCP**

- 83. Is DCP training coordinated with scheduled equipment testing or hot fire training?
- 84. Is DCP training conducted on the bunded area at the hot fire training ground?
- 85. Is Purple K the only DCP being used?
- 86. Is DCP training conducted immediately prior to the cleaning of the separator system? (DCP can 'clog' the system and decrease its effectiveness).

## **B.11 November Checklist**

### **Extinguisher Training**

- 87. If foam extinguisher training is undertaken, are only non-fluorinated foams/detergents used?
- 88. Is training undertaken at the hot fire training ground or at a purpose built extinguisher pad? (If YES, specify which; if NO, specify where.)
- 89. Is waste from extinguisher training managed through a 'fit for purpose' treatment system or captured for removal by a licensed contractor?
- 90. Is waste water from the extinguisher training area contained so it does not drain directly to storm water?
- 91. Is the extinguisher training area clearly identified in LIs as an extinguisher training area?
- 92. Do the LI's outline procedures to ensure unburnt fuel is contained and disposed of appropriately from the extinguisher training area?
- 93. Are only Class A fuels used at extinguisher training pads?

### **Hot Smoke Training**

- 94. Is bunding at the hot smoke training facility in good condition?
- 95. If there is any burnt material stored at the hot smoke training facility, is it managed to ensure that contaminants cannot enter the environment?
- 96. Is the hot smoke training facility fully bunded / contained around its perimeter, so that wastewater is captured and directed to drains?
- 97. Is disposal of bund water at the hot smoke training facility managed to minimise pollution?
- 98. Is a relevant Trade Waste Agreement in place to cover the release of treated water from a hot smoke training facility to sewer or removal of contaminated water by a licensed contractor?

### **Training Aid Vehicles**

- 99. Are all vehicles used for training free of all fuels and fluids prior to use in hot fire training or cutting exercises?
- 100. Are vehicles used as training aids stored on sealed surfaces?
- 101. Are training aid vehicles that are no longer required disposed of by a licensed metal recycler?

## **B.12 December Checklist**

### **Site Management**

102. Is there any substantial erosion of road access routes and verges?
103. Are spoon drains showing evidence of being maintained? (E.g. no substantial build-up of debris or blockages).
104. Are silt barriers, drains and run-off areas showing evidence of being maintained?
105. Can you confirm there is no evidence of discarded rubbish, food scraps etc that could attract pest species?
106. Can you confirm there is no potential for pest control activities to kill any species listed on Environmental Manifest?
107. Can you confirm there is no evidence of the site harbouring or damage caused by pest/introduced species (e.g. rabbits, introduced rats, pigs)?
108. Can you confirm there is no evidence of the site potentially harbouring an infestation of a noxious or declared weed species?
109. Can you confirm there is no evidence of mowing, weed spraying, or removal of vegetation impacting on threatened species or identified heritage values on the site?
110. Can you confirm there is no evidence of leaking taps/drainage pipes, signs of erosion, water damage, etc?
111. Are energy saving or waste minimization strategies in place e.g. lights not being left on; printer default set to double sided printing; recycled toner cartridges being used; etc?

# **Water Quality Monitoring Guidelines for Wastewater and Rainfall Runoff**

**ENV-GUIDE-0021**

**Version 1**

**Effective 14 November 2016**

Prepared: [REDACTED]

Authorised: [REDACTED]  
Standards and Systems Manager  
Safety and Assurance



## Change summary

Version	Date	Change Description	Amended by
1	14 November 2016	Initial issue. Replaces AA-REF-ENV-0030. Editorial changes to align with organisational restructure.	

## Table of contents

<b>1</b>	<b>Purpose .....</b>	<b>3</b>
<b>2</b>	<b>Scope .....</b>	<b>3</b>
<b>3</b>	<b>When to refer to these guidelines.....</b>	<b>3</b>
<b>4</b>	<b>Airservices obligations.....</b>	<b>3</b>
<b>5</b>	<b>Wastewater discharge to sewer .....</b>	<b>4</b>
<b>6</b>	<b>Wastewater discharge to the environment.....</b>	<b>4</b>
<b>7</b>	<b>Monitoring water quality discharge.....</b>	<b>4</b>
	7.1 Treated wastewater discharge to sewer or stormwater .....	4
	7.2 Untreated rainfall runoff discharge to stormwater .....	5
<b>8</b>	<b>Analysis and assessment criteria.....</b>	<b>5</b>
<b>9</b>	<b>Evaluation and distribution of monitoring reports .....</b>	<b>6</b>
<b>10</b>	<b>Roles and responsibilities.....</b>	<b>7</b>
	10.1 Facility managers .....	7
<b>11</b>	<b>Further information .....</b>	<b>7</b>
	11.1 Contacts .....	7
<b>12</b>	<b>Definitions.....</b>	<b>8</b>
<b>13</b>	<b>References .....</b>	<b>8</b>
<b>Appendix A</b>	<b>Minimum monitoring requirements for ARFFS activities and assets .....</b>	<b>9</b>
<b>Appendix B</b>	<b>Minimum monitoring requirements for ANS Technical Services activities and assets</b>	<b>10</b>
<b>Appendix C</b>	<b>Wastewater Quality Standards for facilities subject to Airport (Environment Protection) Regulations 1997 .....</b>	<b>11</b>
	Notes: .....	12
<b>Appendix D</b>	<b>Wastewater Quality Standards for facilities administered by non-Federal airport jurisdictions</b>	<b>14</b>

## **1 Purpose**

To provide an overview of water quality monitoring for wastewater and rainfall runoff at Airservices facilities.

## **2 Scope**

This document addresses the management of wastewater at all Airservices facilities around Australia. It outlines Airservices obligations, wastewater discharge requirements, rainfall runoff and monitoring requirements.

This document does not deal with domestic (grey water) or human effluent waste water, waste water from air conditioning cooling towers and chillers, or runoff from construction sites.

This document allows the following:

- a) To demonstrate the process is properly conducted
- b) To provide the relevant decision makers with direction and information based on the requirements of ISO 140001
- c) To provide an accountability mechanism and tool
- d) To facilitate continuing monitoring and review
- e) To provide an audit trail
- f) To share and communicate information
- g) To provide guidance on how wastewater and rainfall runoff should be managed at Airservices facilities.

## **3 When to refer to these guidelines**

These Guidelines are to be referred to when:

- testing and/or monitoring Airservices wastewater treatment systems to ensure contaminants are not being released into the environment or sewerage systems in contravention of licensed and/or regulatory thresholds
- testing and/or monitoring rainfall runoff discharge from a facility to ensure contaminants are not being released into the environment in contravention of licensed and/or regulatory thresholds.

## **4 Airservices obligations**

Environmental legislation prohibits the pollution of the environment by the discharge of liquid wastes or contaminated rainfall runoff, except in accordance with regulatory requirements. Where polluted wastewater is to be disposed of via stormwater, sewer or any other means (e.g. an irrigation system (sprinkler)) from an Airservices facility it must be:

- in accordance with Commonwealth and State/Council legislative requirements
- pre treated through a wastewater treatment system capable of removing contaminants in accordance with licensed and/or regulatory thresholds, unless a regulatory dispensation has been given.

Wastewater treatment systems operated by Airservices must be maintained in accordance with the manufacturer's specifications and any applicable trade waste

agreement, and its discharge must be subject to a strict monitoring regime to ensure compliance.

Rainfall runoff from a facility that is likely to be contaminated as a result of past or current activities must be tested to ensure regulatory compliance.

## **5 Wastewater discharge to sewer**

Where sewer connections are available at Airservices facilities an agreement may be established with the provider of the sewerage system that permits disposal of trade waste to the sewer. A trade waste agreement (TWA) is written approval from a sewer provider that the TWA states the classification of the waste, and the requirements and conditions under which a discharge to sewer is allowed. This can include the type of wastewater treatment, maintenance and monitoring frequency and service provider, rate of discharge, and wastewater quality. Any changes to the type, chemical composition and/or quantity of trade waste will require a renegotiation of the TWA.

It is an offence to discharge trade waste to a sewer unless a TWA (or approval) has been issued by the sewer provider.

Dilution of trade waste with water to achieve compliance with a TWA is prohibited.

## **6 Wastewater discharge to the environment**

In most cases wastewater discharge that is not to sewer is sent to a stormwater system, and is finally released to the environment. A stormwater system, be that man-made or natural, receives and diverts rainfall runoff to the environment. Stormwater drains must not receive wastewater, rubbish, litter or any other contaminant that could cause harm to the environment. Airservices must be able to demonstrate due diligence under Commonwealth and State legislation that its discharge to stormwater does not contain substances or organisms that cause, or are reasonably likely to cause:

- the physical, chemical or biological condition of receiving waters to be adversely affected (i.e. polluted), or
- have an adverse effect on the beneficial use of receiving waters (i.e. must not prevent or limit the use of the water by others).

Contaminated stormwater could end up polluting:

- water bodies (e.g. lakes, ponds, bays)
- watercourses (e.g. drainage lines, creeks, rivers)
- swamps or wetlands
- groundwater.

## **7 Monitoring water quality discharge**

### **7.1 Treated wastewater discharge to sewer or stormwater**

The purpose of wastewater treatment systems is to process liquid waste or contaminated rainfall destined for discharge to stormwater or sewer. The system must be of a type, capacity and have treatment mechanisms that result in contamination discharge levels that meet or fall below applicable regulatory thresholds.

To ensure the ongoing effectiveness of the wastewater treatment system, a written monitoring plan should be prepared. The plan should detail the when, who and how the system is to be monitored. The plan should be readily available for site management and auditing purposes.

Monitoring requirements for sewer discharge are stipulated in a site's TWA. In the case of stormwater discharge the requirements may be provided in a permit giving approval to discharge, or embedded in Commonwealth or State Regulations.

Monitoring the effectiveness of wastewater treatment systems is determined by:

- taking discharge samples for testing and analysis
- collecting and testing the samples at the required frequency
- measuring the discharge rate (to determine volume).

Where monitoring requirements for discharge to sewer or stormwater are not provided in applicable regulatory approvals or standards, Appendices 1 and 2 provide Airservices minimum requirement for monitoring and testing the discharge effectiveness of its wastewater treatment systems (including chemical constituents and wastewater characteristics).

## **7.2 Untreated rainfall runoff discharge to stormwater**

If there is a reasonable likelihood that an Airservices activity (past or current) is contaminating rainfall runoff and the runoff is not being processed through a wastewater treatment system before entering the environment, a contamination assessment is required. The assessment is to be undertaken in accordance with Airservices EMS requirements. The resultant assessment report will provide recommended management measures to be implemented if required. These measures could include a water quality monitoring program (including constituents to be tested) and/or the installation of a wastewater treatment system. Prompt action on the findings of the assessment report is recommended to avoid possible liability issues.

## **8 Analysis and assessment criteria**

It is important for wastewater sampling to be undertaken by an appropriately qualified person (e.g. contractor). This is to ensure samples are taken and submitted for analysis using the correct equipment and methodology. A copy of any applicable TWA, environmental authority etc in relation to wastewater discharge requirements must be provided to the contractor.

Only those laboratories with NATA (National Association of Testing Authorities) accreditation to perform the required analyses for the specified contaminants are to be used.

The person commissioned to undertake the sampling is required to provide Airservices with a Monitoring Report on the laboratory results. The report must include:

- a description of sampling methodology, including the identification of all sample points
- details on the water quality standards (including threshold levels) applicable to the discharge points sampled. Threshold standards may be found in the agreements, permits etc which granted Airservices permission to discharge at a particular site, or prescribed in regulatory instruments (e.g. Commonwealth Airport (Environment Protection) Regulations 1997).

In situations where the stormwater discharge does not require an approval, permit etc, and hence direction on required water quality standards are lacking, Appendices 3 and 4 provide a generic suite of water quality standards as adopted by Airservices Australia for:

- federal airports – [Appendix 1](#), and
- non-federal airport jurisdictions – [Appendix 2](#). Non-federal airport jurisdictions include all off-airport locations. As water quality standards between State jurisdictions can differ markedly, Airservices Australia uses a 'best practice' standard for all non federal airport jurisdictions. Should a monitoring result exceed a threshold provided in Table 2, it will be necessary to determine if the result exceeds the jurisdictional threshold for that particular contaminant (e.g. [ANZECC Guidelines for Water Quality 2000](#))
- should the contractor advise/recommend water quality standards and thresholds other than that provided in [Appendices 3 or 4](#), the Environment Systems and Assurance Unit should be advised and given the opportunity to comment prior to commencing the monitoring activity
- an assessment of the laboratory results against applicable water quality threshold levels, and a discussion on whether the results indicate a possible adverse trend. As a minimum the previous three monitoring results are to be taken into account when considering trends in water quality data
- a copy of the laboratory analytical results (including QA/QC data sheets) must be annexed to the report
- discussion and recommendations (e.g. monitoring frequency, adequacy of wastewater treatment facility, issues of concern, possible reason for exceeding threshold levels, improvements to monitoring regime etc).

## 9 Evaluation and distribution of monitoring reports

Airservices (i.e. the asset owner or Facilities Manager commissioning the report) must, on receiving the monitoring report, ascertain whether the facility is meeting its water quality statutory obligations. If one or more tested contaminants are identified as exceeding the prescribed water quality threshold levels, a digital copy of the monitoring report must be provided to the business group environmental SME or accountable risk manager for their records, with an accompanying notification advising of the exceeded threshold levels.

The asset owner or Facilities Manager must ensure all monitoring reports for a specific location are kept on file for review and audit purposes.

Corporate Services Property Management will review reports where notification has been received indicating threshold levels have been exceeded, and will provide advice to the Facilities Manager as required.

The asset owner or Facilities Manager is responsible for submitting monitoring reports to regulators, sewer providers, airports etc as required (e.g. to meet a condition under a TWA, environmental authority).

## 10 Roles and responsibilities

### 10.1 Facility managers

Facility managers are responsible for the management of wastewater as per the requirements set out in this document, FMS 324, ARFF ENV-001 and Airservices EMS requirements. These responsibilities include:

- the management of wastewater in accordance with Commonwealth and state/council legislative requirements
- where wastewater has potential to be contaminated, it must be pre treated through a wastewater treatment system capable of removing contaminants before it is discharged into the environment. Discharged water must be in accordance with licensed and/or regulatory requirements
- wastewater treatment systems operated by Airservices must be maintained in accordance with the manufacturer's specifications
- rainfall runoff from a facility that is likely to be contaminated as a result of past or current activities must be treated to ensure regulatory compliance.

**Note:** Facility Managers in this document are those managers who have direct control over a site and it is their responsibility to manage wastewater. This includes a manager from any business group. If in doubt contact Environment Systems and Assurance to discuss who is responsible for wastewater management.

The Corporate Services Property Management environmental SME is available to provide advice to Facility Managers. This includes:

- providing advice where threshold levels have been exceeded after Environmental Services has been informed by the Facility Manager
- providing additional advice when requested by a Facility Manager or Airservices personnel. For example, developing scope of works for wastewater monitoring programs.

## 11 Further information

### 11.1 Contacts

About this document system: Please contact [REDACTED] on [REDACTED]

About software and network issues: Please contact Help Desk [REDACTED]

## 12 Definitions

Within this document, the following definitions apply:

Term	Definition
Wastewater	Any water that has been contaminated by human activity or influence. Wastewater includes: <ul style="list-style-type: none"> <li>• stormwater – e.g. rainfall runoff from roofs, roads, gutters, hardstands, fire training ground pads into the environment (via drains, canals, creeks, etc)</li> <li>• liquid waste – e.g. discharge from fire training grounds, wash down bays, mechanical workshops into the environment or sewer.</li> </ul>
Wastewater treatment system	The facility that removes contaminants to some degree from wastewater before it enters the environment or sewer. Such facilities include: <ul style="list-style-type: none"> <li>• gross pollutant traps, flame traps</li> <li>• API Pits, Triple Interceptors, Parallel/Coalescing Plates Separators</li> <li>• holding pits/tanks, sumps.</li> </ul>
Trade Waste	The liquid waste from any industry, business, trade or manufacturing premises, other than domestic sewage, which is disposed to the sewer
Environment	Includes soil, sediment, surface water, groundwater, fauna and flora.

## 13 References

Title	Number
<a href="#">ANZECC Guidelines for Water Quality 2000</a>	
<a href="#">Airports (Environment Protection) Regulations 1997</a>	
<a href="#">Minnesota Administrative Rules (2009) (Health Risk Limits)</a>	
FMS – Environment Management	<a href="#">FMS-324</a>
Environment Management	<a href="#">ENV-001</a>

## Appendix A Minimum monitoring requirements for ARFFS activities and assets

Location	Standard Frequency	Number of samples	Type	Escalation	Wastewater Characteristics and Chemical Constituents to be tested
Pre-treatment holding tank. If tank does not exist collect sample from bund, sump pit etc.	At same time as post sampling.	Minimum of one at each treatment system	Grab <sup>+</sup>	Not applicable. Used as baseline to determine effectiveness of treatment.	As per TWA or environmental authority specific to the discharge location, plus below:  <u>Wastewater Characteristics:</u> <ul style="list-style-type: none"> <li>• Temperature;</li> <li>• pH;</li> <li>• Turbidity (TSS)</li> <li>• Salinity (TDS).</li> </ul> <u>Chemical Constituents:</u> <ul style="list-style-type: none"> <li>• BTEX (benzene, toluene, ethyl benzene, xylene)</li> <li>• PAH (polynuclear aromatic hydrocarbons)</li> <li>• TPH (total petroleum hydrocarbons) as TPH Fractions.</li> <li>• PFOS (Perfluorooctane sulphate)</li> <li>• PFOA (Perfluorooctanoic acid)</li> <li>• 6:2Fts (6:2 fluorotelomer sulphonate)</li> <li>• MBAS (methylene blue active substances)</li> </ul>
Post treatment & before entering the sewer.	As per TWA (if not identified in TWA – 6 monthly).	Minimum of one for each treatment system	Grab <sup>+</sup>	As per TWA or * refer below.	
Post treatment & before entering the environment (e.g. stormwater system).  Also Refer to *	As per environmental authority (if not identified - 6 monthly).	Minimum of one for each treatment system.	Grab <sup>+</sup>	* refer below.	

- Depending on the availability of pre and post waste for sampling, arrangements will need to be made with ARFF to undertake a wastewater producing activity in conjunction with the proposed sampling event (e.g. undertake a hot fire training event so pre treated and post treated water is available).
- A Grab sample is a single sample collected from wastewater discharge at a particular point in time. It provides a snapshot of what the discharge characteristics were at the time of sampling.
- If shown to be non-compliant, after “repair” of system, sampling should be more frequent, once a month until 3 consecutive months of compliance again achieved. Note, this assumes a high frequency of use of (i.e. through-put to) the system.
- If ASA is not the only contributor of water to the stormwater drainage system, a second grab sample is to be taken upstream of ASA’s stormwater entry point. The upstream sample is only to be tested for Temp, pH, TSS, and TDS in order to establish a baseline from which to assess ASA’s discharge.



## Appendix B Minimum monitoring requirements for ANS Technical Services activities and assets

Location	Standard Frequency	Number of samples	Type	Escalation	Wastewater Characteristics and Chemical Constituents to be tested
Pre-treatment holding tank. If tank does not exist collect sample from bund, sump pit etc.	At same time as post sampling.	Minimum of one at each treatment system	Grab <sup>+</sup>	Not applicable. Used as baseline to determine effectiveness of treatment.	As per TWA or environmental authority specific to the discharge location, plus below:  <u>Wastewater Characteristics:</u> <ul style="list-style-type: none"> <li>• Temperature;</li> <li>• pH;</li> <li>• Turbidity (TSS);</li> <li>• Salinity (TDS).</li> </ul> <u>Chemical Constituents:</u> <ul style="list-style-type: none"> <li>• BTEX (benzene, toluene, ethyl benzene, xylene);</li> <li>• PAH (polynuclear aromatic hydrocarbons);</li> <li>• TPH (total petroleum hydrocarbons) as TPH Fractions.</li> <li>• MBAS (methylene blue active substances)</li> </ul>
Post treatment & before entering the sewer.	As per TWA (if not identified in TWA – 6 monthly).	Minimum of one for each treatment system	Grab <sup>+</sup>	As per TWA or * refer below.	
Post treatment & before entering the environment (e.g. stormwater system).	As per environmental authority (if not identified - 6 monthly).	Minimum of one for each treatment system.	Grab <sup>+</sup>	* refer below.	

- Depending on the availability of pre and post waste for sampling, arrangements may need to be made with TAS to undertake a wastewater producing activity in conjunction with the proposed sampling event.
- A Grab sample is a single sample collected from wastewater discharge at a particular point in time. It provides a snapshot of what the discharge characteristics were at the time of sampling.
- If shown to be non-compliant, after “repair” of system, sampling should be more frequent, once a month until 3 consecutive months of compliance again achieved. Note, this assumes a high frequency of use of (i.e. through-put to) the system.
- ASA is not the only contributor of water to the stormwater drainage system, a second grab sample is to be taken upstream of ASA’s stormwater entry point. The upstream sample is only to be tested for Temp, pH, TSS, TDS

## Appendix C Wastewater Quality Standards for facilities subject to Airport (Environment Protection) Regulations 1997

### Discharge to Sewer

Discharge of wastewater to sewer must be in accordance with a current Trade Waste Agreement (TWA). Refer to the applicable TWA to obtain the Wastewater Quality Standards required to be met.

### Discharge to the Environment

Wastewater discharge to stormwater etc which is likely to enter the environment administered under the Airports Act 1996 must, unless the following advises otherwise, be below the following threshold limits:

	Characteristics/ contaminant types requiring testing			Airport (Environment Protection) Regulations 1997		Minnesota Admin. Rules (2009) (Health Risk Limits)	ANZECC Guidelines – Water Quality 2000 (aquatic ecosystems)	
				Fresh water	Marine Water			
Wastewater Characteristics:	➤	Temperature		Refer <sup>Φ</sup>	Refer <sup>Φ</sup>	—	—	
	➤	pH		Refer <sup>€</sup>	Refer <sup>€</sup>	—	—	
	➤	Turbidity (TSS)		Refer <sup>*</sup>	Refer <sup>*</sup>	—	—	
	➤	Salinity (TDS)		Refer <sup>Δ</sup>	Refer <sup>Δ</sup>	—	—	
Chemical Constituents:	➤	BTEX	benzene		300.0 µg/L	300.0 µg/L	—	—
			toluene		300.0 µg/L	—	—	—
			ethylbenzene		140.0 µg/L	—	—	—
			Xylene	meta- para-	—	—	—	200.0 µg/L
		ortho-		—	—	—	350.0 µg/L	
	➤	TPH (total petroleum hydrocarbons)	C <sub>6</sub> -C <sub>9</sub> fractions		150.0 µg/L	—	—	—
			C <sub>10</sub> -C <sub>36</sub> fractions		600.0 µg/L	—	—	—
	➤	PAH (polynuclear aromatic hydrocarbons). Sum of all PAH readings.			3.0 µg/L	3.0 µg/L	—	—
Surfactants: #	Specific chemicals	➤ MBAS (methylene blue active substances)		0.05 µg/L	0.05 µg/L	—	—	
		PFOS		0.05 µg/L	0.05 µg/L	0.3 µg/L	—	
		PFOA		0.05 µg/L	0.05 µg/L	0.3 µg/L	—	
		6:2Fts		0.05 µg/L	0.05 µg/L	—	—	

**Notes:**

- The Airport (Environment Protection) Regulations 1997 requires that any discharge into receiving waters must not cause the seasonal mean temperature of those waters to rise more than 2°C. Airservices on-ground operations are unlikely to discharge wastewater that would increase the temperature of water bodies in the environment seasonally by 2°C. Consequently, temperature is to be recorded for stormwater discharge, but not the receiving water. Notify Environmental Services if there is a perceived risk that wastewater discharge could increase the temperature of receiving waters.
- The Airport (Environment Protection) Regulations 1997 requires that any discharge must not cause the pH of the receiving:
  - fresh water to fall below 6.5, or rise above 9.0; or
  - marine water to rise more than 0.2.

Airservices position is to ensure discharged wastewater is tested and recorded for pH. If pH of the wastewater discharge is recorded below 6.5 or above 9.0 the Environmental Services Branch is to be notified and the likely source and impacts investigated.

- The Airport (Environment Protection) Regulations 1997 requires that any discharge must not cause the total suspended solids (TSS) of the receiving waters to:
  - change by more than 10% from its seasonal mean TSS; or
  - reduce the visual clarity within the euphotic zone by more than 10% from its seasonal mean clarity.
- Airservices on-ground operations are unlikely to discharge wastewater that would increase the TSS of a receiving water body. It is Airservices position to ensure discharged wastewater is tested and recorded for TSS, but not the receiving water. Notify Environmental Services if there is a perceived risk that wastewater discharge could increase the TSS of the receiving water.
- The Airport (Environment Protection) Regulations 1997 requires that any discharge must not cause the salinity (TDS) of the receiving waters to rise above 1000mg/L or by more than 5%. Airservices on-ground operations are unlikely to discharge wastewater that would increase the TDS of a receiving water body. It is Airservices position to ensure discharged wastewater is tested and recorded for TDS, but not the receiving water. Notify Environmental Services if there is a perceived risk that wastewater discharge could increase the TDS of the receiving water.
- The Airport (Environment Protection) Regulations 1997 provides only one threshold level (0.05 µg/L) for 'surfactants and oil dispersants'. An MBAS test provides an indication that surfactants of some description are likely to be in wastewater. The regulation requires the sum of all surfactant contaminant levels discharged into the environment to be less than 0.05 µg/L for a 96 hour period.
- The regulations do not address specific surfactant types, such the fluorosurfactants - PFOS, PFOA or 6:2Fts. As these three chemicals do not breakdown in the environment, the 96 hour timeframe provided in the regulations can not apply.

- Ordinarily, it would be Airservices position that the combined (summed) fluorosurfactant level discharged into the environment at an airport administered under the Airports Act 1996 should not exceed 0.05 µg/L at any one time. However, the requirement of ensuring fluorosurfactants levels must be below 0.05 µg/L is questionable. Airservices believes a more meaningful guide to threshold levels for PFOS and PFOA is provided by the Minnesota Administrative Rules (2009) (Health Risk Limits) which is 0.3 µg/L.

## Appendix D Wastewater Quality Standards for facilities administered by non-Federal airport jurisdictions

### Discharge to Sewer

Discharge of wastewater to sewer must be in accordance with a current trade waste agreement (TWA). Refer to the applicable TWA to obtain the wastewater quality standards required to be met.

### Discharge to the Environment

Wastewater discharge to stormwater etc which is likely to enter the environment must, unless the following advises otherwise, be below the following threshold limits:

Characteristics/ contaminant types requiring testing			Airservices Australia's adopted threshold standards		Minnesota Admin. Rules (2009) (Health Risk Limits)	ANZECC Guidelines – Water Quality 2000 (aquatic ecosystems)
			Fresh water	Marine Water		
Wastewater Characteristics:	➤	Temperature	Refer <sup>Ⓟ</sup>	Refer <sup>Ⓟ</sup>	—	—
	➤	pH	Refer <sup>€</sup>	Refer <sup>€</sup>	—	—
	➤	Turbidity (TSS)	Refer <sup>★</sup>	Refer <sup>★</sup>	—	—
	➤	Salinity (TDS)	Refer <sup>Δ</sup>	Refer <sup>Δ</sup>	—	—
Chemical Constituents:	➤ BTEX	benzene	300.0 µg/L	300.0 µg/L	—	—
		toluene	300.0 µg/L	—	—	—
		ethylbenzene	140.0 µg/L	—	—	—
		Xylene	meta-para-	—	—	200.0 µg/L
			ortho-	—	—	350.0 µg/L
	➤ TPH (total petroleum hydrocarbons)	C <sub>6</sub> -C <sub>9</sub> fractions	150.0 µg/L	—	—	—
		C <sub>10</sub> -C <sub>36</sub> fractions	600.0 µg/L	—	—	—
Surfactants:	➤	PAH (polynuclear aromatic hydrocarbons). Sum of all PAH readings.	3.0 µg/L	3.0 µg/L	—	—
	Specific chemicals	➤ MBAS (methylene blue active substances)	—	—	—	280 µg/L
		PFOS	—	—	0.3 µg/L	—
		PFOA	—	—	0.3 µg/L	—
		6:2Fts	0.3 µg/L	—	—	—

- Discharge into receiving waters must not cause the seasonal mean temperature of those waters to rise more than 2°C. Airservices on-ground operations are unlikely to discharge wastewater that would increase water bodies in the environment seasonally by 2°C. Consequently, temperature is to be recorded for stormwater discharge, but not the receiving water. Notify Environmental Services if there is a perceived risk wastewater discharge could increase the temperature of receiving waters.

- Discharge must not cause the pH of the receiving:
  - fresh water to fall below 6.5, or rise above 9.0; or
  - marine water to rise more than 0.2.
- Airservices position is to ensure discharged wastewater is tested and recorded for pH. If pH wastewater discharge is recorded below 6.5 or above 9.0, Environmental Services is to be notified and the likely source and impacts investigated.
- Discharge must not cause the total suspended solids (TSS) of the receiving waters to:
  - change by more than 10% from its seasonal mean TSS; or
  - reduce the visual clarity within the euphotic zone by more than 10% from its seasonal mean clarity.
- Airservices on-ground operations are unlikely to discharge wastewater that would increase the TSS of a receiving water body. It is Airservices position to ensure discharged wastewater is tested and recorded for TSS, but not the receiving water. Notify Environmental Services if there is a perceived risk that wastewater discharge could increase the TSS of the receiving water.
- Discharge must not cause the salinity (TDS) of the receiving waters to rise above 1000mg/L or by more than 5%. Airservices on-ground operations are unlikely to discharge wastewater that would increase the TDS of a receiving water body. It is Airservices position to ensure discharged wastewater is tested and recorded for TDS, but not the receiving water. Notify Environmental Services if there is a perceived risk that wastewater discharge could increase the TDS of the receiving water.

# **Environmental Occurrence Management, Emergency Preparedness and Response**

**National Operating Standard**

**AA-NOS-ENV-0002**

**Version 3**

**Effective 19 February 2018**

Prepared: [REDACTED]n

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## Change summary

Version	Date	Change description
2	1 July 2017	Minor editorial changes to update references to EMS
3	19 February 2018	Minor editorial changes and updates

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## Table of contents

<b>1</b>	<b>Purpose</b>	<b>3</b>
<b>2</b>	<b>Scope</b>	<b>3</b>
<b>3</b>	<b>Occurrence management context</b>	<b>3</b>
<b>4</b>	<b>Roles and accountabilities</b>	<b>4</b>
4.1	Occurrence and hazard reporting	4
4.2	Occurrence response and management	4
<b>5</b>	<b>Managing the occurrence</b>	<b>4</b>
5.1	Response	5
5.2	Occurrence reporting	7
5.3	Reviews and investigations	8
<b>6</b>	<b>Preparedness and planning</b>	<b>10</b>
<b>7</b>	<b>Targeted training</b>	<b>10</b>
<b>8</b>	<b>Emergency response exercises</b>	<b>11</b>
<b>9</b>	<b>Environmental occurrence response plans</b>	<b>11</b>
<b>10</b>	<b>Legal advice</b>	<b>11</b>
<b>11</b>	<b>Records and document management</b>	<b>11</b>
<b>12</b>	<b>Review of this procedure</b>	<b>12</b>
<b>13</b>	<b>Definitions</b>	<b>12</b>
<b>14</b>	<b>References</b>	<b>13</b>
<b>Appendix A</b>	<b>Principles of occurrence management</b>	<b>14</b>
A.1	What is an occurrence?	14
A.2	What is a hazard?	14
A.3	What is an emergency?	15
A.4	What is legal non-compliance?	15
<b>Appendix B</b>	<b>CIRRIIS occurrence management</b>	<b>16</b>
<b>B.1</b>	<b>Manager review</b>	<b>16</b>
<b>B.2</b>	<b>Hazard review</b>	<b>16</b>
<b>Appendix C</b>	<b>ENVIRONMENTAL OCCURRENCE RESPONSE PLAN TEMPLATE</b>	<b>17</b>



# 1 Purpose

This document prescribes standardised procedures for the response to, and management of, environmental incidents (or occurrences) and environmental emergencies that occur at Airservices sites and areas of operation.

As a National Operating Standard (NOS) within the Airservices Environment Management System (EMS), compliance with this NOS is mandatory for all staff and contractors.

# 2 Scope

This NOS applies to all of Airservices operations and activities.

In the event of an emergency where human life and safety is threatened, any business group or standalone Emergency Response Plans for facilities and infrastructure shall take precedence over this document. However, this document should be read in conjunction with any overarching emergency response procedures, to the extent that it addresses any associated environmental impacts.

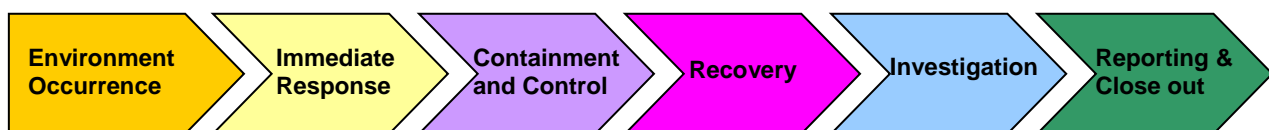
Where an external stakeholder, e.g. mining company, airport or other landowner, has an incident or emergency management plan that applies to land on which Airservices operates, the occurrence shall still be reported and investigated as per this procedure.

# 3 Occurrence management context

The high level requirements and accountabilities for occurrence management and emergency response are described in [Environmental Management System Objectives and Requirements \(AA-NOS-ENV-0001\)](#).

Principles of occurrence management are described in Appendix A (including definitions and examples of what constitutes an environmental 'hazard' and an environmental 'occurrence').

The occurrence management process includes the key elements shown in Figure 1.



**Figure 1 - Elements of Occurrence Management**

## 4 Roles and accountabilities

### 4.1 Occurrence and hazard reporting

All Airservices staff and contractors have a responsibility to report environmental occurrences, and to follow the management requirements specified in this procedure and applicable subsidiary documents.

Staff and contractors also have a responsibility to report environmental hazards under certain circumstances. Advice should be sought from subject matter experts (SME) embedded within the business groups or Environmental Systems and Assurance (ESA) Unit if in doubt whether an event constitutes an environmental occurrence or hazard.

All occurrences and hazards shall be entered in the Corporate Integrated Reporting and Risk Information System (CIRRIS).

For definitions and examples of environmental occurrences and hazards (and associated reporting protocols) refer to [Appendix A](#).

### 4.2 Occurrence response and management

Key accountabilities for organisational management of emergencies and occurrences are defined in Environmental Management System Objectives and Requirements ([AA-NOS-ENV-0001](#)), and Executive Environmental Management Accountabilities ([AA-NOS-ENV-0003](#)).

Specific roles in the immediate management of occurrences are as follows:

- Occurrence Reporter (OR)
- Site Manager/Project Manager (SM / PM)
- SME
- Risk Owner
- Environmental Portfolio holder
- ESA Unit
- Investigation Review Manager
- Environment Investigator.

## 5 Managing the occurrence

The required actions for the management of environmental occurrences and environmental emergencies at Airservices are described below.

In the event of an emergency where human life and safety is threatened, any standalone Emergency Response Plans for facilities and infrastructure shall take precedent over this procedure.

## 5.1 Response

Key steps in responding to an environmental occurrence are broadly defined as:

1. Immediate response
2. Containment and control
3. Recovery.

These steps are defined below.

### 5.1.1 Immediate response

Occurrence management begins with the identification and reporting of an occurrence by the occurrence reporter. The occurrence reporter can be any Airservices employee or contractor who identifies an occurrence or is informed of an occurrence by an external stakeholder<sup>1</sup>.

Following an occurrence the occurrence reporter shall:

- ensure the safety of personnel and security of the site (including restricting access to the site for unauthorised personnel)
- call 000 if threat to life or serious injury has occurred
- refer to any Site Environmental Occurrence Response Plan
- commence containment of the occurrence and/or cease any actions or processes contributing to the occurrence (if possible, and safe to do so)
- contact the SM or PM to continue the occurrence management process
- contact the Network Coordination Centre (NCC) on [REDACTED] if the SM/PM cannot be reached. The NCC will contact relevant SMEs from applicable accountable business Groups (according to a register) who will then contact the OR and/or the SM/PM to provide further advice and record key information.

### 5.1.2 Containment and control

Containment and control requires an SM/PM or appointed coordinator to organise and manage an overall response. This shall be an Airservices employee.

**The SM/PM shall:**

- initiate review into the likely cause(s) of the occurrence and assign any required actions (refer to Section [5.3](#))
- assume control of the site (and/or a supporting and advisory role if Emergency Services take command)
- confirm that the site has been secured and protected, and that the safety of personnel and bystanders is maintained (This action can be delegated by the SM/PM)
- seek advice regarding environmental management requirements as soon as practicable as follows:
  - If within business hours contact an environment SME within your business group

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<sup>1</sup> Anyone, e.g. a member of the public or a landholder, can report an occurrence to Airservices, but the Occurrence Reporter is the first Airservices staff member who receives notice of the occurrence and has a responsibility to take action in accordance with this NOS

- If outside business hours contact the NCC on [REDACTED] report the occurrence (the NCC will then notify an on-call environment SME)
- in contact with the environment SME, determine if reporting to external stakeholders (such as airport management or a regulatory authority) is required, and make any such reports or notifications as soon as practicable)
- enter the occurrence in CIRRIIS (or delegate this action)
- ensure that any environmental documentation, e.g. Environmental site manifest, Local Instructions, Hazardous Goods Register and dangerous goods advice, is secure and made available to emergency services if required
- record details of the site including evidence of likely cause(s) for later analysis (refer to Section [5.3.2](#) regarding collection of evidence)
- coordinate with NCC if a WHS Occurrence Report is also required
- notify a DAMP Supervisor or the Damp Contact Officer if a suspected alcohol or other drug (AOD) related incident is involved.

### 5.1.3 Recovery

Recovery involves the return of the occurrence site, and associated systems and infrastructure, to a safe and environmentally sound operating environment.

**The SM/PM (or appointed coordinator) shall:**

- determine if operations at the site can continue or need to be ceased until the recovery is effected
- manage any collection of evidence required to investigate the occurrence (refer to Section [5.3.2](#))
- manage any required remediation actions including (but not limited to):
  - collection, removal, transportation and disposal of contaminated materials, including soil, water or other wastes
  - evaluation of impact to flora and fauna, and possible development of a recovery plan, e.g. revegetation
  - transportation and disposal of contaminated substances

**Note:** Where remediation requires the engagement of external expertise or resources the SM/PM or the appointed coordinator shall facilitate site access and escort arrangements.

**Environmental Systems and Assurance Unit shall:**

- determine whether occurrences are 'significant', and if so, manage the required investigation (refer to Section [5.3](#))
- liaise with internal stakeholders and regulators as required for significant occurrences
- update the CIRRIIS record and assign relevant actions, for significant occurrences the unit has investigated

**Note:** No actions should be assigned without discussion and agreement with assigned parties.

- ESA or SME within the business group may provide oversight of any external reporting of environmental occurrences to regulatory authorities and other third parties (as per legislation and lease agreements/contracts).

## 5.2 Occurrence reporting

### 5.2.1 CIRRIS reporting

Environmental occurrences shall be reported in CIRRIS using the WHS/ARFFS/ ENV Occurrence Management module. CIRRIS entry shall be coordinated by the SM/PM in collaboration with the business group Environmental SME (to determine if the occurrence has actual or potential consequences of an environmental nature).

The business branch or unit manager is accountable for ensuring resources are available to conduct any review or investigation required. The SM/PM shall remain accountable for the risks and completion of local corrective and preventive actions associated with occurrences.

Manager Standards & Systems is accountable for ensuring resources are available to contribute to any investigation required to be conducted by ESA Unit.

**Environmental Occurrences cannot be closed in CIRRIS without an Environment SME review and associated commentary included in the record.**

### 5.2.2 External reporting

Depending on the nature of an occurrence, external reporting may be required to interested parties including (but not limited to):

- landlords – such as airports owners/operators or landholders to meet legislation, tenancy agreements or other contractual requirements, e.g. Airport EMPs
- Commonwealth and State/Territory agencies<sup>2</sup> according to criteria established in Acts and Regulations.

No reporting to external regulators shall be undertaken without advice from Environmental SMEs within the business. As an exception, SM/PMs can notify landlords where requirements are clearly set out in local site documentation, e.g. ARFFS Local Instructions.

### 5.2.3 Foam occurrences outside airport boundaries

In addition to the above reporting requirements, all occurrences where foam is spilled/used, either as a concentrate or in dilution and either from an operational incident or mishap, shall be reported to the relevant:

- Federal Government authority who administers applicable commonwealth pollution reporting legislation
- State/Territory authority who administers applicable State/Territory pollution reporting legislation (typically this will be an Environmental Protection Agency - EPA).

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<sup>2</sup> For example the Department of Infrastructure and Transport, Department of Sustainability Environment Water Population and Communities, and the various state based Environmental Protection Agencies.

## 5.2.4 Internal business reporting

Executive General Manager's (EGM's) shall ensure that regular and appropriate reporting is made to the Board and Executive. The accountability holder will 'assess' the occurrences for the reporting period and provide an overview, identifying any systemic issues. Issues that will be examined include, but are not limited to, number of occurrences with low, medium, high environmental significance, location and type of occurrence, level of environmental impact, number open and closed.

The purpose of this assessment is to:

- ensure appropriate action taken for occurrence
- ensure closure of the occurrence
- identify systemic issues
- report/share issues to/with the relevant ARFFS and ANS for further management.

Opportunities to acknowledge a reduction in occurrences or areas for training/awareness may be identified and if necessary, assistance provided from Environment SME's, e.g. development of training pack or posters for consistent messaging.

## 5.3 Reviews and investigations

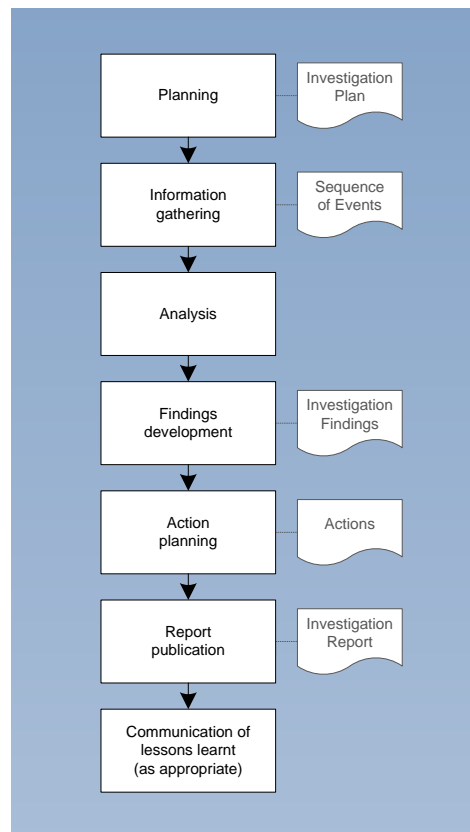
All occurrences shall be reviewed by relevant business groups accountable for managing the occurrence. Business Groups are accountable for investigating low and moderate consequence occurrences; ESA shall investigate occurrences with potentially significant impact.

Refer to *Environment Occurrences: Review and Investigation Guide* ([ENV-GUIDE-0016](#)) for further information regarding the requirements for review and investigation.

### 5.3.1 Key requirements

Investigations are an integral part of the occurrence management process to meet regulatory reporting requirements, identify system deficiencies and drive continual improvement. Key requirements for occurrence investigation include:

- collection of evidence
- establishing the level of investigation
- appointing an Investigating Officer/Team
- conducting the investigation
- communicating the findings
- enacting required improvements (both site based and system improvements)
- closing out relevant regulatory obligations (follow up reporting etc.).



**Figure 2 - High level investigation process**

### 5.3.2 Collection of evidence

After any occurrence it is important to immediately ensure the preservation of evidence that may assist any manager review or investigation. This will be the responsibility of the **SM/PM or the appointed coordinator** (or relevant party first on site wherever possible).

Unless safety is at risk, Airservices infrastructure or equipment involved in the occurrence shall not be moved until all the necessary evidence has been obtained and the movement has been approved by the SM/PM.

The preliminary evidence collection can include:

- photographs
- eye witness accounts
- recording of observations
- taking samples, e.g. water, soil, vegetation.

The SM/PM is responsible for:

- the security and preservation of identified site evidence or any possible evidence, including that at any other relevant sites
- consultation with any appointed Investigator about the evidence collected
- assistance with the collection of further evidence depending on the type of occurrence, category and investigation level.

The level of evidence required for the investigation shall be determined by ESA unit, Investigator and the SM/PM in consultation with relevant safety and environmental representatives.

Further evidence could include, but is not limited to:

- soil, water, groundwater or air sampling
- ecological surveys
- recorded interviews.

## 6 Preparedness and planning

Preparedness and planning are crucial to effectively preventing, or mitigating the consequences of, environmental emergencies or occurrences. Adequate preparedness and planning is the accountability of all EGMs.

The key mechanism by which preparedness is maintained is through effective risk identification and management.

Airservices requirements for risk management are described in the *EMS Objectives and Requirements* ([AA-NOS-ENV-0001](#)), and the [Environment Risk Management Procedure \(ENV-PROC-0004\)](#). Other key steps in environmental preparedness and planning (in the context of emergencies and occurrences) include, but are not limited to:

- installation and maintenance of appropriate controls (such as warning signage and spill containment)
- staff training in occurrence response protocols and environmental awareness management principles at the local and regional levels
- development and maintenance of appropriate systems, processes and documentation to effectively manage occurrences (as described in [AA-NOS-ENV-0001](#))
- periodic review and, where necessary, revision of emergency preparedness and response procedures (particularly after periodic review of occurrences), as a requirement of [ISO14001:2015](#)<sup>3</sup>.

## 7 Targeted training

All staff who may be assigned the positions of SM/PM, risk owners, and environmental portfolio holders are required to demonstrate knowledge of this procedure and have received environment training in the relevant procedures and systems. All Airservices staff should be aware of the requirement to report environmental occurrences and hazards and the associated reporting processes and systems, i.e. CIRRIIS.

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<sup>3</sup> Note: ISO 14001:2015 can be viewed on Australian Standards accessed via [Horizons – Electronic Resources page](#)



## 8 Emergency response exercises

Airservices business groups shall periodically conduct emergency response exercises to test systems and processes associated with the management of significant environmental aspects and/or high risk activities (refer to [Environmental Aspects Register \(ENV-GUIDE-0020\)](#)). Wherever possible this testing should coincide with, or be incorporated within, any other internal or multi agency operational exercises. Relevant Airservices staff and contractors shall also be given training in response to, and management of, environmental occurrences.

## 9 Environmental occurrence response plans

All SM/PMs shall ensure that a site Environmental Occurrence Response Plan (a 'Response Plan'), reflecting the requirements of this document, is displayed in a prominent location on site. For Projects, the Response Plan should also be referenced (and included) in the Construction Environment Management Plan.

## 10 Legal advice

Where the nature or extent of a legal obligation is unknown, or there is uncertainty regarding a potential legal non-compliance, legal advice should be sought. This may involve further advice from external legal professionals.

There are complex and unresolved legal questions concerning the competing applicability of Commonwealth and State laws, particularly in situations where contaminants or emissions originate on lands under the jurisdiction of Commonwealth environment laws, e.g. Airports Act 1996 and Environment Protection and Biodiversity Conservation (EPBC) Act 1999, and migrate to lands under State jurisdiction.

## 11 Records and document management

Written records concerning environmental occurrences and response shall be recorded and attached to the CIRRIIS notification. This is required for due diligence purposes and possible defence against legal allegations of environmental harm. All records of corporate value shall be identified and classified according to the Airservices Records Authority issued under the Archives Act 1983, and subordinate Business Classification Scheme.

Records of risk information, legal non-compliances, occurrences, and inspections should be made in CIRRIIS.

All staff are accountable for identifying and retaining records of corporate value. For further information refer to [Vital Records Procedure \(C-PROC0309\)](#). Documents which form part of the EMS should be created and controlled in conformance with the Airservices Documentation Framework, including the [Airservices Documentation Standard \(AA-NOS-DOC-0001\)](#) and [Knowledge Management Framework \(C-FMK0005\)](#).

## 12 Review of this procedure

As per Section 9.1.2 of [ISO 14001](#), this procedure shall be reviewed annually. Any changes to this procedure should be updated within relevant procedures, user guides and reference documents. Environment Systems and Assurance unit may also review the application of this standard and associated procedures after an occurrence or environmental emergency.

## 13 Definitions

Within this document, the following definitions apply:

Term	Definition
Occurrence reporter	Usually the first on scene and identifier of the environmental occurrence. Most likely to be a member of Airservices staff or contractor
Site Manager/Project Manager (SM/PM)	The accountable manager of the site who is an Airservices employee, e.g. Senior Fire Commander, Facilities Manager or for projects the Project Manager
Risk owner	The manager accountable to maintain their risk management system in accordance with Airservices <a href="#">Risk Management Standard (AA-NOS-RISK-0001)</a>
Investigator(s)	An investigator(s) is a role(s) that shall be appointed by the Investigation Review Manager to undertake investigations into and environmental occurrence where required
Investigation Responsible Manager	Designated role in CIRRIS Occurrence Management Module
Environment Portfolio holder	Designated environment representative at each ARFFS location
Environmental Systems & Assurance (ESA) unit designated contact to manage environmental occurrences	Delegated environment contact who manage and deal with environmental occurrences

## 14 References

Title	Number
Environmental Management System Objectives and Requirements	<a href="#">AA-NOS-ENV-0001</a>
Executive Environmental Management Accountabilities	<a href="#">AA-NOS-ENV-0003</a>
Risk Management Standard	<a href="#">AA-NOS-RISK-0001</a>
System Assurance Investigation Procedure	<a href="#">AA-PROC-SAF-0112</a>
Environmental Risk Management Procedure	<a href="#">ENV-PROC-0004</a>
Knowledge Management Framework	<a href="#">C-FMK0005</a>
Environmental Aspects Register	<a href="#">ENV-GUIDE-0020</a>
Airservices Documentation Standard	<a href="#">AA-NOS-DOC-0001</a>
Emergency Management in Australia “Concepts and Principles”, (Australian Institute for Disaster Resilience)	<a href="#">Australian Emergency Management Handbook Collection</a>
Environmental management system	<a href="#">ISO14001</a>
Vital Records Procedure	<a href="#">C-PROC0309</a>
NCC Environmental Occurrence and Emergency Notification	<a href="#">C-FORM0434</a>
Environmental Occurrences: Review and Investigation Guide	<a href="#">ENV-GUIDE-0016</a>
Environment Occurrence On Call Guide	<a href="#">ENV-GUIDE-0022</a>
CIRRIS User Guide – Environmental Occurrences Module	<a href="#">C-Guide0690</a>

## Appendix A Principles of occurrence management

### A.1 What is an occurrence?

An environmental occurrence is any unplanned or abnormal event that impacts adversely on the environment.

Within Airservices EMS, any event that is deemed to have an impact on the environment can be reported. Occurrences that will require follow up and actions are ones that cause actual impact to the environment ('top events') and require reporting and management as per the requirements of this procedure. Depending on the risk level, reporting other events not considered occurrences, i.e. hazards, or "near hits" or "near misses", are strongly encouraged. Advice shall be sought from your business group Environmental SME for any of the following:

1. Procedural breaches – non-adherence to Airservices procedures, noting that these have been written to minimise or avoid environmental impacts.
2. Legal non-compliance – where a legal requirement has not been met.

### A.2 What is a hazard?

These are defined as unplanned or abnormal events that did not result in environmental damage but had the potential to have an impact on the environment. In consultation with Environment Services and depending on risk level and potential consequence, hazards should be reported within CIRRIIS. CIRRIIS provides a hazard reporting option in the WHS/ARFFS/ENV Occurrence Management module.

#### Types of Environmental Occurrences and Hazards

The types of environmental occurrences that Airservices may encounter are directly related to particular operational activities and associated hazards.

The majority of Airservices environmental hazards relate to on-ground activities, and so the likelihood of an environmental occurrence happening is generally greater for business units with associated on ground operations, e.g. ARFFS Hazards associated with Airservices operational activities are described in the Environmental Aspects Register ([ENV-GUIDE-0020](#)), whilst some common occurrence and hazard types are listed below.

Examples of environment occurrences include:

- chemical spills (including fire-fighting foams, hydrocarbons, oils and acids)
- emission of toxic gases
- damage to cultural heritage
- fauna injury or mortality
- flora damage or destruction
- fires
- aircraft incident(s) with direct environmental impacts
- noise pollution (excluding aircraft noise)
- impacts arising from ARFFS emergency response
- sewerage spill(s)
- external notification regarding environmental issues/illegal clearing of vegetation

- release of contaminated water to the environment
- soil contamination
- uncontrolled release of radioactive materials to the environment.

Examples of hazards include (include where no actual impact has occurred):

- non-compliance with conditions of a licence or permit
- non-compliance with directions from a regulator
- legal non-compliances
- observed situations which demonstrate a partial failure of controls or latent defect which has not yet caused actual loss or harm.

**Note:** The above list is not exhaustive. If there is doubt as to whether an event is considered an 'environmental occurrence' or 'environmental hazard' the group environmental SME or the ESA unit should be contacted for advice. As described in Section 2, 'near hits' or procedural breaches should be reported as occurrences under certain circumstances (as advised by the SME or ESA unit).

### **A.3 What is an emergency?**

An emergency, as defined by Emergency Management Australia is "an event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response".

Essentially, an environmental emergency can be considered as an environmental occurrence which:

- has a substantially heightened consequence level
- requires an immediate and coordinated response to prevent significant environmental impact.

### **A.4 What is legal non-compliance?**

A legal non-compliance is a state in which it is identified that a current activity, product or service does not comply in some regard with a legislated requirement. A legal non-compliance differs from an occurrence in that a time-specific event ("top event") may not be identifiable, and there may not be any direct or measurable consequences. Legal non-compliances may constitute an occurrence under certain circumstances, and should be reported to group environmental SME's or ESA unit immediately for assessment.

## **Appendix B CIRRIS occurrence management**

### **B.1 Manager review**

In CIRRIS, the Site or Project Manager is termed the Responsible Supervisor/Manager. All occurrences and hazards shall be reviewed in CIRRIS by the Responsible Supervisor/Manager. Additionally, each individual business group should monitor all CIRRIS or NCC notifications and independently assess whether additional review or investigation is warranted.

#### **Occurrence – Site Manager review**

The following actions are required to close a CIRRIS occurrence notification:

- the manager review is completed and evidence attached
- associated risks and risk registers have been reviewed and amended as required (which may include recording any additional controls implemented as a result of the occurrence)
- the Environmental SME has completed the Environmental page in CIRRIS
- through consultation with the Environmental SME it has been determined that an Investigation is not required
- any required actions have been raised.

### **B.2 Hazard review**

Hazards shall be recorded in CIRRIS as a Hazard notification. The following actions are required to close a hazard notification:

- the “Hazard” page is completed
- the manager review is completed and evidence attached
- the risk and risk register has been reviewed and amended as required (which may include recording any additional controls implemented as a result of the occurrence)
- any required actions have been raised.

Appendix C ENVIRONMENTAL OCCURRENCE RESPONSE PLAN TEMPLATE

[Insert location]

RESPONSE ACTIONS	BY WHOM
IMMEDIATELY RESPOND	
<ul style="list-style-type: none"><li>Manage any casualties (if required call 000)</li><li>Contain and control impact if safe to do so</li><li>Contact Site Manager/Project Manager</li><li><b>Contact NCC to report occurrence on 1300 272 662</b> (The NCC will immediately contact Environment Systems Unit- ESU)</li></ul>	OCCURRENCE REPORTER
CONTAIN AND CONTROL	
<ul style="list-style-type: none"><li>Assume control of the site</li><li>Confirm site is secure and safe</li><li>Implement further required controls (with ESU)</li><li>Inform airport contacts as per notification list (below)</li><li>Enter occurrence in CIRRIIS</li></ul>	SITE MANAGER or PROJECT MANAGER
<ul style="list-style-type: none"><li>Report to Environment Regulators if required</li><li>Commence environmental investigation</li></ul>	GROUP ENVIRONMENTAL SPECIALIST
RECOVER	
<ul style="list-style-type: none"><li>Determine if operations can resume on site</li><li>Manage any remediation actions required</li><li>Assist with any investigations</li><li>Update CIRRIIS and close out as required</li></ul>	SITE MANAGER or PROJECT MANAGER
<ul style="list-style-type: none"><li>Investigate occurrence and recommend actions</li><li>Manage reporting to external regulators</li></ul>	GROUP ENVIRONMENTAL SPECIALIST
Note: Detailed environmental occurrence response and management requirements are described in <b>AA-NOS-ENV-0002</b>	

NOTIFICATION LIST		
ROLE	NAME	NUMBER
Airport Environment Officer		
Designated Airport contact		
Other (e.g. RAAF contact if Townsville or Darwin ARFF stations)		

GENERAL SPILL CLEAN UP PROCEDURES	
BE SAFE	<ul style="list-style-type: none"><li>Use appropriate Personal Protective Equipment (gloves, goggles and respirators)</li></ul>
STOP SOURCE	<ul style="list-style-type: none"><li>Turn off all valves</li><li>Up-right a toppled container</li><li>Drain tanks if required</li></ul>
STOP SPREAD	<ul style="list-style-type: none"><li>Use spill kits and absorbent/containment materials (such as absorbent socks and brooms)</li><li>Plug drains to prevent contamination of sewer or stormwater</li></ul>
CLEAN UP	<ul style="list-style-type: none"><li>Use appropriate absorbent material and equipment:<ul style="list-style-type: none"><li>absorbent gravels are only suited for cleaning up small spills and the residues left over after a large spill</li><li>absorbent pads and socks should be used to contain/collect bulk liquid (be sure to check saturation levels of absorbent pads to prevent escape of free liquids)</li></ul></li></ul>
NOTIFY	<ul style="list-style-type: none"><li>Follow environmental occurrence response plan re notification requirements</li></ul>
DISPOSE	<ul style="list-style-type: none"><li>Dispose of contaminated materials and PPE as hazardous waste</li></ul>
RESTOCK	<ul style="list-style-type: none"><li>Replace all used clean-up material</li></ul>

For assistance or advice contact [insert relevant Business Group Env. Specialist] on [insert ph number]

# **APPENDIX 9**

## **BECA Trade Waste Reports**



## Site Visit Report N° **DN-APT-SSR-001**

**Project:** #9168 Trade Waste Agreement Management      **Prepared for:** Airservices Australia

<b>Site Location:</b>	Darwin Airport fire station and training ground	<b>Purpose of visit:</b>	Equipment inspection & sampling
<b>Date/Time of visit:</b>	30 Mar 2015 09:00	<b>Date of last visit:</b>	N/A
<b>Weather conditions:</b>	Fine	<b>Beca personnel</b>	██████████
<b>Facilities Manager</b>	██████████	<b>Contractors representative accompanying Beca personnel:</b>	N/A
<b>Wastewater Source(s)</b>	Fire Station: washdown bay, smoke hut, mechanical workshop Hot fire training ground	<b>Wastewater Discharge Location</b>	Municipal sewer to East Point outfall
		<b>Stormwater Discharge Location</b>	Airport stormwater system
<b>TWA Status</b>	No formal agreement between Airservices & PowerWater via Darwin International Airport	<b>TWA Authority</b>	Power & Water Corporation (PowerWater)
		<b>Municipal receiving plant</b>	Ludmilla WWTP
<b>TWA No.</b>	N/A	<b>TWA Expiration</b>	N/A

### Executive Summary

This report provides details, results and outcomes from the annual site inspection and wastewater sampling performed at the Darwin Airport fire station and hot fire training ground (HFTG).

Based on an above-ground visual inspection and discussion with ARFF personnel, it is understood that trade waste from the fire station is produced by:

- Stormwater runoff and training activities performed at the small training facility (smoke hut and LPG training pad), which is collected in an evaporation pond which can be pumped to sewer via coalescing plate separator
- Mechanical workshop activities, which drain to a collection tank which is pumped to sewer
- The vehicle wash bay, which drains to sewer via silt trap and triple interceptor
- The fire hose drying rack, which drains to sewer via a silt trap.

The HFTG drains to an underground collection tank which is pumped to sewer via a coalescing plate interceptor.

Darwin International Airport (DIA) manages an airport-wide trade waste agreement with PowerWater, under which all sewer discharges are to be registered. According to previous correspondence between Airservices and DIA, the fire station and HFTG sewer discharges have not been registered on the airport's trade waste agreement.

PFOS and other PFCs were detected at high levels, particularly at the HFTG (256µg/L – about 1000 times typically accepted drinking water guidelines). This result is expected, given the use of Ansulite AFFF as a requirement of the Department of Defence. While other parameters tested were within PowerWater acceptance limits, the PFOS levels are regarded as a particular risk, which may affect the likelihood of establishing a trade waste agreement with PowerWater via DIA and is a reputational risk to Airservices.

### Actions required

- Remove the evaporation pond and separator operating instructions and replace with a direction on how to either hold water in the pond to evaporate or direct flow to sewer by the separator only. The instruction should note that discharge to stormwater should not occur.
- Note the presence of high level PFCs as a risk to Airservices, particularly in light of recent media attention drawn to the Department of Defence.

## Site Visit Report N° **DN-APT-SSR-001**

**Project:** #9168 Trade Waste Agreement Management      **Prepared for:** Airservices Australia

- Review current ARFF practices for handling and use of Ansulite AFFF (including training, EVT workshop and testing) to determine if there are activities which might routinely or accidentally result in the discharge of dilute or concentrated Ansulite to sewer or the environment.
- Consider performing a wider study on the levels of contamination at various points within the trade waste handling system, and the surrounding local environment with a view to identifying the risk of migration off-site and forming a plan to alter activities to reduce the risk, monitor or remediate. This may include:
  - Measuring PFCs in stormwater runoff from the pad to determine if stormwater can be handled differently
  - Comparing PFC results directly sourced from the pad with stagnant water in wastewater storage tanks, then consider bypassing or replacing highly contaminated equipment
  - Establish or review groundwater and/or soil monitoring to delineate the extent of contamination.
- If there are necessary activities which may result in a release of Ansulite (dilute or concentrated), consider discussing with the appropriate Defence personnel to carry out these activities on Defence controlled property, pending review and approval of appropriate means of disposal by Defence.

## Site Visit Report N° **DN-APT-SSR-001**

Project: #9168 Trade Waste Agreement Management      Prepared for: Airservices Australia

### Site background

Darwin airport is co-operated by Darwin International Airport Pty Ltd (DIA) and the Department of Defence. It is the policy of the Department of Defence to use Ansulite AFFF for aviation firefighting. As a result, Airservices' ARFF station at Darwin is required to carry the foam. Ansulite AFFF contains PFCs and, although not an ingredient according to the manufacturer, has been tested by Airservices and shown to contain PFOS.

Darwin Airport ARFF generates trade waste from the following locations and activities:

- Wastewater and contaminated stormwater runoff produced at the hot fire training ground (HFTG)
- Wastewater and contaminated stormwater runoff from the smoke hut behind the ARFF station
- Engine and parts washdown drainage from the mechanical workshop
- Wash water from the vehicle washdown bay
- Fire hose drying rack drainage

Refer to Appendix A for an aerial site plan showing the key trade waste handling features and locations and Appendix B for process schematics for the trade waste handling equipment on site. The trade waste generated at the HFTG is pumped into the airport sewer system via treatment by a coalescing plate separator. The trade waste from the ARFF station and adjacent training area is collected into a single underground tank which also drains to a connection to the airport sewage system.

According to the published *Environmental Information Sheet for Trade Waste Management* (See Appendix C), DIA has a trade waste agreement (TWA) in place with Power and Water Corporation (PowerWater). Under this agreement, airport tenants are required to submit a Trade Waste Application to DIA for its addition to the airport's TWA with PowerWater. The trade waste discharge is then monitored and charged per kL to the tenant under their lease agreement.

From discussions with Airservices' Property Management and Environment Strategy and Systems groups, it appears there is no TWA in place between Airservices and DIA and a previous request by Airservices to establish one was not responded to.

### General site observations

- The concrete evaporation pond behind the ARFF station was mainly dry. It is understood that use of the smoke hut training facilities is reduced during the summer months.
- The sump drain at the LPG training facility is understood to be blanked off and the facility is rarely used, according to ARFF personnel.
- The HFTG pad was also relatively dry. It is understood that the pad drain diversion is always set to drain to the wastewater collection tank and not to the stormwater swale.

## Site Visit Report N° **DN-APT-SSR-001**

Project: #9168 Trade Waste Agreement Management

Prepared for: Airservices Australia

### Equipment Inspection

#### Hot Fire Training Ground

The HFTG is separate from the ARFF station. Wastewater drains from the training pad sump via a screen and silt trap. The drainage can then be directed by manual valves to either the local swale or an underground trade waste collection tank.

The trade waste in the collection tank is pumped through a Sepa-type coalescing plate separator (Figure 1). The effluent is collected by a treated effluent tank before being pumped to the airport sewage system. The above-ground equipment appears to be in good working order.

#### ARFF Station Training areas

The smoke hut collects wastewater from training and stormwater runoff and drains into a concrete evaporation pond (Figure 2). Although access was limited, the pond does not show any obvious sign of loss of integrity. The pond contained a reasonable amount of silt build-up around the drain point.

The pond can be drained to stormwater or the separator system using manual valves.

When directed to the separator, the evaporation pond drains to an underground sump (assumed – not sighted). The separator system consists of a diaphragm pump which draws from the sump to feed a coalescing plate separator, the outlet of which can be directed to sewer or stormwater by manual gate valves on the outlet piping (Figure 3).

An instruction panel (Figure 4) sighted provides direction for ARFF crew as follows:

- Rainfall and training wastewater from LPG exercises is to be directed to stormwater from the evaporation pond
- Training wastewater from petrol and kerosene ("Kero") based exercises is to be directed to stormwater via the separator
- Training wastewater when foam is in use is to be directed to sewer via the separator.



**Figure 1 - HFTG coalescing plate separator**



**Figure 2 - ARFF station evaporation pond**

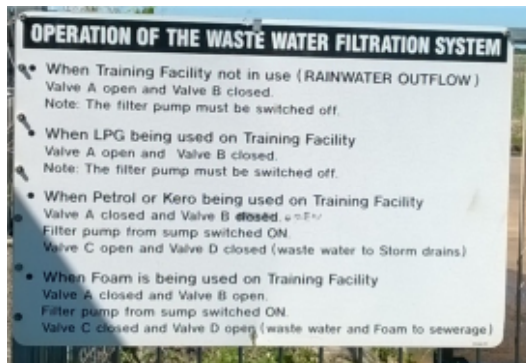


**Figure 3 - ARFF Station coalescing plate separator**

## Site Visit Report N° **DN-APT-SSR-001**

Project: #9168 Trade Waste Agreement Management      Prepared for: Airservices Australia

It is recommended that no water is directed to stormwater directly from the evaporation pond, as it is likely residual silt and hydrocarbons may always be present. From discussions with ARFF personnel it is understood that the pond drain valve is always left to drain to the separator.



**Figure 4 - Evaporation pond and separator operating instructions**

### Sampling procedure followed:

The ARFF Station trade waste is generated from wastewater from the training area, mechanical workshop, washdown bay and hose drying rack. There was no available access to the final wastewater tank or the mechanical workshop pit, and the separator sump was dry. Therefor a sample was taken from the washdown bay pit only. A small sample was able to be collected from small residual left in the separator outlet, which was tested for PFCs only to understand the extent of PFC contamination present in the fire station training area.

Sample Point:	Method:
ARFF Station Training Area Separator	<ol style="list-style-type: none"> <li>The lid was lifted from the separator.</li> <li>The separator pump was turned on in manual mode, no water flow was observed. The pump was stopped to avoid creating an air lock in the diaphragm.</li> <li>Using a siphon hand pump, effluent from the separator weir was pumped out into the lab-supplied sample bottle.</li> </ol>
ARFF Station Wash Down Bay	<ol style="list-style-type: none"> <li>From the washdown bay, the drain pit grating was removed.</li> <li>Using a siphon hand pump, a grab sample was obtained from the pit to fill a 5L bucket.</li> <li>The 5L bucket lid was closed and inverted 5 times, avoiding shaking to entrain air / release volatiles.</li> <li>Using a funnel, the sample was poured into the testing bottles.</li> </ol>
Hot Fire Training Ground	<ol style="list-style-type: none"> <li>The underground effluent holding tank access lid was flipped open wearing gloves, taking care to avoid pinch points.</li> <li>A clean sampling bucket was lowered into the tank to obtain a 5 L grab sample.</li> <li>The tank lid was replaced to remove the fall hazard.</li> <li>The 5L bucket lid was closed and inverted 5 times, avoiding shaking to entrain air / release volatiles.</li> <li>Using a funnel, the sample was poured into the testing bottles.</li> </ol>



## Site Visit Report N° **DN-APT-SSR-001**

Project: #9168 Trade Waste Agreement Management      Prepared for: Airservices Australia

### Sample notes and observations

- Samples from both locations appeared to be clear with no discernible solids or colouring.

### Comments made to/by site staff

- According to ARFF personnel, hot fire training is curtailed during the summer months due to rainfall and extreme heat.
- The FM noted that the HFTG is not used for Ansulite Foam training.

### Sampling results & discussion

Table 1 below provides the sample test results. The results are compared with the corresponding sewer admission limits from the DIA Trade Waste Agreement. For the full set of sampling results, please refer to the ALS Certificate of Analysis in Appendix D.

**Table 1 – PowerWater sewer admission limits and relevant sampling results**

Parameter	Units	LOR	DIA Admission Limit	ARFF Station Result	HFTG Result
Total Suspended Solids (TSS)	mg/L	1	600	16	<5
Oil & grease	mg/L	5	200	18	5
Biochemical oxygen demand (BOD)	mg/L	2	600	4	<2
Anionic surfactants (MBAS)	mg/L	0.1	N/A	3.2	0.3
PFOS (fluorosurfactant)	µg/L	0.002	0.3 <sup>Note 1</sup>	1.44	256
PFOA (fluorosurfactant)	µg/L	0.002	0.3 <sup>Note 1</sup>	0.077	87.7
6:2FtS (fluorosurfactant)	µg/L	0.01	0.05 <sup>Note 1</sup>	<0.10	18.1
8:2FtS (fluorosurfactant)	µg/L	0.01	0.05 <sup>Note 1</sup>	0.25	39.6
Benzene	µg/L	1	1,000	<1	<1
Toluene	µg/L	2	2,000	<2	<2
Ethylbenzene	µg/L	2	2,000	<2	<2
Xylenes (total)	µg/L	2	2,000	<2	<2
Total Petroleum Hydrocarbons (TPH) <sup>Note 2</sup>	µg/L	50	30,000	<70	<70

#### Notes:

- No limit provided by PowerWater. Limit adopted from the Airservices Australia Water Quality Monitoring Guidelines for Wastewater and Rainfall Runoff (WQMG).
- TPH reported as the sum of C6-C9 and C10-C36 fractions

All constituents measured with specific limits in the TWA were within the DIA sewer admission limits. There is a

**Site Visit Report N° DN-APT-SSR-001**

Project: #9168 Trade Waste Agreement Management Prepared for: Airservices Australia

blanket clause in the TWA for "Other substances" which have a limit of 1µg/L, for which PFOS (Fire Station and HFTG) and other fluorosurfactants (HFTG only) were in exceedence.

The PFOS result is particularly high compared with other sites (up to two orders of magnitude higher than that observed typically), which is expected given Airservices' requirement to carry Ansulite AFFF for the Defence presence at the airport. The prospect of establishing a TWA with DIA/PowerWater will possibly be compromised by the high levels of PFOS and other fluorosurfactants.

It is understood that Airservices does not perform hot fire training using Ansulite AFFF at the HFTG, so whether the PFC contamination is from legacy only or a combination of legacy and current operations cannot be determined until a comprehensive understanding of ARFF activities is gained.

The results also displayed no detectable hydrocarbons in the wastewater from the HFTG. This is not typical compared with other HFTG site samples, where hydrocarbon levels range from 30mg/L up to the 000's mg/L. It is possible that the result is better than expected due to:

- Dilution of the effluent by rainwater – according to the Bureau of Meteorology, Darwin airport received over 105mm of rainfall in the 3 days preceding the sampling, or
- As training is less frequent in the wet season, extended settling and separation of hydrocarbons from the water might have occurred in the wastewater tank, meaning only low concentrations being fed to the separator.

**Actions required**

- Remove the evaporation pond and separator operating instructions and replace with a direction on how to either hold water in the pond to evaporate or direct flow to sewer by the separator only. The instruction should note that discharge to stormwater should not occur.
- Note the presence of high level PFCs as a risk to Airservices, particularly in light of recent media attention drawn to the Department of Defence.
- Review current ARFF practices for handling and use of Ansulite AFFF (including training, EVT workshop and testing) to determine if there are activities which might routinely or accidentally result in the discharge of dilute or concentrated Ansulite to sewer or the environment.
- Consider performing a wider study on the levels of contamination at various points within the trade waste handling system, and the surrounding local environment with a view to identifying the risk of migration off-site and forming a plan to alter activities to reduce the risk, monitor or remediate. This may include:
  - Measuring PFCs in stormwater runoff from the pad to determine if stormwater can be handled differently
  - Comparing PFC results directly sourced from the pad with stagnant water in wastewater storage tanks, then consider bypassing or replacing highly contaminated equipment
  - Establish or review groundwater and/or soil monitoring to delineate the extent of contamination.
- If there are necessary activities which may result in a release of Ansulite (dilute or concentrated), consider discussing with the appropriate Defence personnel to carry out these activities on Defence controlled property, pending review and approval of appropriate means of disposal by Defence.

**Attachments (additional results, calculations, charts etc.):**

- Appendix A – Site aerial plans
- Appendix B – Process schematics
- Appendix C – Environmental Information Sheet for Trade Waste Management

**Site Visit Report N° DN-APT-SSR-001**

Project: #9168 Trade Waste Agreement Management      Prepared for: Airservices Australia

- Appendix D – ALS certificate of analysis

**Approvals:**

	Name	Signature	Date
Prepared by:			28/09/2015
Reviewed by:			28/09/2015
Approved by:			28/09/2015



## **Site Visit Report N° DN-APT-SSR-001**


Project: #9168 Trade Waste Agreement Management      Prepared for: Airservices Australia

### **Appendix A – Site aerial plans**



NOTES:  
1. ALL DRAINAGE PATHS ARE  
ESTIMATES AND HAVE NOT  
BEEN CONFIRMED ON SITE



PLEASE PRINT IN COLOUR			
			
JOB TITLE: TRADE WASTE AGREEMENT MANAGEMENT			
SKETCH TITLE: DARWIN FIRE STATION TRADE WASTE PLAN			
DATE: 12/08/2015		JOB No.: 3558681	
SCALE: NTS		SKETCH No.: DN-RFS-GA-001	
DRAWN: N MARQUEZ		REV: A	
VERIFIED: J ROONEY		APPROVED: J ROONEY	
REASON FOR ISSUE: FOR INFORMATION			
SOURCE OF BACKGROUND: NEARMAP			



NOTES:  
1. ALL DRAINAGE PATHS ARE  
ESTIMATES AND HAVE NOT  
BEEN CONFIRMED ON SITE

STORMWATER  
DIVERSION VALVE

WASTEWATER  
COLLECTION TANK  
MANHOLE

PUMP SHED

TREATED  
EFFLUENT  
MANHOLE


SEPARATOR SHED

1 PHOTOGRAPH

2 PHOTOGRAPH

3 PHOTOGRAPH

PLEASE PRINT IN COLOUR



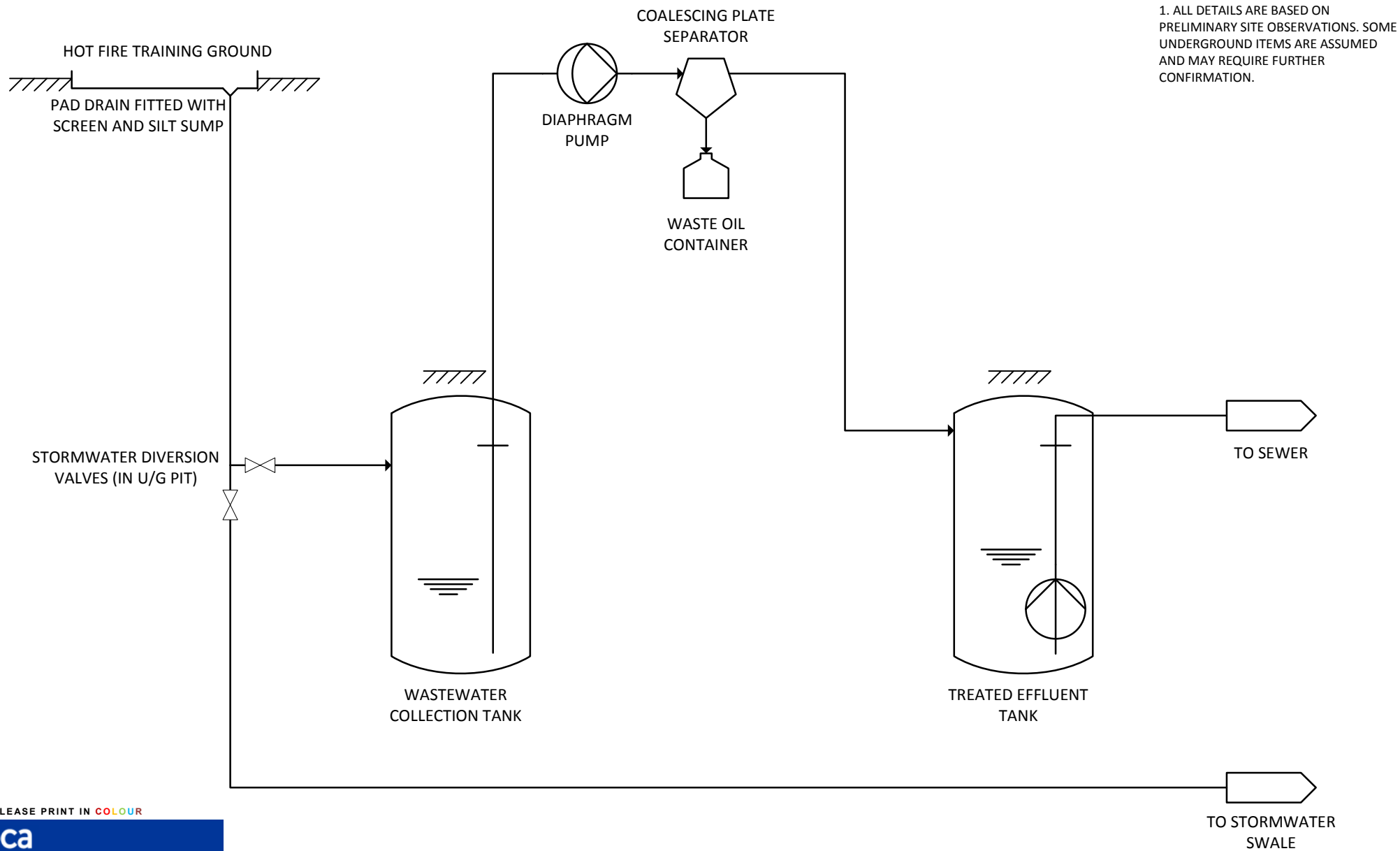
JOB TITLE:		TRADE WASTE AGREEMENT MANAGEMENT	
SKETCH TITLE:		DARWIN HOT FIRE TRAINING GROUND TRADE WASTE PLAN	
DATE:	12/08/2015	JOB No.:	3514722
SCALE:	NTS	SKETCH No.:	DN-RFT-GA-001
DRAWN:	N MARQUEZ	REV:	A
VERIFIED:	J ROONEY	APPROVED:	J ROONEY
REASON FOR ISSUE:		FOR INFORMATION	
SOURCE OF BACKGROUND: NEARMAP			



## **Site Visit Report N° DN-APT-SSR-001**

Project: #9168 Trade Waste Agreement Management      Prepared for: Airservices Australia

### **Appendix B – Process schematics**



PLEASE PRINT IN COLOUR

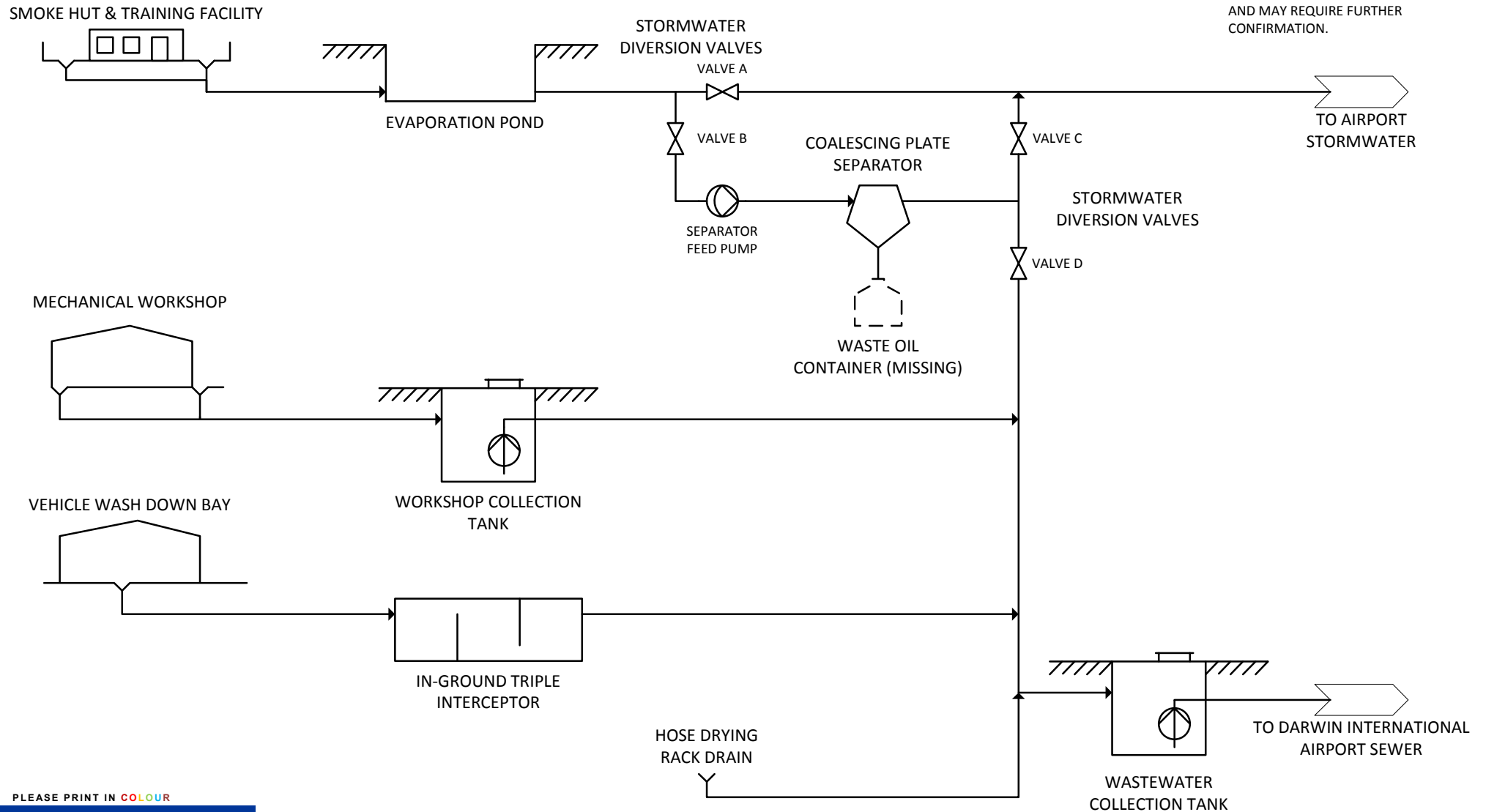


JOB TITLE: TRADE WASTE AGREEMENT MANAGEMENT

SKETCH TITLE: DARWIN ARFF HOT FIRE TRAINING GROUND TRADE WASTE SYSTEM - PROCESS SCHEMATIC

DATE: 24/09/2015	JOB No.: 3514722
SCALE: NTS	SKETCH No.: DN-PR-001
DRAWN: N MARQUEZ	REV: 0
VERIFIED: J ROONEY	APPROVED: J ROONEY
REASON FOR ISSUE: ISSUE FOR INFORMATION	
SOURCE OF BACKGROUND: N/A	

**NOTES:**  
 1. ALL DETAILS ARE BASED ON PRELIMINARY SITE OBSERVATIONS. SOME UNDERGROUND ITEMS ARE ASSUMED AND MAY REQUIRE FURTHER CONFIRMATION.



PLEASE PRINT IN COLOUR



JOB TITLE:	TRADE WASTE AGREEMENT MANAGEMENT		
SKETCH TITLE:	DARWIN ARFF HOT FIRE TRAINING GROUND TRADE WASTE SYSTEM - PROCESS SCHEMATIC		
DATE:	24/09/2015	JOB No.:	3514722
SCALE:	NTS	SKETCH No.:	DN-PR-002
DRAWN:	N MARQUEZ	REV:	0
VERIFIED:	J ROONEY	APPROVED:	J ROONEY
REASON FOR ISSUE:	ISSUE FOR INFORMATION		
SOURCE OF BACKGROUND:	N/A		

## **Site Visit Report N° DN-APT-SSR-001**

Project: #9168 Trade Waste Agreement Management      Prepared for: Airservices Australia

### **Appendix C – Environmental Information Sheet for Trade Waste Management**

# Environment Information Sheet

## DARWIN INTERNATIONAL AIRPORT

### Trade Waste Management



Trade waste is any liquid waste generated in the course of commercial and industrial activities on the airport. Trade waste liquid means any liquid, including water that contains a trade waste substance approved for discharge to sewer. It does not include domestic wastewater from residential premises or wastewater generated by persons using domestic fixtures within a workplace.

Trade waste and trade waste water are potential pollutants. Disposing or permitting these products to discharge to stormwater is prohibited and they can only be discharged to sewer under license if the concentrations are within acceptable trade waste limits specified in the Power and Water Corporation Management System.

These wastes are controlled by Power and Water Corporation via the Trade Waste Code under the trade waste laws of the *Water Supply and Sewerage Services Act 2011*.

The airport sewerage reticulation system discharges to a pump station which transfers the sewage to the Power and Water Corporation system for treatment and disposal.

#### WHAT TYPE OF TRADE WASTE OCCURS AT DARWIN INTERNATIONAL AIRPORT?

Examples of some of the trade wastes generated at airports include:

- **Grease and fat waste**

Grease and fat are generated through food preparation and cooking. Wash up water containing grease and fat must be discharged to the sewer via an approved pre-treatment equipment or a grease arrestor. Any concentrated grease and fat waste should not be discharged to sewer but should be removed in appropriate containers by approved waste removalists.

- **Petroleum hydrocarbons**

Found in diesel, petrol, solvents, liquefied petroleum gas, engine oil, grease and degreasers. These can release flammable gases in the sewers therefore discharging these substances to sewer is strictly controlled. There are strict guidelines for the concentrations that can be discharged to sewer.

- **Metals (lead, zinc, copper, iron, chromium, nickel and aluminium)**

Found in leaded petrol, radiators, engine parts, batteries and the residue from chemically cleaning engine blocks. These are all contaminants which the sewerage treatment processes can't treat therefore their release to sewer is strictly controlled. These have strict guidelines and concentrations on what can be discharged to sewer.



- **Chlorinated solvents and phenols**

Found in de-carbonising solutions and degreasers. These products, which can't be processed within the sewerage treatment processes, pose a significant health risk. These have strict guidelines and concentrations on what can be discharged to sewer.

- **Surfactants**

Found in detergents and other cleaning products, including biodegradable products. These products in uncontrolled quantities interfere with sewage treatment processes and therefore are strictly controlled. These have strict guidelines and concentrations on what can be discharged to sewer.

- **Hair and lint**

Hair and lint discharged from kennels and laundries can cause sewer blockages and must be trapped in bucket traps, or cooling and straining pits.

- **Solids**

Solids from carwashes and kitchens must also be removed from the waste stream.

A liquid, including water, containing any of these products is trade waste water and must be disposed of appropriately either via sewer or a licensed waste contractor. None of these products may be allowed to enter stormwater.

## THE LAW AND WHAT THIS MEANS FOR YOU AT DARWIN INTERNATIONAL AIRPORT

All trade waste discharges to sewer are controlled by Power and Water Corporation. Under Section 83(4) of the *Water Supply and Sewerage Services Act 2011*; it is an offence to discharge any substance into an asset owned by Power and Water Corporation without written agreement.

## WHAT IS A TRADE WASTE PERMIT AND WHO NEEDS ONE?

Darwin International Airport has a Trade Waste Permit from Power and Water Corporation. This is an agreement that controls the quality and volume of trade waste liquids discharged into the Power and Water Corporation sewer system from the airport.

A Trade Waste Permit specifies:

- The type and quantity of trade waste liquid that may be disposed to sewer
- The type and level of treatment the trade waste liquid must undergo before discharge to the sewer is permitted
- The type and frequency of maintenance of any trade waste treatment facility required
- The type and frequency of monitoring of the trade waste being disposed to sewer
- The trade waste acceptance limits

Any business that produces a trade waste liquid that it is disposed to sewer must complete a Trade Waste Application. The application must be submitted to the airport for its addition to the Airport's Trade Waste Agreement with Power and Water Corporation authorising the discharge of that liquid to sewer.

Pre-treatment facilities include grease traps, interceptor pits, averaging pits, corrugated plate interceptors, separator systems, bucket traps and the like. As with all equipment they require regular maintenance to ensure they continue to operate effectively. The wastes they remove from the trade waste liquid must be removed and disposed of by an appropriately licensed bulk waste contractor (i.e. a contractor licensed by Power and Water Corporation and the Department of Natural Resources, Environment, The Arts and Sport).

## COST OF TRADE WASTE

The cost of trade waste licensing and discharge will be introduced in the 2012/13 financial year. The trade waste levy is calculated on the quality and kL volume of trade waste being discharged into the Power and Water Corporation sewer network, and this is usually assessed as an estimated percentage of total site water discharge.

Darwin International Airport and Power and Water Corporation use the Trade Waste Application forms and sampling/site inspections to assess quality and the estimated percentage of waste discharge per tenant/device which is kept on an airport database. Some sites will be metered. Trade waste is currently charged at \$1.35/KL. This will be an annual fee to the tenants on airport who discharge trade waste and will incur an administration fee.

## CONTACTS AND FURTHER INFORMATION

### Power and Water Corporation

Trade Waste and Backflow Officer

Ph: 08 8985 7128 or 0408 839 327

[www.powerwater.com.au/tradewaste](http://www.powerwater.com.au/tradewaste)

### Darwin International Airport

Ph: 8920 1811

[www.darwinairport.com.au/property](http://www.darwinairport.com.au/property)

The information provided in this sheet is of a general nature and may or may not apply or be appropriate to your particular circumstances. It is not legal advice nor is it a substitute for obtaining legal or other professional advice from a qualified person. It is the responsibility of every tenant and occupier of land on the Airport to comply with the Airports Act, all airport related Regulations, and all other laws relating to occupying land at the Airport and the conduct of a business on that land. To understand your obligations you should make your own inquiries and consult a professional or other qualified advisor regarding your particular circumstances and situation.

## **Site Visit Report N° DN-APT-SSR-001**

Project: #9168 Trade Waste Agreement Management      Prepared for: Airservices Australia

### **Appendix D – ALS certificate of analysis**

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1507358</b>	Page	: 1 of 5
Client	: <b>BECA P/L</b>	Laboratory	: Environmental Division Sydney
Contact	: [REDACTED]	Contact	: Client Services
Address	: LEVEL 11 - 44 MARKET STREET SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: [REDACTED]	E-mail	: sydney@alsglobal.com
Telephone	: 02 8216 4500	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: TWA MGMT 3514722	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 3514722-DW-2015		
C-O-C number	: ----	Date Samples Received	: 31-MAR-2015
Sampler	: NM	Issue Date	: 09-APR-2015
Site	: ----		
Quote number	: BN/662/14 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

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

Signatories	Position	Accreditation Category
[REDACTED]	Inorganic Chemist	Sydney Inorganics
[REDACTED]	Inorganic Chemist	Sydney Inorganics
[REDACTED]	Senior Spectroscopist	Sydney Inorganics
[REDACTED]	Senior LCMS Chemist	Sydney Organics
[REDACTED]	Senior Organic Chemist	Sydney Organics



## General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG020: Bromine & Iodine quantification may be unreliable due to its low solubility in acid, leading to variable volatility during measurement by ICPMS.**
- **EP050: The MBAS reported is calculated as LAS, mol wt 342.**
- **PFOS and PFOA results are reported as an aggregate of linear and branched isomers.**



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

Client sampling date / time

				DW-RFT-001	DW-RFT-002	DW-RFS-001	----	----
				30-MAR-2015 13:30	30-MAR-2015 12:15	30-MAR-2015 12:10	----	----
Compound	CAS Number	LOR	Unit	ES1507358-001	ES1507358-002	ES1507358-003	----	----
<b>EA005P: pH by PC Titrator</b>								
pH Value	----	0.01	pH Unit	8.94	----	7.40	----	----
<b>EA025: Suspended Solids</b>								
Suspended Solids (SS)	----	5	mg/L	<5	----	16	----	----
<b>EG020T: Total Metals by ICP-MS</b>								
Aluminium	7429-90-5	0.01	mg/L	0.16	----	0.25	----	----
Arsenic	7440-38-2	0.001	mg/L	0.003	----	<0.001	----	----
Barium	7440-39-3	0.001	mg/L	0.020	----	0.048	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	0.092	----	0.016	----	----
Nickel	7440-02-0	0.001	mg/L	0.002	----	0.001	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	0.001	----	----
Zinc	7440-66-6	0.005	mg/L	0.040	----	0.098	----	----
Manganese	7439-96-5	0.001	mg/L	0.007	----	0.035	----	----
Molybdenum	7439-98-7	0.001	mg/L	0.028	----	<0.001	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	----	<0.05	----	----
Iron	7439-89-6	0.05	mg/L	0.11	----	0.34	----	----
Bromine	7726-95-6	0.1	mg/L	<0.1	----	<0.1	----	----
Iodine	7553-56-2	0.1	mg/L	<0.1	----	<0.1	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	<0.0001	----	----
<b>EG050F: Dissolved Hexavalent Chromium</b>								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	----	<0.01	----	----
<b>EK055G: Ammonia as N by Discrete Analyser</b>								
Ammonia as N	7664-41-7	0.01	mg/L	0.04	----	0.06	----	----
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.0	----	0.4	----	----
<b>EP020: Oil and Grease (O&amp;G)</b>								
Oil & Grease	----	5	mg/L	5	----	18	----	----
<b>EP030: Biochemical Oxygen Demand (BOD)</b>								
Biochemical Oxygen Demand	----	2	mg/L	<2	----	4	----	----
<b>EP050: Anionic Surfactants as MBAS</b>								
Anionic Surfactants as MBAS	----	0.1	mg/L	0.3	----	3.2	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				DW-RFT-001	DW-RFT-002	DW-RFS-001	----	----
				30-MAR-2015 13:30	30-MAR-2015 12:15	30-MAR-2015 12:10	----	----
Compound	CAS Number	LOR	Unit	ES1507358-001	ES1507358-002	ES1507358-003	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	----	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	<20	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	----	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	<100	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	----	<1	----	----
Toluene	108-88-3	2	µg/L	<2	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	----	<2	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	<5	----	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.002	µg/L	256	69.9	1.44	----	----
PFOA	335-67-1	0.002	µg/L	87.7	7.45	0.077	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.01	µg/L	18.1	1.94	<0.10	----	----
8:2 Fluorotelomer sulfonate	39108-34-4	0.01	µg/L	39.6	7.32	0.25	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	126	----	103	----	----
Toluene-D8	2037-26-5	0.1	%	109	----	101	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	99.2	----	93.1	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## Site: Darwin

**Prepared for:** Airservices Australia  
**Prepared by:** Beca Consultants Pty Ltd

<b>Date/Time of visit:</b>	15 September 2017	<b>Date of last visit:</b>	16 September 2016
<b>Facilities Manager</b>	██████████	<b>Beca personnel</b>	██████████
<b>TWA Status</b>	TWA in place between PowerWater and Darwin International Airport (DIA). No formal agreement in place between Airservices and DIA	<b>TWA Authority</b>	Power & Water Corporation (PowerWater)
		<b>Municipal receiving plant</b>	Ludmilla WWTP

Wastewater Source(s)	Wastewater Discharge
ARFF Station, comprising the Washdown Bay, EVT Workshop and the evaporation pond which collects drainage from the smoke hut	Sewer via sewer pumping station pit
Hot Fire Training Ground	Sewer via pump out, transport and discharge to Fire Station Washdown Bay HFTG drains to stormwater during wet season

## Notable Sample Results

The following reports any parameter that exceeded PowerWater acceptance criteria, or may be of concern. Given that there is currently no specific PFAS discharge limits in the Northern Territory, the draft ANZECC freshwater (F) investigation levels for 99% species protection – high conservation value systems referenced in the Draft Commonwealth Environmental Management Guidance on Perfluorooctane Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA), October 2016 have also been included.

### ARFF Station

Parameter	Measurement (µg/L)	Limit (µg/L)	Source of Limit
PFOS	0.14	0.00023	ANZECC – F 99%
PFOA	0.02	19	ANZECC – F 99%
Sum of PFAS	0.45	N/A	N/A

### HFTG

Parameter	Measurement (µg/L)	Limit (µg/L)	Source of Limit
PFOS	86.2	0.00023	ANZECC – F 99%
PFOA	64.2	19	ANZECC – F 99%
Sum of PFAS	343	N/A	N/A



## Site Observations

This report summarises the outcomes of Beca's annual sampling regime for Darwin Airport. A more comprehensive study was performed to identify wastewater and surface waste contamination sources and flows and the report can be accessed on TeamView.

- Based on discussions with ARFF, wastewater from the HFTG is discharged to sewer by carting it to the ARFF station washdown bay.
- PFAS concentrations in the sample taken from the HFTG were relatively high compared with other training grounds, which is expected due to the Defence requirement to use AFFF.
- The sample taken from the sewer pumping station will therefore be receiving PFAS from the HFTG under the current operating procedure, which was confirmed in the sample taken from the sewer pumping station.
- Inspection of the mechanical workshop pit suggested high levels of oil and grease and there appeared to be paint and silt in the pit. Discussion with the EVT suggested the paint and silt was from some recent pavement modifications in the workshop area. It did not appear that the contaminated wastewater had been pumped to sewer, based on observation of the separator water through which the EVT workshop flows en route to the sewer pumping station.
- Immediate advice was provided to the Facility Manager (FM) to have the EVT workshop and separator feed pit pumped out and cleaned before it was pumped to sewer. The FM confirmed that the pump out was arranged.

## Recommendations

Airservices should consider investigating the following actions:

- Progress discussions with DIA to put a formal agreement in place to confirm Airservices' trade waste obligations under the DIA trade waste agreement with PowerWater.
- Maintain Darwin on the risk register of PFAS-impacted sites, with an elevated risk profile due to the Defence joint use requirements.

Appendix A: ALS certificates of analysis			
Approvals:	Name	Signature	Date
Prepared by:			15/12/2017
Reviewed by:			15/12/2017
Approved by:			15/12/2017

Appendix A

## Certificate of Analysis

## CERTIFICATE OF ANALYSIS

**Work Order** : **ES1721699**  
**Client** : **BECA P/L**  
**Contact** : [REDACTED]  
**Address** : LEVEL 11 - 44 MARKET STREET  
                   SYDNEY NSW 2000  
**Telephone** : +61 03 92721400  
**Project** : 3514722 TWA MGMT  
**Order number** : 3514722-DW-2017  
**C-O-C number** : ----  
**Sampler** : [REDACTED]  
**Site** : ----  
**Quote number** : SY/695/16  
**No. of samples received** : 6  
**No. of samples analysed** : 6

**Page** : 1 of 7  
**Laboratory** : Environmental Division Sydney  
**Contact** : Customer Services ES  
**Address** : 277-289 Woodpark Road Smithfield NSW Australia 2164  
  
**Telephone** : +61-2-8784 8555  
**Date Samples Received** : 31-Aug-2017 09:00  
**Date Analysis Commenced** : 31-Aug-2017  
**Issue Date** : 07-Sep-2017 13:38



Accreditation No. 825  
 Accredited for compliance with  
 ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

### Signatories

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

Signatories	Position	Accreditation Category
<span style="background-color: black; color: black;">[REDACTED]</span>	Organic Chemist	Sydney Organics, Smithfield, NSW
<span style="background-color: black; color: black;">[REDACTED]</span>	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
<span style="background-color: black; color: black;">[REDACTED]</span>	Organic Coordinator	Sydney Organics, Smithfield, NSW



## General Comments

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

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

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

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

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

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

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

- EP050: The MBAS reported is calculated as LAS, mol wt \_\_\_\_342\_\_\_\_.





## Analytical Results

Sub-Matrix: WATER  
 (Matrix: WATER)

Client sample ID

				HFTG WW	HFTG SW	WASH BAY	STN SEPARATOR	SEWER PIT
				DW-SP1	DW-SP2	DW-SP3	DW-SP4	DW-SP5
Client sampling date / time				30-Aug-2017 11:00	30-Aug-2017 12:30	30-Aug-2017 09:30	30-Aug-2017 09:45	30-Aug-2017 10:00
Compound	CAS Number	LOR	Unit	ES1721699-001	ES1721699-002	ES1721699-003	ES1721699-004	ES1721699-005
				Result	Result	Result	Result	Result
<b>EP231A: Perfluoroalkyl Sulfonic Acids - Continued</b>								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	1.74	0.04	<0.02	0.91	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	3.19	0.03	<0.02	0.76	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	16.7	0.15	<0.02	4.46	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	3.98	<0.02	<0.02	0.35	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	86.2	1.31	0.22	15.3	0.14
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	0.16	<0.02	<0.02	<0.02	<0.02
<b>EP231B: Perfluoroalkyl Carboxylic Acids</b>								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	8.5	<0.1	<0.1	1.4	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	14.9	<0.02	<0.02	1.61	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	32.1	0.17	0.03	4.77	0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	32.5	0.05	<0.02	3.32	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	64.2	0.10	0.03	4.75	0.02
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	36.0	0.05	<0.02	2.28	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	7.88	0.12	0.02	1.57	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	0.11	0.08	<0.02	0.82	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.04	<0.02	0.34	<0.02
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	<0.02	0.14	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.06	<0.05	0.08	0.05
<b>EP231C: Perfluoroalkyl Sulfonamides</b>								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	0.44	<0.02	<0.02	0.18	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	DW-SP1	DW-SP2	DW-SP3	DW-SP4	DW-SP5
Client sampling date / time				30-Aug-2017 11:00	30-Aug-2017 12:30	30-Aug-2017 09:30	30-Aug-2017 09:45	30-Aug-2017 10:00	
Compound	CAS Number	LOR	Unit	ES1721699-001	ES1721699-002	ES1721699-003	ES1721699-004	ES1721699-005	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	2448-09-7	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	2.58	<0.05	<0.05	2.56	<0.05	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	31.5	0.77	0.35	4.86	0.22	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	0.08	<0.05	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	343	2.97	0.65	50.5	0.45	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	103	1.46	0.22	19.8	0.14	
Sum of PFAS (WA DER List)	----	0.01	µg/L	291	2.59	0.63	43.9	0.40	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	103	97.4	111	106	109	
Toluene-D8	2037-26-5	2	%	109	103	123	119	119	
4-Bromofluorobenzene	460-00-4	2	%	104	101	116	114	115	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	105	107	106	105	106	



## Analytical Results

### MK 8 OUTLET

Sub-Matrix: <b>WATER</b> (Matrix: <b>WATER</b> )				Client sample ID	<b>DW-SP6</b>	----	----	----	----
Client sampling date / time					30-Aug-2017 12:50	----	----	----	----
Compound	CAS Number	LOR	Unit		<b>ES1721699-006</b>	-----	-----	-----	-----
				Result	----	----	----	----	----
<b>EP231A: Perfluoroalkyl Sulfonic Acids</b>									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		<0.002	----	----	----	----
<b>EP231B: Perfluoroalkyl Carboxylic Acids</b>									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		<0.002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		<b>0.002</b>	----	----	----	----
<b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		<0.005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<b>0.048</b>	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	----	----	----	----
<b>EP231P: PFAS Sums</b>									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		<0.002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		<b>0.050</b>	----	----	----	----
<b>EP231S: PFAS Surrogate</b>									
13C4-PFOS	----	0.002	%		<b>81.7</b>	----	----	----	----





## Surrogate Control Limits

Sub-Matrix: **WATER**

		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
<b>EP231S: PFAS Surrogate</b>			
13C4-PFOS	----	60	130

Report

# Darwin ARFF - Drainage Study

Prepared for Airservices Australia

Prepared by Beca Consultants Pty Ltd

ABN: 45 003 431 089

2 February 2018



## Revision History

Revision N°	Prepared By	Description	Date
A	[REDACTED]	Issue for Review	02/02/2017

## Document Acceptance

Action	Name	Signed	Date
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Approved by	[REDACTED]	[REDACTED]	02/02/2017
on behalf of	Beca Consultants Pty Ltd		

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## Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Background	1
1.2	Site Description	1
<b>2</b>	<b>Summary of Discharges</b>	<b>1</b>
<b>3</b>	<b>Trade Waste Discharge Investigation</b>	<b>4</b>
3.1	Hot Fire Training Ground	5
3.2	ARFF Station	7
<b>4</b>	<b>ARFF Station Stormwater Discharge</b>	<b>11</b>

## Appendices

### Appendix A

Site Aerial Photo Markups

### Appendix B

Trade Waste Schematics

### Appendix C

Site Sampling Plan

### Appendix D

Laboratory Certificate of Analysis

### Appendix D

Site Drainage Plan

# 1 Introduction

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## 1.1 Background

Beca is supporting Airservices Australia (Airservices) in managing obligations and risks associated with discharge of trade waste and other potentially contaminated waters. At Darwin Airport, Airservices discharge trade waste to sewer under the trade waste agreement (TWA) between Darwin International Airport (DIA) and Power and Water Corporation (PowerWater).

It was identified that there is no formal agreement in place with Darwin International Airport Pty Ltd (DIA) for the discharge of trade waste to sewer, which is required under the terms of DIA's agreement. DIA have started to engage with Airservices to initiate such an agreement. After initial discussions with DIA, clarity was sought over what potentially contaminated waste streams are generated at Airservices' facilities, and where these sources discharge.

At the time of reporting, federal, state or local authority legislation, policies or guidelines specifically for PFAS discharges were in development. This report should be reconsidered and updated should there be any implementation of such initiatives.

Under the Trade Waste Agreement Management programme, Beca was asked to perform a study to investigate the sources and discharge of potentially contaminated waste streams to aid in discussions with DIA. The report summarises the findings of the study.

## 1.2 Site Description

Airservices' ARFF facilities at Darwin Airport primarily consists of two main areas:

- ARFF Station, which includes the following facilities:
  - Emergency Vehicle Technician (EVT) workshop
  - a small extinguisher training area
  - a training smoke hut
  - a vehicle wash bay
  - a hose drying rack
- Hot Fire Training Ground (HFTG)

Darwin airport is co-operated by DIA and the Department of Defence. It is the policy of the Department of Defence to use Ansulite Aqueous Film Forming Foam (AFFF) for aviation firefighting. As a result, Airservices' Aviation Rescue Fire Fighting (ARFF) station at Darwin is required to carry the foam, which is known to contain per- and poly- fluoroalkyl substances (PFAS).

# 2 Summary of Discharges

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Table 1 summarises the source points for potentially contaminated discharges and stormwater generated at ARFF facilities at Darwin Airport. Refer to Appendix A for aerial photo mark-ups identifying these source and discharge points, and Appendix B for a schematic of the trade waste handling systems.

Table 1 - Potentially contaminated waters

Source	Treatment	Discharge	Expected Contaminants
HFTG – training wastewater & stormwater (dry season)	Coalescing plate separator	Sewer pumping station via transport in IBCs to ARFF station and discharge to wash bay pit  <i>Verified on site by tracing pipes and observing flow.</i>	<ul style="list-style-type: none"> <li>■ Silt &amp; soot solids</li> <li>■ Unburnt solids (wood and hay)</li> <li>■ Residual hydrocarbons from unburnt accelerant</li> <li>■ Legacy PFAS</li> <li>■ Residual AFFF (PFAS &amp; surfactant)</li> <li>■ Residual DCP</li> </ul>
HFTG – stormwater (wet season)	None	Local grass swale  <i>Verified on site by tracing pipes and observing flow. Discussed with LOM.</i>	<ul style="list-style-type: none"> <li>■ Silt &amp; vegetation</li> <li>■ Residual hydrocarbons from unburnt kerosene</li> <li>■ Legacy PFAS</li> <li>■ Residual AFFF (PFAS &amp; surfactant)</li> </ul>
ARFF Station wash bay	In-ground interceptor	Sewer pumping station  <i>Verified from existing drawings and inlet/outlet flow observed on site.</i>	<ul style="list-style-type: none"> <li>■ Detergent</li> <li>■ Silt &amp; dust</li> </ul>
EVT Workshop (non-greasy waste)	Coalescing plate separator	Sewer pumping station or stormwater swale (both via plate separator)  <i>Verified on site by direction of tank inlet/outlet and observing flow.</i>	<ul style="list-style-type: none"> <li>■ Mechanical grease &amp; lubricant</li> <li>■ Detergent</li> <li>■ Residual AFFF (PFAS &amp; surfactant)</li> </ul>
EVT Workshop (greasy waste)	Containment in greasy waste collection tank	By third party collection  <i>Discussed with EVT.</i>	<ul style="list-style-type: none"> <li>■ Mechanical grease &amp; lubricant</li> <li>■ Rags and greasy solids</li> <li>■ Degreasing chemicals</li> </ul>

Source	Treatment	Discharge	Expected Contaminants
Smoke hut	Evaporation pond or coalescing plate separator	To evaporation pond, normally allowed to evaporate. Can either discharge to stormwater swale, swale via coalescing plate separator or sewer via coalescing plate separator  <i>Inlets / outlets observed on site, inlet/outlet flow observed on site</i>	<ul style="list-style-type: none"> <li>■ Legacy PFAS</li> <li>■ Soot and charcoal</li> <li>■ DCP</li> </ul>
Hand extinguisher training area	None	Concrete runoff to surrounding area (sump drains are blanked off)	<ul style="list-style-type: none"> <li>■ Legacy PFAS</li> <li>■ DCP and ARFF from extinguishers</li> </ul>
Rainfall into evaporation pond	None or coalescing plate separator	Normally allowed to evaporate. Can either discharge to stormwater swale, swale via coalescing plate separator or sewer via coalescing plate separator  <i>Inlets / outlets observed on site and signposted</i>	<ul style="list-style-type: none"> <li>■ Legacy PFAS</li> <li>■ Sand and silt</li> </ul>
Hose drying rack	None	Sewer pumping station  <i>Inlets / outlets observed on site</i>	<ul style="list-style-type: none"> <li>■ Residual AFFF</li> </ul>



### 3 Trade Waste Discharge Investigation

The purpose of the investigation was to identify where potentially contaminated waters are discharged at the Darwin ARFF facilities, and for trade waste streams, sample and test the water to understand the contaminants entering sewer or the environment.

Samples were collected as detailed in the sampling plan, provided in Appendix C, with the exception of the mechanical workshop trade waste. Refer to Section 3.2 for the description of the revised sample collection.

For sources which discharge to sewer, wastewater sample test results were compared to the acceptance guidelines in PowerWater's *Trade Waste Code, 2017*, noting that there may be specific limits detailed in a future DIA trade waste agreement.

For discharge to stormwater, discharge limits provided in the Airports (Environment Protection) Regulations 1997 have been referenced.

The Northern Territory currently does not have prescribed limits for PFAS discharge to the environment. For reference, the draft ANZECC investigation levels for 95% species protection – slightly to moderately disturbed systems, referenced in the Draft Commonwealth Environmental Management Guidance on Perfluorooctane Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA), October 2016 have also been considered.

For discharges to the airport stormwater system, which discharges to Rapid Creek, Freshwater (F) investigation levels have been used, as the discharge occurs downstream of a flood control weir, and upstream of a V-notch weir which is considered the boundary of the saline environment. Discharges via sewer have been considered Marine (M) discharges, as the PowerWater treatment plant at Ludmilla discharges via the East Point Outfall.

PowerWater have published advice to the public on PFAS ([www.powerwater.com.au](http://www.powerwater.com.au)), where they have adopted the NSW EPA contamination thresholds for PFAS in surface waters. Testing in January 2017 of sewage treatment plant influent and effluent detected average PFOS, PFHxS and PFOA at levels below the Trigger Point 3 threshold at all PowerWater plants. While we do not have sufficient information to do a complete review, the reported results suggest that current discharges from Darwin Airport are not resulting in PFAS levels above the adopted trigger points.

Table 2 – Average PFAS results and Ludmilla wastewater treatment plant and individual PFAS trigger points referenced by PowerWater

Parameter	PFOS (µg/L)	PFHxS (µg/L)	PFOA (µg/L)
Ludmilla influent (average)	0.010	0.005	0.016
Ludmilla effluent (average)	0.0044	0.0016	0.0012
Trigger Point 1 – Elevated Contamination	10		
Trigger Point 2 – Current screening guideline	0.1		
Trigger Point 3 – Low level of contamination	0.05		
Trigger Point 4 – Limits to analytical methodologies	0.01		



### 3.1 Hot Fire Training Ground

#### 3.1.1 SP1: Wastewater & contaminated stormwater (dry season)

During the dry season, training wastewater and stormwater runoff from the hot fire training ground is retained on the pad to evaporate. Any residual that hasn't evaporated before the next training event can be drained from the Large Mock-up Unit (LMU) pad (Figure 1) via a set of diversion valves (Figure 2) and collected in a pit. From the pit, the wastewater is processed through a coalescing plate separator and collected in a second effluent pit. The treated wastewater is periodically pumped into IBCs on the back of a truck and transported to the ARFF station for release to sewer by emptying the IBCs into the drainage sump of the wash bay. This means the training wastewater also passes through the wash bay interceptor and the sewer pumping station.



Figure 1 - LMU and drainage sump

Figure 2 – LMU pad diversion valves

Figure 3 - HFTG wastewater sample

A grab sample (Figure 3) was collected from the effluent pit and tested for a range of analytes which are detailed in Appendix D. The range of analytes represent those which have been identified in annual sampling of Airservices wastewater as being typically present in notable concentrations. Table 3 provides a summary of the key constituents compared with the relevant acceptance guidelines.

Table 3 - HFTG wastewater sample results

Analyte grouping / Analyte	Units	LOR	Sample result	PowerWater Limit
pH Value	pH Unit	0.01	8.57	6-10
Suspended Solids (SS)	mg/L	5	<5	600
Oil & Grease	mg/L	5	<5	200
Anionic Surfactants as MBAS	mg/L	0.1	0.6	
Total Petroleum Hydrocarbons : C6 - C9 Fraction	µg/L	20	<20	1,000
Total Petroleum Hydrocarbons : C10 - C36 Fraction	µg/L	50	320	30,000
Sum of BTEX	µg/L	1	<1	1,000 (B)
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.02	16.7	
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	86.2	7.8 (ANZECC - M)
Perfluorooctanoic acid (PFOA)	µg/L	0.01	64.2	8,500 (ANZECC - M)
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	2.58	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	31.5	
Sum of PFAS	µg/L	0.01	343	
Sum of PFHxS and PFOS	µg/L	0.01	103	

All constituents tested were within the PowerWater acceptance limits, while PFAS levels, specifically PFOS, were an order of magnitude above the reference values. PFAS reported in high levels relative to other Airservices sites. This was to be expected, given that Airservices carry and use Ansulite AFFF for operations as well as differing historical use of other AFFF products under Defence requirements.

### 3.1.2 SP2: Stormwater (simulated - wet season)

During wet season, training is conducted infrequently, if at all. Generally, at the start of the season, ARFF crews will flush the pad with water from a fire truck to be treated, collected and discharge in the same manner as dry season wastewater. After this flush, the LMU pad diversion valves will be set to drain to stormwater and left in position for the season. The stormwater valve opens to a depressed area enclosed by the LMU and airside road (Figure 4). The discharge was observed to pool in the roadside swale (Figure 5) and there was no evidence of a direct drainage line to any open waterway.



Figure 4 – HFTG Stormwater diversion outlet



Figure 5 – HFTG Stormwater discharge

A grab sample was generated and collected as described in the Sampling Plan provided in Appendix C. The results from the sample are provided below.

Table 4 - HFTG Stormwater Results

Analyte grouping / Analyte	Units	LOR	Sample Result	Airports Regulations Limit
pH Value	pH Unit	0.01	8.83	6.5-9.0
Suspended Solids (SS)	mg/L	5	42	
Oil & Grease	mg/L	5	<5	
Anionic Surfactants as MBAS	mg/L	0.1	<0.1	0.05 (96hr)
Total Petroleum Hydrocarbons : C6 - C9 Fraction	µg/L	20	<20	150
Total Petroleum Hydrocarbons : C10 - C36 Fraction	µg/L	50	650	600

Analyte grouping / Analyte	Units	LOR	Sample Result	Airports Regulations Limit
Sum of BTEX	µg/L	1	<1	140 (E) - 300 (B,T)
Naphthalene	µg/L	5	<5	
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.02	0.15	
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	1.31	0.13 (ANZECC - F)
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.1	220 (ANZECC - F)
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	0.77	
Sum of PFAS	µg/L	0.01	2.97	
Sum of PFHxS and PFOS	µg/L	0.01	1.46	

The sample contained Total Petroleum Hydrocarbons in concentrations (650µg/L) above acceptable discharge limits (600 µg/L). The method used to create a simulated discharge was performed in a short timeframe, where the hydrocarbons would probably normally be allowed to drain from the pad for a longer time before switching the discharge.

It is therefore possible that the hydrocarbons were over-represented in the sample. However, it is a key contaminant that is expected to be present and so the risk would suggest some form of controls or verification would be useful as a mitigation. This could be achieved by collecting and testing a verification sample after flushing the pad, prior to switching the LMU pad drain valves to stormwater for the wet season.

PFOS (1.31 µg/L) was also measured in the sample above the referenced limit (0.13 µg/L). Assessment of the effect of this discharge on the environment, and the division of responsibilities to deal with the risks are outside the scope of this study. It is understood that the Department of Defence are conducting a site investigation for the RAAF base which will include the civilian airport facilities, which will provide more a more detailed understanding of in-ground presence of PFAS and risks to receptors around the site.

## 3.2 ARFF Station

### 3.2.1 SP3: Wash bay

The wash bay consists of a covered, graded area where vehicles are stationed for washing (Figure 6). The graded slab drains to a sump, from which the wastewater passes through an in-ground interceptor (Figure 7) before entering the trade waste pumping station, which is pumped to sewer. This flow path was presented on the existing drainage plan and confirmed on site by observing flow out of the interceptor and discharge entering the sewer pit.

According to ARFF, wastewater collected in IBCs from the HFTG separator effluent pit is also discharged to sewer via the wash bay sump. Training wastewater containing AFFF foam would be problematic in that it would discharge PFAS to the sewer and contaminate the sewerage equipment, and also emulsify hydrocarbons, oils or grease and may impede the performance of the interceptor.





Figure 6 – Wash bay and drainage sump



Figure 7 – Interceptor

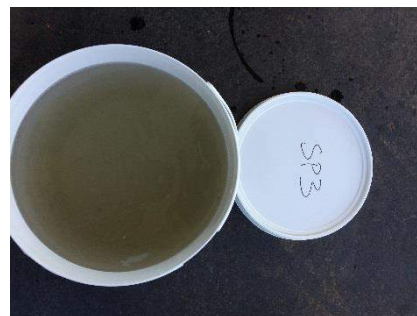


Figure 8 – Washbay wastewater sample

A grab sample was generated and collected as described in the Sampling Plan provided in Appendix C. The results from the sample are provided below.

Table 5 - ARFF Station Wash Bay sample results

Analyte grouping / Analyte	Units	LOR	Sample result	PowerWater Limit
pH Value	pH Unit	0.01	7.25	6-10
Suspended Solids (SS)	mg/L	5	18	600
Oil & Grease	mg/L	5	<5	200
Anionic Surfactants as MBAS	mg/L	0.1	37.5	
Total Petroleum Hydrocarbons : C6 - C9 Fraction	µg/L	20	<20	1,000
Total Petroleum Hydrocarbons : C10 - C36 Fraction	µg/L	50	<50	30,000
Sum of BTEX	µg/L	1	<1	1,000 (B)
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.02	<0.02	
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.22	7.8 (ANZECC – M)
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.03	8,500 (ANZECC – M)
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	0.35	
Sum of PFAS	µg/L	0.01	0.65	
Sum of PFHxS and PFOS	µg/L	0.01	0.22	

All constituents tested returned concentrations within acceptance and guideline limits. PFAS levels were notable, but below the adopted guideline limits.

### 3.2.2 SP4: Mechanical workshop

The trade waste pit at the EVT workshop receives wash water and floor drainage from EVT activities. The pit contains a submersible pump which discharges to the sump that feeds the separator located at the north-east corner of the fire station (that also receives drainage from the evaporation pond). It was noted during the inspection that there is a dedicated greasy waste disposal unit at the workshop.

A sample was collected from the EVT workshop pit and was observed to be laden with concrete silt and an emulsified oily substance that resembled paint (Figure 9). In discussion with the EVT manager, there had

been construction work completed to re-paint parts of the workshop and make good some of the surfaces. It was decided that the sample would not be representative of normal activity and would be unlikely to be able to be processed by the laboratory.

A sample was collected from the separator outlet in lieu of the EVT workshop pit as a more representative sample of normal wastewater transferred from the EVT workshop and discharged to sewer. The pit contents were observed to contain some of the grey paint that would have been transferred from the workshop (Figure 10).

Following the sampling event, the responsible Airservices Facilities Manager (Daniel Shannon) was notified and took action to arrange for the tanks to be pumped out and cleaned by third party.



Figure 9 - EVT workshop collection tank sample (not tested)



Figure 10 – Separator feed pit



Figure 11 – Washbay wastewater sample

A grab sample was generated by starting the separator feed pump and allowing 5 minutes' run time to turn over the separator contents. The sample was collected at the separator outlet. The results from the sample are provided below.

Table 6 - Separator Feed Pit sampling results

Analyte grouping / Analyte	Units	LOR	Sample result	PowerWater Limit
pH Value	pH Unit	0.01	7.46	6-10
Suspended Solids (SS)	mg/L	5	184	600
Oil & Grease	mg/L	5	435	200
Anionic Surfactants as MBAS	mg/L	0.1	77.7	
Total Petroleum Hydrocarbons : C6 - C9 Fraction	µg/L	20	<20	1,000
Total Petroleum Hydrocarbons : C10 - C36 Fraction	µg/L	50	107,000	30,000
Sum of BTEX	µg/L	1	<1	1,000 (B)
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.02	4.46	
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	15.3	7.8 (ANZECC – M)
Perfluorooctanoic acid (PFOA)	µg/L	0.01	4.75	8,500 (ANZECC – M)
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	2.56	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	4.86	
Sum of PFAS	µg/L	0.01	50.5	
Sum of PFHxS and PFOS	µg/L	0.01	19.8	

Of the constituents tested, oil, grease and hydrocarbons were measured in levels in excess of the guideline limits. PFOS was also measured above the adopted guideline.

It is likely that the collected paint has contributed to or emulsified existing oils and grease in the EVT workshop pit that might have accumulated over time and would not have otherwise been pumped to the separator pit, as it would remain as a floating layer in the EVT workshop pit. The action taken to clean out the pits may reduce these constituents in future discharges.

The PFOS and other PFAS observed is likely from legacy contamination of the pits and other internal surfaces leeching into accumulated wastewater, and/or from mechanical parts washed in the workshop that have contacted operational AFFF. It was observed that the separator was almost empty, and the feed pit was at a low level, suggesting that the pit water had been stagnant for an extended period. This would likely have contributed to the high PFAS levels, while also suggests that this water had not been discharged to sewer. It can be concluded that since the pit would only fill at extended intervals, if and when it does, the PFAS concentration would be elevated compared to if the pit was more frequently turned over.

### 3.2.3 SP5: Sewer Pumping Station

The Sewer Pumping Station receives all trade waste discharges generated at the ARFF station and from the HFTG, with the exception of:

- Greasy waste from the EVT workshop, which is collected in a greasy waste drum for third party removal
- Stormwater from the HFTG during the wet season, which is released to local swale
- Discharge and stormwater from the Smoke Hut, which is allowed to evaporate from the pond



Figure 12 - Sewer pumping station



Figure 13 - Internals of the sewer pumping station

A grab sample was collected as described in the Sampling Plan provided in Appendix C. The results from the sample are provided below.

Table 7 - ARFF Station sewer pumping station sample results

Analyte grouping / Analyte	Units	LOR	Sample result	PowerWater Limit
pH Value	pH Unit	0.01	7.83	6-10
Suspended Solids (SS)	mg/L	5	46	600
Oil & Grease	mg/L	5	9	200
Anionic Surfactants as MBAS	mg/L	0.1	12.6	
Total Petroleum Hydrocarbons : C6 - C9 Fraction	µg/L	20	<20	1,000
Total Petroleum Hydrocarbons : C10 - C36 Fraction	µg/L	50	1,620	30,000
Sum of BTEX	µg/L	1	<1	1,000 (B)
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.02	<0.02	
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.14	7.8 (ANZECC – M)
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.02	8,500 (ANZECC – M)
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	0.22	
Sum of PFAS	µg/L	0.01	0.45	
Sum of PFHxS and PFOS	µg/L	0.01	0.14	

All constituents tested returned concentrations within the adopted acceptance limits. PFAS levels were notable, but below the adopted guideline limits. According to the duty command, training had not occurred recently at the time of sampling (within weeks of the sampling event). Therefore it is unlikely that the pit contained a significant amount of trade waste from the HFTG or the EVT workshop (as per the observations in 3.2.2) and probably contained mainly truck wash water.

This result, in addition to the sample results from other contributing sources, suggests that:

- When being discharged to sewer, the more contaminated trade waste streams (from the EVT workshop/separator or the HFTG) present a short-term risk of discharge of PFAS and oil, grease and hydrocarbons to sewer
- The streams do not appear to have a significant lasting effect on the trade waste discharged at other times – eg residual PFAS that results in levels above the adopted guideline limits.

## 4 ARFF Station Stormwater Discharge

As part of the study, it was investigated whether there were any major stormwater discharges to sewer. A review of drainage inlets and outlets was performed at the ARFF station (refer to Section 3.1 for discussion of the HFTG stormwater).

Stormwater runoff will be generated by rainfall landing on the locations summarised in Table 8 and also shown in Appendix A. The discharge locations are listed, based on site observations, including flow confirmation when hosing down pavements. Other areas which drain to trade waste, such as the wash down bay and the separator bund, are enclosed.



Based on these observations, it was concluded that there are two potential discharges of stormwater to sewer:





- The evaporation pond (including smoke hut drainage), which can discharge to sewer or stormwater
- The foam storage bund, which discharges by manual valve via the wash down bay.


These discharges should only be rare, as they are normally closed outlets which only drain by manual opening of valves. The evaporation pond could be considered to always be contaminated, so is best diverted to sewer over stormwater. The foam bund capture area is relatively small and could be easily redirected if the airport / sewer authority required.

Table 8 - Stormwater sources and discharges

Source	Discharge	Images
Uncovered paved surfaces at the ARFF station	Drains via gutters & letterbox drains to a common trench, which discharges to the airport stormwater channel	 <p>Figure 14 - Stormwater trench to the east of the ARFF Station</p>  <p>Figure 15 - Stormwater trench discharge to airport canal</p>
Building roofs, which typically drain to ground via downpipes	Generally discharge to ground and follows the drainage of paved surfaces	



Source	Discharge	Images
Foam concentrate tank bund	Manual valve from bund wall discharges to sewer via wash bay.	
Extinguisher fire training area	Nib wall containment. Sump is blocked so apron evaporates or overflows	 <p>Figure 16 - Extinguisher fire training area</p>
Smoke hut	Collected in sumps which drain to the evaporation pond	 <p>Figure 17 - Smoke hut</p>
Evaporation pond.	Normally left closed and allowed to evaporate. Can be discharged to sewer or stormwater. Stormwater discharge point in nearby grass swale	 <p>Figure 18 - Swale area north of the evaporation pond</p>

Source	Discharge	Images
		 <p>Figure 19 - Evaporation pond stormwater outlet</p>

Appendix A

## Site Aerial Photo Markups







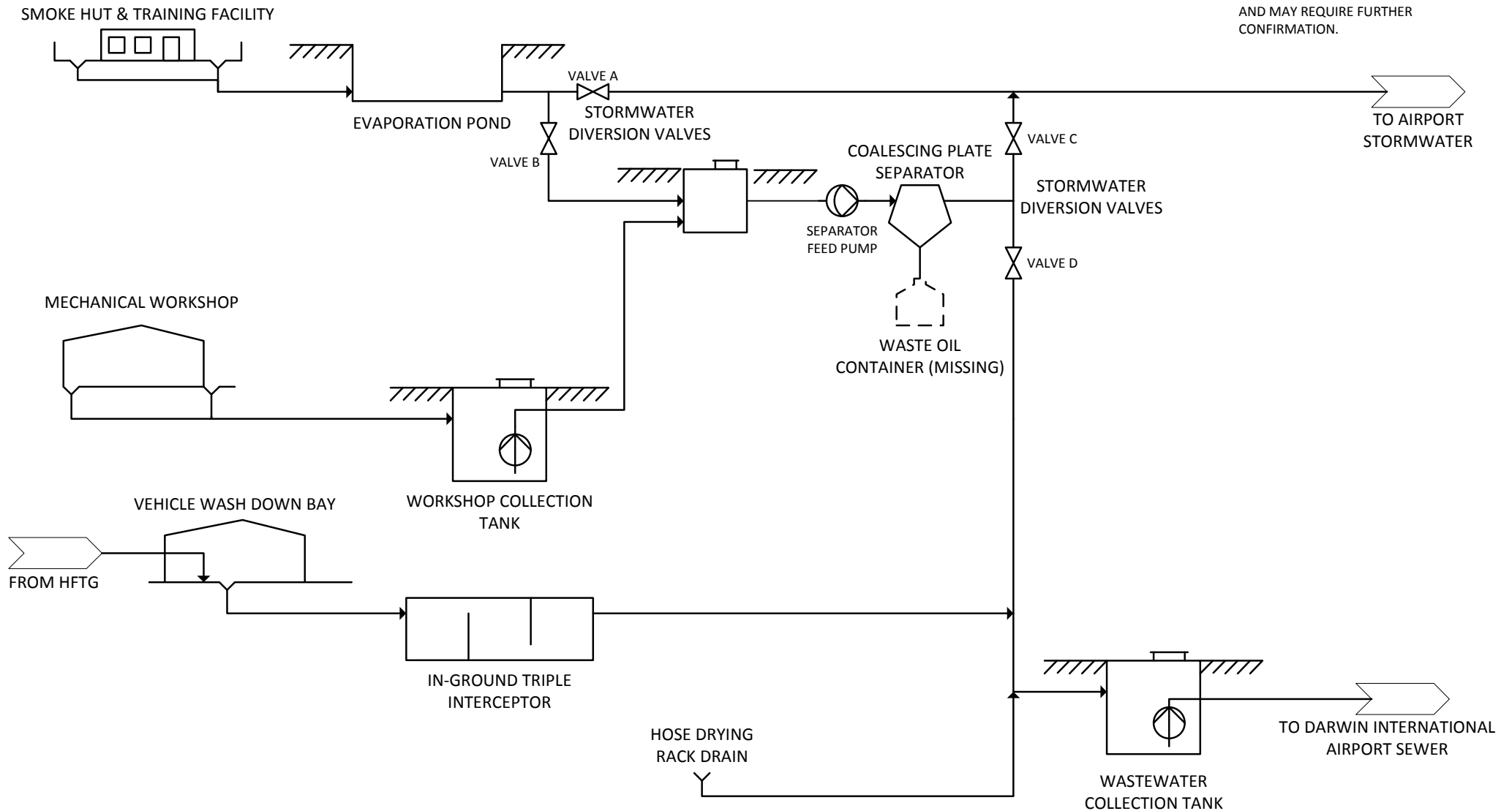


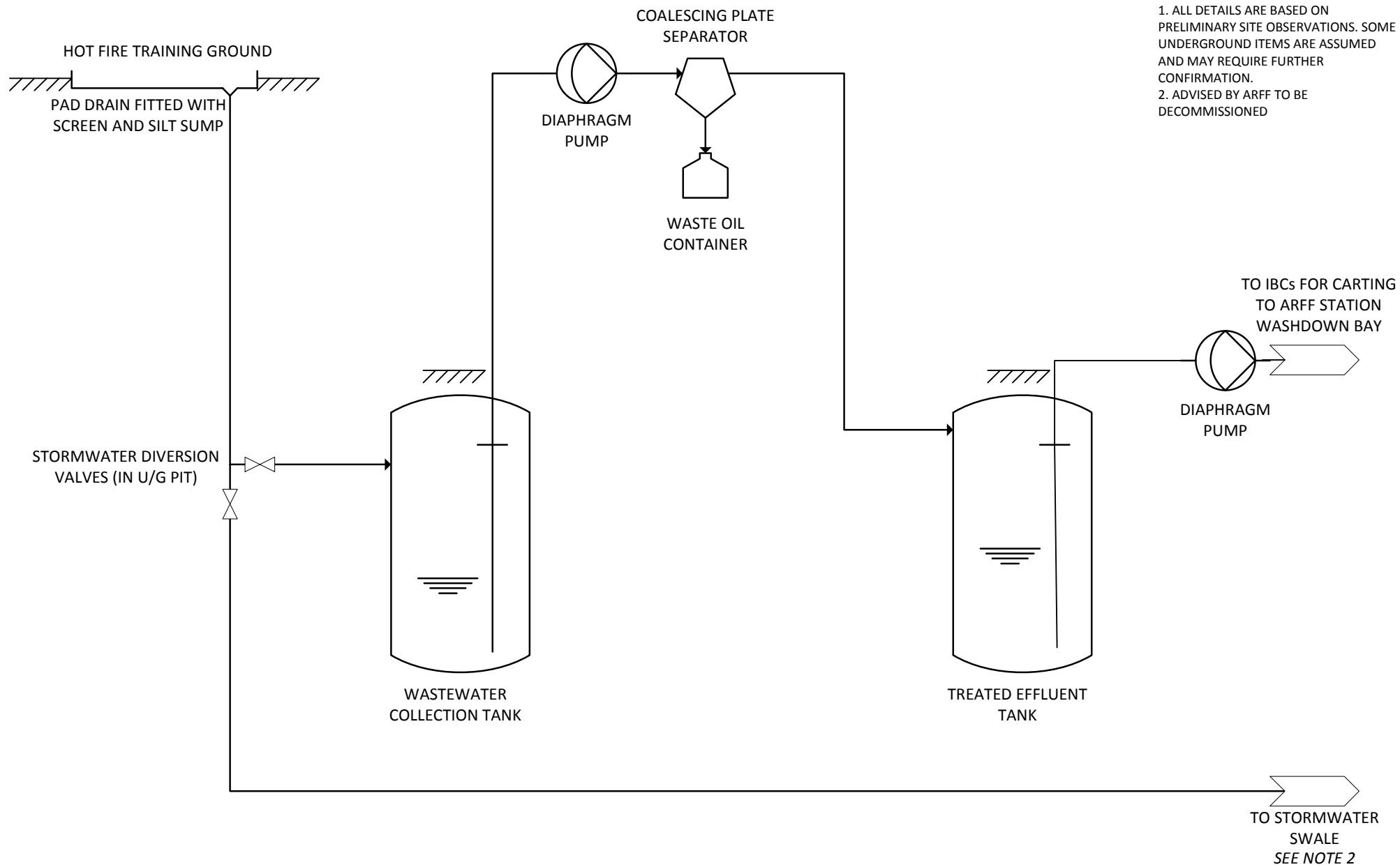


Appendix B

## Trade Waste Schematics

NOTES:  
1. ALL DETAILS ARE BASED ON  
PRELIMINARY SITE OBSERVATIONS. SOME  
UNDERGROUND ITEMS ARE ASSUMED  
AND MAY REQUIRE FURTHER  
CONFIRMATION.





- NOTES:
1. ALL DETAILS ARE BASED ON PRELIMINARY SITE OBSERVATIONS. SOME UNDERGROUND ITEMS ARE ASSUMED AND MAY REQUIRE FURTHER CONFIRMATION.
  2. ADVISED BY ARFF TO BE DECOMMISSIONED



Appendix C

## Site Sampling Plan

## File Note

**By:** [REDACTED] **Date:** 23 August 2017  
**Subject:** 2017 Darwin Sampling Plan **Our Ref:** 3514722  
**Distribution** [REDACTED]  
[REDACTED]

## 1 Background

Airservices has identified a need to better understand the constituents in each of the various trade waste discharges at Darwin Airport. Sample points, approach and support requirements were discussed on 18 August 2017 between [REDACTED], [REDACTED] and [REDACTED] (Airservices) and [REDACTED] (Beca). This document is provided to outline the discussed approach and identify where Beca need support to carry out the sampling effectively.

## 2 Actions

Ref	Action	Who	By When
1.	Confirm when local plumber is available to assist with pit lid removals on a day between 29 Aug and 31 Aug inclusive (estimated 2-3hr site presence)	[REDACTED]	25/08/2017
2.	Find site diagrams and/or drainage plans and distribute to all in discussion	[REDACTED]	28/08/2017
3.	Provide comment on/acceptance of sampling plan (this document)	All	28/08/2017
4.	Brief duty ARFF crew on activities and ARFF support required	[REDACTED]	28/08/2017
5.	Prepare normal sampling trip requirements (travel, lab equipment, safety review)	[REDACTED]	28/08/2017

## 3 Sampling Plan

The table below summarises the discharge points, whether there is a need for sampling, the proposed method, and what assistance is required. Refer to Appendix A for the locations marked on a process schematic of the trade waste system.




Sample Point	Description	Sampling procedure	Other activities in area to be performed	ARFF Assistance required
SP1	Fire training ground wastewater post-separator	<ul style="list-style-type: none"> <li>Manual lift of treated effluent tank hatch</li> <li>Obtain grab sample from pit contents</li> </ul>	<ul style="list-style-type: none"> <li>Inspect &amp; photograph condition of wastewater equipment: pumps, valves, separator</li> </ul>	<ul style="list-style-type: none"> <li>Ensure there is some wastewater in effluent pit</li> <li>Transport to the HFTG</li> <li>Key to access separator cage and pump shed</li> <li>Crew person to remain at HFTG during sampling and inspection (est 30 min)</li> </ul>
SP2	Fire training ground stormwater runoff. ARFF allow the HFTG to drain to stormwater during the wet season	<ul style="list-style-type: none"> <li>Identify end of pipe – past inspections suggest it is close to the diversion valve</li> <li>ARFF crew to empty ¼ tank of clean firewater to wash down LMU and pad on semi-diffuse spray</li> <li>Allow pad to drain to wastewater collection pit</li> <li>Switch diversion valves to direct to stormwater outlet</li> <li>Spray LMU and pad with another ¼ tank of clean fire water</li> <li>Allow initial flush of debris, then collect 5 x 1 litre grab samples at the outlet over a 5 min period to form a 5L composite sample</li> </ul>	<ul style="list-style-type: none"> <li>Inspect &amp; photograph stormwater outlet swale and extend of surface flow</li> </ul>	<ul style="list-style-type: none"> <li>Make fire truck available with minimum ½ water tank full to spray LMU (est maximum 30 min duration)</li> </ul>
SP3	Wash bay interceptor	<ul style="list-style-type: none"> <li>Have the plumber lift the triple interceptor pit lids</li> <li>Perform a truck wash in the wash bay area</li> <li>Collect 5 x 1L grab samples, 2min apart from the interceptor outlet chamber to</li> </ul>	<ul style="list-style-type: none"> <li>Inspect chamber condition and check for settled sludge</li> </ul>	<ul style="list-style-type: none"> <li>Plumber to lift interceptor lids</li> <li>Conduct a truck wash event</li> <li>Avoid performing a drill ground waste water transfer</li> </ul>

## File Note

		achieve a 5L composite sample over 10min of truck washing time ■ Plumber to close the pit lids		during the week preceding the sampling event
SP4	Mechanical workshop drainage pit	■ Have the plumber lift the pit lid ■ Collect grab sample from pit contents	■ Inspect pit and pump condition and check for settled sludge ■ Discuss trade waste arrangements with EVT technician for the workshop <ul style="list-style-type: none"> <li>– Oily waste handling</li> <li>– Trade waste equipment maintenance</li> </ul>	■ Plumber to lift pit lid ■ Make EVT technician available for discussion
SP5	Sewer pumping station	■ Have the plumber lift the pit lid ■ Collect grab sample from pit contents	■ Inspect pit and pump condition and check for settled sludge	■ Plumber to lift pit lid

## Plumber assistance required

In proposed order of sampling.

Pit description	Photo
<p>Mech workshop tank</p> <ul style="list-style-type: none"><li>■ Concrete square lid</li><li>■ Eye-style lifting lug</li><li>■ Open then close lid after sample taken</li><li>■ Approx. 10 min required to take sample</li></ul>	
<p>Sewer pumping station</p> <ul style="list-style-type: none"><li>■ Concrete rectangular lid</li><li>■ Gatic- style lifting lugs</li><li>■ Open then close lid after sample taken</li><li>■ Approx. 10 min required to take sample</li></ul>	
<p>Wash bay triple interceptor</p> <ul style="list-style-type: none"><li>■ Concrete rectangular lids (x 3)</li><li>■ Gatic- style lifting lugs</li><li>■ Open then close lids after inspection and sample taken</li><li>■ Approx. 15 min required to take sample</li></ul>	



Appendix D

## Laboratory Certificate of Analysis

## CERTIFICATE OF ANALYSIS

**Work Order** : **ES1721699**  
**Client** : **BECA P/L**  
**Contact** : [REDACTED]  
**Address** : LEVEL 11 - 44 MARKET STREET  
                   SYDNEY NSW 2000  
**Telephone** : +61 03 92721400  
**Project** : 3514722 TWA MGMT  
**Order number** : 3514722-DW-2017  
**C-O-C number** : ----  
**Sampler** : [REDACTED]  
**Site** : ----  
**Quote number** : SY/695/16  
**No. of samples received** : 6  
**No. of samples analysed** : 6

**Page** : 1 of 7  
**Laboratory** : Environmental Division Sydney  
**Contact** : Customer Services ES  
**Address** : 277-289 Woodpark Road Smithfield NSW Australia 2164  
  
**Telephone** : +61-2-8784 8555  
**Date Samples Received** : 31-Aug-2017 09:00  
**Date Analysis Commenced** : 31-Aug-2017  
**Issue Date** : 07-Sep-2017 13:38



Accreditation No. 825  
 Accredited for compliance with  
 ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

### Signatories

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

Signatories	Position	Accreditation Category
<span style="background-color: black; color: black;">[REDACTED]</span>	Organic Chemist	Sydney Organics, Smithfield, NSW
<span style="background-color: black; color: black;">[REDACTED]</span>	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
<span style="background-color: black; color: black;">[REDACTED]</span>	Organic Coordinator	Sydney Organics, Smithfield, NSW



## General Comments

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

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

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

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

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

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

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

- EP050: The MBAS reported is calculated as LAS, mol wt \_\_\_\_342\_\_\_\_.



Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	DW-SP1	DW-SP2	DW-SP3	DW-SP4	DW-SP5
Client sampling date / time				30-Aug-2017 11:00	30-Aug-2017 12:30	30-Aug-2017 09:30	30-Aug-2017 09:45	30-Aug-2017 10:00	
Compound	CAS Number	LOR	Unit	ES1721699-001	ES1721699-002	ES1721699-003	ES1721699-004	ES1721699-005	
				Result	Result	Result	Result	Result	
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit	8.57	8.83	7.25	7.46	7.83	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	<5	42	18	184	46	
EP020: Oil and Grease (O&G)									
Oil & Grease	----	5	mg/L	<5	<5	<5	435	9	
EP050: Anionic Surfactants as MBAS									
Anionic Surfactants as MBAS	----	0.1	mg/L	0.6	<0.1	37.5	77.7	12.6	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20	
C10 - C14 Fraction	----	50	µg/L	<50	230	<50	1480	90	
C15 - C28 Fraction	----	100	µg/L	320	420	<100	74300	800	
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	31700	730	
^ C10 - C36 Fraction (sum)	----	50	µg/L	320	650	<50	107000	1620	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20	
>C10 - C16 Fraction	----	100	µg/L	<100	310	<100	2960	100	
>C16 - C34 Fraction	----	100	µg/L	280	310	<100	102000	1450	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	3050	<100	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	280	620	<100	108000	1550	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	310	<100	2960	100	
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1	
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2	
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2	
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2	
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2	
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1	
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5	
EP231A: Perfluoroalkyl Sulfonic Acids									



## Analytical Results

Sub-Matrix: **WATER**  
 (Matrix: **WATER**)

Client sample ID

				DW-SP1	DW-SP2	DW-SP3	DW-SP4	DW-SP5
Client sampling date / time				30-Aug-2017 11:00	30-Aug-2017 12:30	30-Aug-2017 09:30	30-Aug-2017 09:45	30-Aug-2017 10:00
Compound	CAS Number	LOR	Unit	ES1721699-001	ES1721699-002	ES1721699-003	ES1721699-004	ES1721699-005
				Result	Result	Result	Result	Result
<b>EP231A: Perfluoroalkyl Sulfonic Acids - Continued</b>								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	1.74	0.04	<0.02	0.91	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	3.19	0.03	<0.02	0.76	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	16.7	0.15	<0.02	4.46	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	3.98	<0.02	<0.02	0.35	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	86.2	1.31	0.22	15.3	0.14
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	0.16	<0.02	<0.02	<0.02	<0.02
<b>EP231B: Perfluoroalkyl Carboxylic Acids</b>								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	8.5	<0.1	<0.1	1.4	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	14.9	<0.02	<0.02	1.61	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	32.1	0.17	0.03	4.77	0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	32.5	0.05	<0.02	3.32	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	64.2	0.10	0.03	4.75	0.02
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	36.0	0.05	<0.02	2.28	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	7.88	0.12	0.02	1.57	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	0.11	0.08	<0.02	0.82	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.04	<0.02	0.34	<0.02
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	<0.02	0.14	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.06	<0.05	0.08	0.05
<b>EP231C: Perfluoroalkyl Sulfonamides</b>								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	0.44	<0.02	<0.02	0.18	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05



## Analytical Results

Sub-Matrix: WATER  
 (Matrix: WATER)

Client sample ID

				DW-SP1	DW-SP2	DW-SP3	DW-SP4	DW-SP5
Client sampling date / time				30-Aug-2017 11:00	30-Aug-2017 12:30	30-Aug-2017 09:30	30-Aug-2017 09:45	30-Aug-2017 10:00
Compound	CAS Number	LOR	Unit	ES1721699-001	ES1721699-002	ES1721699-003	ES1721699-004	ES1721699-005
				Result	Result	Result	Result	Result
<b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	2448-09-7	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
<b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	2.58	<0.05	<0.05	2.56	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	31.5	0.77	0.35	4.86	0.22
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	0.08	<0.05
<b>EP231P: PFAS Sums</b>								
Sum of PFAS	----	0.01	µg/L	343	2.97	0.65	50.5	0.45
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	103	1.46	0.22	19.8	0.14
Sum of PFAS (WA DER List)	----	0.01	µg/L	291	2.59	0.63	43.9	0.40
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	2	%	103	97.4	111	106	109
Toluene-D8	2037-26-5	2	%	109	103	123	119	119
4-Bromofluorobenzene	460-00-4	2	%	104	101	116	114	115
<b>EP231S: PFAS Surrogate</b>								
13C4-PFOS	----	0.02	%	105	107	106	105	106



## Analytical Results

Sub-Matrix: <b>WATER</b> (Matrix: <b>WATER</b> )				Client sample ID	DW-SP6	----	----	----	----
Client sampling date / time					30-Aug-2017 12:50	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1721699-006	-----	-----	-----	-----
				Result	----	----	----	----	----
<b>EP231A: Perfluoroalkyl Sulfonic Acids</b>									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		<0.002	----	----	----	----
<b>EP231B: Perfluoroalkyl Carboxylic Acids</b>									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		<0.002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		<b>0.002</b>	----	----	----	----
<b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		<0.005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<b>0.048</b>	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	----	----	----	----
<b>EP231P: PFAS Sums</b>									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		<0.002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		<b>0.050</b>	----	----	----	----
<b>EP231S: PFAS Surrogate</b>									
13C4-PFOS	----	0.002	%		<b>81.7</b>	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: **WATER**

		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
<b>1,2-Dichloroethane-D4</b>	17060-07-0	71	137
<b>Toluene-D8</b>	2037-26-5	79	131
<b>4-Bromofluorobenzene</b>	460-00-4	70	128
<b>EP231S: PFAS Surrogate</b>			
<b>13C4-PFOS</b>	----	60	130

Appendix D

## Site Drainage Plan



## **APPENDIX 10**

### **Airservices CIRRIS Incidence Reports on the Use of Foam**



Table 16 CIRRIS incident reports summary

\* events with water were not included

\*\* CIRRIS Events provided on request by [REDACTED] and corresponded with the same events provided by [REDACTED].

Number	Date of incident	Reported by	Specific Location	Summary of event	Summary of immediate actions	Summary of actions to prevent reoccurrence	Additional case notes	Waste Certificate provided. Y/N
OCC-0007491	27.02.2018	[REDACTED]	Next to station, off taxiway Zulu	Daily vehicle pump test conducted on Tender 3. The foam hose and reel switch was confirmed off multiple times between LLFF [REDACTED] the driver and operator LFF [REDACTED]. I as the operator LFF [REDACTED] discharged the hose reel that immediately produced a small amount of foam. Approximately held down for one second. After notifying the FSM, FC and SO the procedures were followed to contain and clean up the foam. Tender 3 was taken to the pad and tested through all the outlets. No further foam was produced. EVT [REDACTED] was convinced that the foam was residual foam from a previous discharge and T3 was put back online as operational.	Notified FSM, FC and SO. Procedures followed after foam had been produced.	This appeared to be foam left in hose reel from accidental foam release from previous day. Staff followed correct testing procedures and only a small amount of diluted foam was released (approximately 1L.). Staff followed correct clean up procedures and vehicle was taken to the LMU pad for flushing. EVT was notified and assisted with the flushing of the vehicle. EVT checked vehicle and advised it appeared to be residual let over from last accidental discharge. FC [REDACTED] notified [REDACTED] Environmental Specialists, ARFFS and [REDACTED] Environmental Officer DIA of discharge and actions. Emails have been sent (See below attachments) to Fire Commander to provide lessons to all staff on correct pump test procedures and foam flushing procedures. LI's to be updated on correct procedures. Reiterate to staff when doing flushing to ensure a full flush is completed	[REDACTED] and myself have discussed with CFO [REDACTED] regarding Townsville and Darwin being exempt from the vehicle having to have the foam switch in the on position. In the past the vehicle used to have the foam switch in the off position and be turned on when required. It is currently kept in the on position and is required to be turned off when testing the vehicles.	
OCC-0007479	23.02.2018	[REDACTED]	Side road eastern side of fire station	Whilst conducting the daily inspection foam was produced during the pump test. The pump test was not conducted as stated in AFFFFM- Mk8, which resulted in larger area of contamination.	Contained the spill with soaker pads and bunding to prevent the spill from entering the drains. Dirt was also used for bunding. Vehicle was washed out at the LMU. Kitty litter was used to soak up the last of the foam. Kitty litter put in a container at rear of station. All water was stopped before entering drain. The waste water from the LMU will be drained in to the tanks and disposed of to a licensed contractor.	Discussed correct procedure for conducting vehicle pump checks with crew. Discuss with staff requirements for reporting to officers any incidents that will or may have the potential to impact the environment.	The site is already legacy PFAS impacted and the spill is unlikely to result in significant impact. However, continued spills continue to add to the cumulative impact of PFAS leaching from impacted sites around the airfield. The ESA weekly review panel decided on 27.2.2018. This occurrence was reviewed to determine if the investigation commencement criteria were applicable. The panel conclusion was no. pending the exercise of	Waste water removed 26.02.2018

Number	Date of incident	Reported by	Specific Location	Summary of event	Summary of immediate actions	Summary of actions to prevent reoccurrence	Additional case notes	Waste Certificate provided. Y/N
							discretion by ESA manager in consultation with EGM S&A.	
OCC-0007358	04.01.2018	██████	Engine bay	Hose reel switch left in ON position	Vehicle taken to the LMU to have the outlets open to the drain system all outlets used except underbodies. Plastic tube purchased through out the day and the vehicle was taken back to LMU to drain form the underbodies. Water that was collected was emptied on to LMU pad for evaporation. Hose reel switch was noticed in the on position before pump was activated. Approximately 300lt of water (with slight trace of foam placed on pad). Water has since evaporated.		The LOM called me to advise of the occurrence. THE ULFV was flushed at the fire training ground in accordance with local procedure. This included use fo tubs to collect flush water from under body sprays. This flush water drains to the underground sump and will be collected and disposed of by a licensed contractor	Waste water removed Cleanaway 16.03.2018
OCC-0007121	4.09.2017	██████	Large Mock Up	We were conducting a training exercise when foam was produced from one of the vehicles in the exercise. The nearside outlet through a foam making branch.	Immediately shut the branch and shut down the pump. Under run the hose into the bunded pad , returned to station and parked the vehicle in the wash down bay which has a separator and vehicle was flushed out.	Local instruction have been updated . Env training and Env Site Assurance to by conducted by Airservices S&A branch,. Darwin Airport and AEO advise that will do more frequent inspections to ensure compliance with the trade waste agreement.	Local Instruction have been updated. Environmental training and environmental site assurance to be conducted bu Airservices S&A branch. Darwin Airport and AEO advise that will do more frequent inspections to ensure compliance with the trade waste agreement.	Waste water removed Cleanaway 22.11.2017
OCC - 0006303	19.07.2016	██████	Darwin ARFFS engine bay	As part of the audit the station auditor checked the position of the foam switch, foam percentage switch and the hose reel switch at 0845 on the morning of 19.07.2016. All switches observed in the correct position at this stage at approximately 11.00 the duty crew conducted aircraft familiarization to visit military aircraft. At this time a trainee firefighter had a folder with for the paperwork for the visit placed infront of the foam percentage switch. When retrieving the folder it is believed he accidentally bumped the foam percentage switch and placed it on 1%. During the afternoon the CASA auditor sampled said vehicle and found the foam percentage switch at 1%.	Switch was set to correct position immediately. Crew were advised of the repercussions of the switch being set to 1%. Futher discussion took place between EVT's and fire staff and it was identified that it had been previously noted in the PIR that a lock switch should be placed on this switch and it was deemed necessary.	The event has been highlighted to all teams in Darwin as a risk and for all operators to be aware of it. Nationally investigation needs to occur about the installation of a switch lock or cover to prevent another occurrence. If it has happened in Darwin there is potential for it to happen elsewhere.		Incident was a near miss no waste water produced.
OCC-0006342	21.08.2016	██████	Large Mock Up training pad	During a training exercise, the foam switch was left in the on position and we produced foam through the foam-making branch.	The spill was contained in the bunded training ground.	Discussed with the crew the correct procedures required when training and provided theory training on ARFFS procedures involving pump operations.	I spoke with station commander ██████. He confirmed that the foam was ll contained on the pad. Approximately 50l of produced	Waste water disposed of to sewer in

Number	Date of incident	Reported by	Specific Location	Summary of event	Summary of immediate actions	Summary of actions to prevent reoccurrence	Additional case notes	Waste Certificate provided. Y/N
						Before training commences verbal command from officers to turn foam switch off. Both driver and operator of vehicle to confirm switch is off.	foam was released on the pad equivalent to (3l of Ansulite concentrate). As it is dry season the foam was left to evaporate. The drill ground is on RAAF land , no notification was made to RAAF as since the release was on the pad. No notification was made to DIA . Station manager [REDACTED] also confirmed that the root cause was operator error, specifically the failure to set the foam switch to “off” during the training exercise. It appears that since there was no use of the spill kit as per ENV- GUIDE- 0004p7, there will be a residue of Ansulite on the pad from this spill, which over time will go through the WWTP and be disposed to sewer.	wash bay area.

## Notification ( \* required fields )

Occurrence Number (generated on save)  
OCC-0007479

Sensitive  
Occurrence ☐

Reported By \*

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

23/02/2018

Occurrence Time (HH:MM 24 hour format) \*

08:30

Reported Date \*

23/02/2018

Reported Time (HH:MM 24 hour format)

11:53

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT\MAIN FIRE STATION C

Specific Location \*

Side road eastern side of fire station

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Foam discharge

Detailed Description \*

While conducting the daily inspection foam was produced during the pump test. Foam was produced through the Bumper monitor. Both the driver and operator stated the foam switch was off prior to test. The pump test was not conducted as stated in AFFM - Mk8 which resulted in a larger area of AFFF.

Immediate Action Taken \*

Once I was advised, the vehicle had already been moved to the rear of the station. LOM [REDACTED] was advised and we started to contain the spill, this was done using soaker pads and bunding to prevent it from going into the drain, we also banded with some dirt. The safety officer and the airport environmental officer was advised. All attempts to contact our EVT were unsuccessful. The vehicle was taken to the LMU where all outlets were opened into the banded area at the LMU. Containers were placed under the underbody outlets to capture all the output and put into pad at the LMU. Kitty litter has been used to soak up the last of the foam on the Eastern side of the fire station. Once it was soaked up the kitty litter was picked up and put in a container on the pad at the rear of the station

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if

**All Impacts or Potential Impacts \***

- ☐ ARFF Operational Service Delivery Occurrence
- ☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, etc.)
- ☐ WHS Injury or Illness or Death

**Witnesses**

Type	Employer	Role in Occurrence
 <Undefined>		Operator of the Mk 8
 <Undefined>		Driver of Mk 8

**Responsible Supervisor/Manager\***

[REDACTED]

**ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

Select "SAVE" to submit this report to your Manager.

**Environmental**

Type of Environmental Impact	Description of Environmental Impact	Extent of Impact
 Contamination - Water/Soil	Discharge of PFAS impacted AFFF	Onsite

**Review**

Responsible Supervisor/Manager \*

[REDACTED]

Review Date \*

23/02/2018

**Manager's Action to Prevent Reoccurrence \***

Discussed with crew involved of requirements for following correct procedures when doing vehicle pump checks.

**Describe any longer term action taken or proposed to prevent a recurrence \***

Send email to all Darwin staff reminding of pump check procedures. Organize Fire Commanders to hold training sessions on pump procedures and after pump procedures. Review Local Instructions on foam discharge procedures and update if required. Also discuss with staff requirements for reporting to Officers any incidents that will or may have the potential to affect operations or the environment.

**Additional Information**







All water/foam release was captured before entered drain. Approximately 30L of water/foam mix was released from the bumper monitor. 12 X 20kg bags of "kitty litter" used to capture water/foam. This has been bagged and placed on the smoke hut bunded area and covered with a tarp until disposal can be arranged. Captured water at the LMU pad will be contained in the holding pits before being pumped out by a licensed contractor (Cleanaway). Property have been advised.

In accordance with the relevant occurrence management procedure - is a formal investigation required? \*

☐ Yes ☒ No

If Investigation required select appropriate Investigation Commencement Criteria

**Assigned Investigation Responsible Manager****Supporting Documents**

	Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
	23/02/2018		JPG	3,017		foam spill clean up photo
	23/02/2018		JPG	3,041		foam spill clean up photo
	23/02/2018		JPG	3,105		foam spill clean up photo
	23/02/2018	<u>Map</u>	pdf	59		Map of area
	23/02/2018		JPG	3,047		Rehabilitated site after clean-up
	23/02/2018		JPG	3,059		foam spill clean up photo

**People to Notify**

Surname	Given Names	Delete
No Records	No Records	

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

**Impacted Risks and Controls****Impacted Risks and Controls within CIRRIIS**

**Impacted Risks**

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
No Records	No Records	No Records	No Records	







**Impacted Controls**

Control Number	Control Type	Control Title	Delete
No Records	No Records	No Records	

**Impacted Risks and Controls stored externally to CIRIS****Impacted Operational, Workplace and Safety Risks and Controls****Lessons Learned**

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

**Case Notes**

	Date of Note	Person Making Note	Comments
	26/02/2018		Both the LOM and myself spoke with the Darwin Environment Manager,  regarding the incident.  has inspected the site is satisfied that controls are adequate. Despite being below the 50L reporting threshold, the AEO has also been notified given public attention to PFAS and AFFF management at Darwin Airport. I am satisfied controls were implemented in accordance with local procedures and that these controls are adequate. The site is already legacy PFAS impacted and this spill is unlikely to result in a significant impact. However, continued spills continue to add to the cumulative impact of PFAS leaching from impacted sites around the Airfield.
	27/02/2018		The ESA weekly occurrence review panel met on 27.2.2018, This occurrence was reviewed to determine if the investigation commencement criteria were applicable. The panel conclusion was NO, pending the exercise of discretion by ESA manager in consultation with EGM S&A. The panel noted that the local investigation should review controls (LI's and other SOPs) and communications with respect to foam valve settings.

**Actions**

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

### Occurrence Closure

Close Off Date \*

26/02/2018

Person Closing \*

#### Closing Comments

Occurrence managed in accordance with procedures. Airport and AEO notified. No significant environmental impact.

Close this  
Record? \*

☐ Yes ☒ No

This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls



## Notification ( \* required fields )

Occurrence Number (generated on save)

OCC-0007479

Sensitive  
Occurrence

Reported By \*

[REDACTED]

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

23/02/2018

Occurrence Time (HH:MM 24 hour format) \*

08:30

Reported Date \*

23/02/2018

Reported Time (HH:MM 24 hour format)

11:53

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT\MAIN FIRE STATION C

Specific Location \*

Side road eastern side of fire station

Group/Branch (\$DL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Foam discharge

Detailed Description \*

While conducting the daily inspection foam was produced during the pump test. Foam was produced through the Bumper monitor. Both the driver and operator stated the foam switch was off prior to test. The pump test was not conducted as stated in AFFM - Mk8 which resulted in a larger area of AFFF.

Immediate Action Taken \*

Once I was advised, the vehicle had already been moved to the rear of the station. LOM [REDACTED] was advised and we started to contain the spill, this was done using soaker pads and bunding to prevent it from going into the drain, we also banded with some dirt. The safety officer and the airport environmental officer was advised. All attempts to contact our EVT were unsuccessful. The vehicle was taken to the LMU where all outlets were opened into the banded area at the LMU. Containers were placed under the underbody outlets to capture all the output and put into pad at the LMU. Kitty litter has been used to soak up the last of the foam on the Eastern side of the fire station. Once it was soaked up the kitty litter was picked up and put in a container on the pad at the rear of the station

Classification \*



Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.)



Hazard (select if

**All Impacts or Potential Impacts \***

- ☐ ARFF Operational Service Delivery Occurrence
- ☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, etc)
- ☐ WHS Injury or Illness or Death

**Witnesses**

Type	Employer	Role in Occurrence
<Undefined>		Operator of the Mk 8
<Undefined>		Driver of Mk 8

**Responsible Supervisor/Manager\***

[REDACTED]

**ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

Select "SAVE" to submit this report to your Manager.

**Environmental**

Type of Environmental Impact	Description of Environmental Impact	Extent of Impact
Contamination - Water/Soil	Discharge of PFAS impacted AFFF	Onsite

**Review**

Responsible Supervisor/Manager \*

[REDACTED]

Review Date \*

23/02/2018

**Manager's Action to Prevent Reoccurrence \***

Discussed with crew involved of requirements for following correct procedures when doing vehicle pump checks.

**Describe any longer term action taken or proposed to prevent a recurrence \***

Send email to all Darwin staff reminding of pump check procedures. Organize Fire Commanders to hold training sessions on pump procedures and after pump procedures. Review Local Instructions on foam discharge procedures and update if required. Also discuss with staff requirements for reporting to Officers any incidents that will or may have the potential to affect operations or the environment.

**Additional Information**

All water/foam release was captured before entered drain. Approximately 30L of water/foam mix was released from the bumper monitor. 12 X 20kg bags of "kitty litter" used to capture water/foam. This has been bagged and placed on the smoke hut bunded area and covered with a tarp until disposal can be arranged. Captured water at the LMU pad will be contained in the holding pits before being pumped out by a licensed contractor (Cleanaway). Property have been advised.







In accordance with the relevant occurrence management procedure - is a formal investigation required? \*

☐ Yes ☒ No

If Investigation required select appropriate Investigation Commencement Criteria

Assigned Investigation Responsible Manager

**Supporting Documents**

	Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
	23/02/2018		JPG	3,017		foam spill clean up photo
	23/02/2018		JPG	3,041		foam spill clean up photo
	23/02/2018		JPG	3,105		foam spill clean up photo
	23/02/2018	<a href="#">Map</a>	pdf	59		Map of area
	23/02/2018		JPG	3,047		Rehabilitated site after clean-up
	23/02/2018		JPG	3,059		foam spill clean up photo

**People to Notify**

Surname	Given Names	Delete
No Records	No Records	

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

**Impacted Risks and Controls****Impacted Risks and Controls within CIRRIIS**

**Impacted Risks**

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete	
No Records	No Records	No Records	No Records		

**Impacted Controls**

Control Number	Control Type	Control Title	Delete
No Records	No Records	No Records	

**Impacted Risks and Controls stored externally to CIRRIIS****Impacted Operational, Workplace and Safety Risks and Controls****Lessons Learned**

Lessons Learned Number	Lessons Learned Type	Lessons Learned	
No Records	No Records	No Records	

**Case Notes**

Date of Note	Person Making Note	Comments
26/02/2018		Both the LOM and myself spoke with the Darwin Environment Manager, [REDACTED] regarding the incident. [REDACTED] has inspected the site is satisfied that controls are adequate. Despite being below the 50L reporting threshold, the AEO has also been notified given public attention to PFAS and AFFF management at Darwin Airport. I am satisfied controls were implemented in accordance with local procedures and that these controls are adequate. The site is already legacy PFAS impacted and this spill is unlikely to result in a significant impact. However, continued spills continue to add to the cumulative impact of PFAS leaching from impacted sites around the Airfield.
27/02/2018		The ESA weekly occurrence review panel met on 27.2.2018, This occurrence was reviewed to determine if the investigation commencement criteria were applicable. The panel conclusion was NO, pending the exercise of discretion by ESA manager in consultation with EGM S&A. The panel noted that the local investigation should review controls (LI's and other SOPs) and communications with respect to foam valve settings.

**Actions**

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

### Occurrence Closure

Close Off Date \*

26/02/2018

Person Closing \*

**Closing Comments**

Occurrence managed in accordance with procedures. Airport and AEO notified. No significant environmental impact.

Close this  
Record? \*

☒ Yes ☐ No

**This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls**

*Cirrus incidences connected to 28-08-2016 email no. 15.*

## Notification ( \* required fields )

Occurrence Number (generated on save)  
OCC-0006342

Sensitive Occurrence ☐

Reported By \*

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

21/08/2016

Occurrence Time (HH:MM 24 hour format) \*

10:30

Reported Date \*

21/08/2016

Reported Time (HH:MM 24 hour format)

11:43

Location of Occurrence \*

AIRSERVICES AUSTRALIA\INTDARWIN AIRPORT\MAIN FIRE STATION C

Specific Location \*

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Foam was produced in a training exercise at the large mock up training aid

Detailed Description \*

During a training exercise for the checks and standards visit to Darwin. We were conducting a training exercise where we were to open the deliveries of the Mk8. The foam switch was left in the "on" position and we produced foam through the foam making branch. The foam was contained in the bunded area of the large mock up training aid

Immediate Action Taken \*

The foam switch was moved to the "off" position. the training exercise was stopped and all deliveries were flushed free of foam

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if

All Impacts or Potential Impacts \*

☐ ARFF Operational Service Delivery Occurrence

☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, r

☐ WHS Injury or Illness or Death

**Witnesses**

Type	Employer	Role in Occurrence
<input type="radio"/> <Undefined>		Fire Commander

**Responsible Supervisor/Manager\*****ARFF Operational Service Delivery Occurrences Only****Operational Breakdown****ORS Number (Occurrence Only)****Select "SAVE" to submit this report to your Manager.****Environmental**

Type of Environmental Impact	Description of Environmental Impact	Extent of Impact
<input type="radio"/> Contamination - Water/Soil	Accidental release of Ansulite produced foam onto drill ground pad	Onsite

**Review****Responsible Supervisor/Manager \*****Review Date \***

22/08/2016

**Manager's Action to Prevent Reoccurrence \***

Discussed with crew correct procedures required when training and provided theory training on ARFF procedures involving pump operations.

**Describe any longer term action taken or proposed to prevent a recurrence \***

Before training commences, verbal command from officers to turn foam switch off. Both driver and operator of vehicle to confirm foam switch is off.

**Additional Information****In accordance with the relevant occurrence management procedure - is a formal investigation required? \***☐ Yes ☒ No**If Investigation required select appropriate Investigation Commencement Criteria**

## Assigned Investigation Responsible Manager

## Supporting Documents

Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
No Records	No Records	No Records	No Records	No Records	No Records

## People to Notify

Surname	Given Names
No Records	No Records

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

## Impacted Risks and Controls

## Impacted Risks and Controls within CIRRIIS

## Impacted Risks

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
RSK-0000307	Application of firefighting agents including foam, water-only and DCP during training, maintenance checks or operational incident which is uncontained		C	
RSK-0000308	Spill / Leak of Diesel fuel, oil, or foam concentrate.		D	
RSK-0000311	Intentional AFFF foam application during operational incident or vehicle maintenance (foam production test).		B	

## Impacted Controls

Control Number	Control Type	Control Title	Delete
CTRL-0000097	Preventative	Management of foam use	
CTRL-0000107	Preventative	Training and competency: vehicular operations	



**Impacted Risks and Controls stored externally to CIRRIIS****Impacted Operational, Workplace and Safety Risks and Controls****Lessons Learned**

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

**Case Notes**

Date of Note	Person Making Note	Comments
22/08/2016		I spoke with Station Manager [REDACTED]. He confirmed that the foam was all contained on the pad, no release to adjacent soil. Approximately 50L of produced foam was released (equivalent to 3L of Ansulite concentrate). As it is dry season, the foam was left to evaporate. The drill ground is on RAAF land, no notification was made to RAAF since the release was on the pad. No notification was made to DIA. Station Manager [REDACTED] also confirmed that the root cause was operator error, specifically the failure to set the foam switch to "off" during the training exercise. He suggested that a preferable operating procedure would be to have the foam valve set to off at all times, then selected "on" when needed at a turn out, but at this time this is not in conformance with ARFF national policy. It appears that since there was no use of the spill kit as per ENV-GUIDE-0004 p7, there will be a residue of Ansulite on the pad from this spill, which over time will go through the WWTP and be disposed to sewer.

**Actions**

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

**Occurrence Closure****Person Closing \***

**Close Off Date \***

06/09/2016

**Closing Comments****Close this  
Record? \***☒ Yes ☐ No

**This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls**

## Notification ( \* required fields )

Occurrence Number (generated on save)

OCC-0007358

Sensitive  
Occurrence

Reported By \*

[REDACTED]

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

04/01/2018

Occurrence Time (HH:MM 24 hour format) \*

08:15

Reported Date \*

04/01/2018

Reported Time (HH:MM 24 hour format)

16:53

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT\MAIN FIRE STATION C

Specific Location \*

Engine bay

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Hose reel switch left in ON position.

Detailed Description \*

During daily vehicle inspecting it was noted that the hose reel switch was left in the on position.

Immediate Action Taken \*

Staff notified officers of the matter vehicle swapped over with FCC vehicle as spare vehicle was unable to be brought back online.  
Vehicle then taken to the LMU to have the outlets open to drain system all outlets used except underbodies.  
Plastic tubs purchased throughout the day and the vehicle was taken back to LMU to drain from the underbodies.  
Water that was collected was emptied onto LMU pad for evaporation.

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if

All Impacts or Potential Impacts \*

☐ ARFF Operational Service Delivery Occurrence☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, f☐ WHS Injury or Illness or Death

**Witnesses**

Type	Employer	Role in Occurrence
<Undefined>		Vehicle driver that located the switch on daily checks.

**Responsible Supervisor/Manager\***

[REDACTED]

**ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

Select "SAVE" to submit this report to your Manager.

**Environmental**

Type of Environmental Impact	Description of Environmental Impact	Extent of Impact
Contamination - Water/Soil	Release of PFAS impacted foam and washwater due to foam valve switch operation	Onsite

**Review**

Responsible Supervisor/Manager \*

[REDACTED]

Review Date \*

05/01/2018

**Manager's Action to Prevent Reoccurrence \***

Discussed with on duty crew about vehicle inspections and attention to detail. Email sent to station regarding vehicle inspections and attention to detail.

**Describe any longer term action taken or proposed to prevent a recurrence \***

Follow up with officers regarding spot checks of vehicles and reinforcing to their crews policies and procedures for vehicle operations.

**Additional Information**

Hose reel switch was noticed in the on position before pump was activated. Vehicle taken to the LMU and all vehicle water outlets flushed/cleared of foam on to a bunded pad. Approximately 300 litres of water (with slight trace of foam) placed on pad. Water has since evaporated.

In accordance with the relevant occurrence management procedure - is a formal investigation required? \*

☐ Yes ☒ No

If Investigation required select appropriate Investigation Commencement Criteria

Assigned Investigation Responsible Manager

#### Supporting Documents

Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
No Records	No Records	No Records	No Records	No Records	No Records

#### People to Notify

Surname	Given Names
No Records	No Records

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

### Impacted Risks and Controls

#### Impacted Risks and Controls within CIRRIIS

##### Impacted Risks

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
RSK-0000424	Insufficient environmental management in particular wastewater and intentional AFFF use within ARFF		B	

##### Impacted Controls

Control Number	Control Type	Control Title	Delete
CTRL-0000160	Preventative	Restriction on AFFF Foam Production Tests. Ansulite AFFF foam production tests when conducted will be captured.	

#### Impacted Risks and Controls stored externally to CIRRIIS

## Impacted Operational, Workplace and Safety Risks and Controls

## Lessons Learned

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

## Case Notes

Date of Note	Person Making Note	Comments
05/01/2018	[REDACTED]	The LOM called me to advise of the occurrence. The ULFV was flushed at the fire training ground in accordance with local procedures. This included use of tubs to collect flush water from under body sprays. This flush water drains to the underground sump and will be collected and disposed of by a licensed waste contractor.

## Actions

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

## Occurrence Closure

Close Off Date \*

05/01/2018

Person Closing \*

Closing Comments

Close this Record? \*

☒ Yes ☐ No

This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls

## Notification ( \* required fields )

Occurrence Number (generated on save)

OCC-0007121

Sensitive  
Occurrence

Reported By \*

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

04/09/2017

Occurrence Time (HH:MM 24 hour format) \*

18:50

Reported Date \*

04/09/2017

Reported Time (HH:MM 24 hour format)

21:50

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NTDARWIN AIRPORT

Specific Location \*

Large Mock up

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

During a training exercise we produced foam from the nearside regulated out

Detailed Description \*

We were conducting a training exercise when foam was produced from one of the vehicles in the exercise. the nearside outlet through a foam making branch

Immediate Action Taken \*

Immediately shut the branch and shut down the pump. Under run the hose into the bunded pad, returned to station and parked the vehicle in the wash down bay which has a separator and run the pump at low pressure with the underbody sprays on till it was water only. ran water through the hose and branch into the wash down bay till it was clear and then moved the vehicle to the retention pond and operated the monitors at low pump pressure till it was water only. Replenished vehicle with water

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if

All Impacts or Potential Impacts \*

☐ ARFF Operational Service Delivery Occurrence☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, h

☐ WHS Injury or Illness or Death

**Witnesses**

Type	Employer	Role in Occurrence
<Undefined>		Station Officer

**Responsible Supervisor/Manager\***

[REDACTED]

**ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

Select "SAVE" to submit this report to your Manager.

**Environmental**

Type of Environmental Impact	Description of Environmental Impact	Extent of Impact
Contamination - Water/Soil, Non-Compliance	Uncontained release of pollutant - AFFF	Offsite

**Review**

Responsible Supervisor/Manager \*

[REDACTED]

Review Date \*

01/11/2017

Manager's Action to Prevent Reoccurrence \*

Local Instructions have been updated

Describe any longer term action taken or proposed to prevent a recurrence \*

Local Instructions have been updated. Env training and Env Site Assurance to be conducted by Airservices S&A branch. Darwin Airport and AEO advise that will do more frequent inspections to ensure compliance with the trade waste agreement.

Additional Information

In accordance with the relevant occurrence management procedure - is a formal investigation required? \*

☐ Yes ☒ No



If Investigation required select appropriate Investigation Commencement Criteria

Assigned Investigation Responsible Manager

#### Supporting Documents

	Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
	01/11/2017	<a href="#">Site visit to Fire Fighting Area 6.9.17</a>	msg	43		Power and water inspection report

#### People to Notify

Surname	Given Names	Delete
No Records	No Records	

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

### Impacted Risks and Controls

#### Impacted Risks and Controls within CIRRIIS

##### Impacted Risks

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
No Records	No Records	No Records	No Records	

##### Impacted Controls

Control Number	Control Type	Control Title	Delete
No Records	No Records	No Records	

#### Impacted Risks and Controls stored externally to CIRRIIS

##### Impacted Operational, Workplace and Safety Risks and Controls

### Lessons Learned

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

### Case Notes

Date of Note	Person Making Note	Comments
18/09/2017		The use of the wash down bay for flushing AFFF from a fire vehicle is not in accordance with ENV-001 and resulted in release of AFFF to Darwin International's sewer.. A review of Darwin Local instructions has found the instruction lacking with respect to appropriate management of AFFF and flush procedures that contain AFFF impacted wastewater for disposal by a suitably licensed contractor. The occurrence was reported to Darwin International Airport who initiated a number of actions, including notifying the AEO and Trade Waste utility, Power and Water corporation. Following this inspection a number of actions were issued by DIA: - Pump the triple plate interceptor pit and clean - Update procedures to reflect current operations - Re train staff in procedure for foam release that includes no water going to sewer and pump out by a licenced contractor - Review of current trade waste outlets
20/10/2017		Darwin Airport advises that all actions have been addressed and the wash bay is ok to operate again.
01/11/2017		I received notification from Darwin ARFFS, Fire Commander [REDACTED] that one of the vehicles produced AFFF foam during an exercise onto the bunded pad at the large mock up. The crew then returned to the station parked the vehicle in the wash down bay and ran low pressure water through hose and branch to flush the truck. This washbay interceptor is connected to sewer. The Fire Commander advised that <10 litres of foam and approx. 500L of water to flush. I notified Darwin International Airport who conducted their own investigations, including an inspection with Power and Water Corporation.

### Actions

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

### Occurrence Closure

Close Off Date *	Person Closing *
18/04/2018	

**Closing Comments****Close this  
Record? \***☐ Yes ☒ No

**This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls**

## Notification ( \* required fields )

Occurrence Number (generated on save)

OCC-0007491

Sensitive  
Occurrence ☐

Reported By \*

[REDACTED]

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

27/02/2018

Occurrence Time (HH:MM 24 hour format) \*

08:41

Reported Date \*

27/02/2018

Reported Time (HH:MM 24 hour format)

11:11

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT

Specific Location \*

Next to staion, off taxiway Zulu

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Foam discharge

Detailed Description \*

Daily vehicle pump test conducted on Tender 3. The foam and hose reel switch was confirmed off multiple times between LFF [REDACTED] the driver and operator, LFF [REDACTED]. I as the operator LFF [REDACTED] discharged the hose reel that immediately produced a small amount of foam. Approximately held down for 1 second.

After notifying the FSM, FC and SO the procedures were followed to contain and clean up the foam. Tender 3 was taken to the pad and tested through all the outlets. No further foam was produced. EVT [REDACTED] was convinced that the foam was residual leftover from a previous discharge and T3 was put back online as operational.

Immediate Action Taken \*

Notified FSM, FC AND SO immediately. Procedures followed after foam had been produced.

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if

All Impacts or Potential Impacts \*

- ☐ ARFF Operational Service Delivery Occurrence  
☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, etc.)  
☐ WHS Injury or Illness or Death

**Witnesses**

Type	Employer	Role in Occurrence
No Records	No Records	No Records

**Responsible Supervisor/Manager\***

[REDACTED]

**ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

Select "SAVE" to submit this report to your Manager.

**Environmental**

Type of Environmental Impact	Description of Environmental Impact	Extent of Impact
No Records	No Records	No Records

**Review**

Responsible Supervisor/Manager \*

[REDACTED]

Review Date \*

27/02/2018

**Manager's Action to Prevent Reoccurrence \***

This appeared to be residual foam left in hose reel from accidental foam discharge from previous day. Staff followed correct testing procedures and only a small amount of diluted foam was released (approximately 1L). Staff followed correct clean up procedures and vehicle was taken to the LMU pad for flushing. EVT was notified and assisted with flushing of vehicle. EVT checked vehicle and advised it appeared to be residual left over from last accidental discharge. FC [REDACTED] notified [REDACTED] Environmental Specialist, ARFFS and [REDACTED] DIA Environmental Officer of discharge and actions.

**Describe any longer term action taken or proposed to prevent a recurrence \***

Emails have been sent (see below attachments) to Fire Commanders to provide lessons to all staff on correct pump test procedures and foam flushing procedures. Li's to be updated on correct procedures. Reiterate to staff when doing flushing to ensure to a full flush is completed.

**Additional Information**

██████████ and myself have discussed with CFO ██████████ regarding Townsville and Darwin be exempt from the vehicle having to have the foam switch in the on position. In the past the vehicles used to have the foam switch in the off position and be turned on when required. It is currently kept in the on position and is required to be turned off when testing the vehicles.

**In accordance with the relevant occurrence management procedure - is a formal investigation required? \***

☐ Yes ☒ No

**If Investigation required select appropriate Investigation Commencement Criteria**

**Assigned Investigation Responsible Manager****Supporting Documents**

	Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
	27/02/2018	<a href="#">foam discharge SEC UNCLASSIFIED</a>	msg	41	██████████	Email sent to Fire Commanders regarding lesson for staff and pump testing procedures
	27/02/2018	<a href="#">FW residual Foam Discharged SEC UNCLASSIFIED</a>	msg	1,131	██████████	Email sent to Fire Commanders on lessons to staff and flushing procedures

**People to Notify**

Surname	Given Names	Delete
No Records	No Records	

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

**Impacted Risks and Controls****Impacted Risks and Controls within CIRIS****Impacted Risks**

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
No Records	No Records	No Records	No Records	

No  
Records

**Impacted Controls**

Control Number	Control Type	Control Title	Delete
No Records	No Records	No Records	

**Impacted Risks and Controls stored externally to CIRRIIS****Impacted Operational, Workplace and Safety Risks and Controls****Lessons Learned**

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

**Case Notes**

Date of Note	Person Making Note	Comments
No Records	No Records	No Records

**Actions**

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

**Occurrence Closure****Close Off Date \***

18/04/2018

**Person Closing \*****Closing Comments**☐ Yes ☒ No

**Close this  
Record? \***

**This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls**



## Notification ( \* required fields )

Occurrence Number (generated on save)

OCC-0007479

Sensitive  
Occurrence

Reported By \*

[REDACTED]

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

23/02/2018

Occurrence Time (HH:MM 24 hour format) \*

08:30

Reported Date \*

23/02/2018

Reported Time (HH:MM 24 hour format)

11:53

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT\MAIN FIRE STATION C

Specific Location \*

Side road eastern side of fire station

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Foam discharge

Detailed Description \*

While conducting the daily inspection foam was produced during the pump test. Foam was produced through the Bumper monitor. Both the driver and operator stated the foam switch was off prior to test. The pump test was not conducted as stated in AFFM - Mk8 which resulted in a larger area of AFFF.

Immediate Action Taken \*

Once I was advised, the vehicle had already been moved to the rear of the station. LOM [REDACTED] was advised and we started to contain the spill, this was done using soaker pads and bunding to prevent it from going into the drain, we also banded with some dirt. The safety officer and the airport environmental officer was advised. All attempts to contact our EVT were unsuccessful. The vehicle was taken to the LMU where all outlets were opened into the banded area at the LMU. Containers were placed under the underbody outlets to capture all the output and put into pad at the LMU. Kitty litter has been used to soak up the last of the foam on the Eastern side of the fire station. Once it was soaked up the kitty litter was picked up and put in a container on the pad at the rear of the station

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if

**All Impacts or Potential Impacts \***

- ☐ ARFF Operational Service Delivery Occurrence
- ☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, etc.)
- ☐ WHS Injury or Illness or Death

**Witnesses**

Type	Employer	Role in Occurrence
<Undefined>		Operator of the Mk 8
<Undefined>		Driver of Mk 8

**Responsible Supervisor/Manager\***

[REDACTED]

**ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

Select "SAVE" to submit this report to your Manager.

**Environmental**

Type of Environmental Impact	Description of Environmental Impact	Extent of Impact
Contamination - Water/Soil	Discharge of PFAS impacted AFFF	Onsite

**Review**

Responsible Supervisor/Manager \*

[REDACTED]

Review Date \*

23/02/2018

**Manager's Action to Prevent Reoccurrence \***

Discussed with crew involved of requirements for following correct procedures when doing vehicle pump checks.

**Describe any longer term action taken or proposed to prevent a recurrence \***

Send email to all Darwin staff reminding of pump check procedures. Organize Fire Commanders to hold training sessions on pump procedures and after pump procedures. Review Local Instructions on foam discharge procedures and update if required. Also discuss with staff requirements for reporting to Officers any incidents that will or may have the potential to affect operations or the environment.

**Additional Information**

All water/foam release was captured before entered drain. Approximately 30L of water/foam mix was released from the bumper monitor. 12 X 20kg bags of "kitty litter" used to capture water/foam. This has been bagged and placed on the smoke hut bunded area and covered with a tarp until disposal can be arranged. Captured water at the LMU pad will be contained in the holding pits before being pumped out by a licensed contractor (Cleanaway). Property have been advised.

In accordance with the relevant occurrence management procedure - is a formal investigation required? \*

☐ Yes ☒ No

If investigation required select appropriate Investigation Commencement Criteria

Assigned Investigation Responsible Manager

**Supporting Documents**

	Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
	23/02/2018		JPG	3,017		foam spill clean up photo
	23/02/2018		JPG	3,041		foam spill clean up photo
	23/02/2018		JPG	3,105		foam spill clean up photo
	23/02/2018	<a href="#">Map</a>	pdf	59		Map of area
	23/02/2018		JPG	3,047		Rehabilitated site after clean-up
	23/02/2018		JPG	3,059		foam spill clean up photo

**People to Notify**

Surname	Given Names	Delete
No Records	No Records	

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

**Impacted Risks and Controls****Impacted Risks and Controls within CIRRIIS**

**Impacted Risks**

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
No Records	No Records	No Records	No Records	

**Impacted Controls**

Control Number	Control Type	Control Title	Delete
No Records	No Records	No Records	

**Impacted Risks and Controls stored externally to CIRRIIS****Impacted Operational, Workplace and Safety Risks and Controls****Lessons Learned**

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

**Case Notes**

Date of Note	Person Making Note	Comments
26/02/2018		Both the LOM and myself spoke with the Darwin Environment Manager, I regarding the incident. has inspected the site is satisfied that controls are adequate. Despite being below the 50L reporting threshold, the AEO has also been notified given public attention to PFAS and AFFF management at Darwin Airport. I am satisfied controls were implemented in accordance with local procedures and that these controls are adequate. The site is already legacy PFAS impacted and this spill is unlikely to result in a significant impact. However, continued spills continue to add to the cumulative impact of PFAS leaching from impacted sites around the Airfield.
27/02/2018		The ESA weekly occurrence review panel met on 27.2.2018, This occurrence was reviewed to determine if the investigation commencement criteria were applicable. The panel conclusion was NO, pending the exercise of discretion by ESA manager in consultation with EGM S&A. The panel noted that the local investigation should review controls (LI's and other SOPs) and communications with respect to foam valve settings.

**Actions**

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

### Occurrence Closure

Close Off Date \*

26/02/2018

Person Closing \*

#### Closing Comments

Occurrence managed in accordance with procedures. Airport and AEO notified. No significant environmental impact.

Close this  
Record? \*

☐ Yes ☒ No

**This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls**

## Notification ( \* required fields )

Occurrence Number (generated on save)  
OCC-0007358

Sensitive  
Occurrence ☐

Reported By \*

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

04/01/2018

Occurrence Time (HH:MM 24 hour format) \*

08:15

Reported Date \*

04/01/2018

Reported Time (HH:MM 24 hour format)

16:53

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NTDARWIN AIRPORT\MAIN FIRE STATION C

Specific Location \*

Engine bay

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Hose reel switch left in ON position.

Detailed Description \*

During daily vehicle inspecting it was noted that the hose reel switch was left in the on position.

Immediate Action Taken \*

Staff notified officers of the matter vehicle swapped over with FCC vehicle as spare vehicle was unable to be brought back online.  
Vehicle then taken to the LMU to have the outlets open to drain system all outlets used except underbodies.  
Plastic tubs purchased throughout the day and the vehicle was taken back to LMU to drain from the underbodies.  
Water that was collected was emptied onto LMU pad for evaporation.

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if


All Impacts or Potential Impacts \*

☐ ARFF Operational Service Delivery Occurrence

☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, f

☐ WHS Injury or Illness or Death

**Witnesses**


Type	Employer	Role in Occurrence
 <Undefined>		Vehicle driver that located the switch on daily checks.

**Responsible Supervisor/Manager\*****ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

**Select "SAVE" to submit this report to your Manager.****Environmental**

Type of Environmental Impact	Description of Environmental Impact	Extent of Impact
 Contamination - Water/Soil	Release of PFAS impacted foam and washwater due to foam valve switch operation	Onsite

**Review****Responsible Supervisor/Manager \*****Review Date \***

05/01/2018

**Manager's Action to Prevent Reoccurrence \***

Discussed with on duty crew about vehicle inspections and attention to detail. Email sent to station regarding vehicle inspections and attention to detail.

**Describe any longer term action taken or proposed to prevent a recurrence \***

Follow up with officers regarding spot checks of vehicles and reinforcing to their crews policies and procedures for vehicle operations.

**Additional Information**

Hose reel switch was noticed in the on position before pump was activated. Vehicle taken to the LMU and all vehicle water outlets flushed/cleared of foam on to a bunded pad. Approximately 300 litres of water(with slight trace of foam) placed on pad. Water has since evaporated.

**In accordance with the relevant occurrence management procedure - is a formal investigation required? \***

☐ Yes ☒ No

If Investigation required select appropriate Investigation Commencement Criteria

Assigned Investigation Responsible Manager

#### Supporting Documents

Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
No Records	No Records	No Records	No Records	No Records	No Records

#### People to Notify

Surname	Given Names
No Records	No Records

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

### Impacted Risks and Controls

#### Impacted Risks and Controls within CIRRIIS

##### Impacted Risks

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
RSK-0000424	Insufficient environmental management in particular wastewater and intentional AFFF use within ARFF		B	

##### Impacted Controls

Control Number	Control Type	Control Title	Delete
CTRL-0000160	Preventative	Restriction on AFFF Foam Production Tests. Ansulite AFFF foam production tests when conducted will be captured.	

#### Impacted Risks and Controls stored externally to CIRRIIS



## Impacted Operational, Workplace and Safety Risks and Controls

## Lessons Learned

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

## Case Notes

Date of Note	Person Making Note	Comments
05/01/2018		The LOM called me to advise of the occurrence. The ULFV was flushed at the fire training ground in accordance with local procedures. This included use of tubs to collect flush water from under body sprays. This flush water drains to the underground sump and will be collected and disposed of by a licensed waste contractor.

## Actions

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

## Occurrence Closure

Close Off Date \*

05/01/2018

Person Closing \*

Closing Comments

Close this  
Record? \*☒ Yes ☐ No

This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls

## Notification ( \* required fields )

Occurrence Number (generated on save)

OCC-0006303

Sensitive  
Occurrence

Reported By \*

[REDACTED]

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

19/07/2016

Occurrence Time (HH:MM 24 hour format) \*

11:00

Reported Date \*

02/08/2016

Reported Time (HH:MM 24 hour format)

15:21

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT

Specific Location \*

Darwin ARFF/ engine bay

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

during a CASA audit the foam percentage switch in 1 vehicle was found to be

Detailed Description \*

As part of the audit the station auditor checked the position of the foam switch, foam percentage switch and the hose reel switch at 0845 on the morning of 19/7/16. All switches observed in the correct position at this stage, at approximately 1100 the duty crew conducted aircraft familiarization to visiting military aircraft. At this time a trainee firefighter had a folder with his paperwork for the visit placed in front of the foam percentage switch. When retrieving the folder it is believed that he has accidentally bumped the foam percentage switch and placed it on 1%. During the afternoon the CASA auditor sampled said vehicle and found the foam percentage switch at 1%.

Immediate Action Taken \*

Switch was set to correct position immediately. Crew were advised of the repercussion's of switch being set at 1%. Further discussion took place between EVTs and fire staff and it was identified that it had been previously noted in the PIR that a lock switch should be placed on this switch and it was deemed unnecessary.

Classification \*

☐ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☒ Hazard (select if

**All Impacts or Potential Impacts \***

- ☒ ARFF Operational Service Delivery Occurrence  
☐ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, etc.)  
☐ WHS Injury or Illness or Death

**Witnesses**

Type	Employer	Role in Occurrence
 <Undefined>		FSM

**Responsible Supervisor/Manager\*****ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

Vehicles

ORS Number (Occurrence Only)

**Select "SAVE" to submit this report to your Manager.****Hazard**

Hazard Number (generated on save)

Hazard Category \*

Hazard Subcategory

If Other Hazard Category, Please specify

**Controls**

What Controls were in place

What other controls should be considered

**Review**

Responsible Supervisor/Manager \*

Review Date \*

03/08/2016

Manager's Action to Prevent Reoccurrence \*

The event has been highlighted to all Teams in Darwin as a risk and for all operators to be aware of it.

Describe any longer term action taken or proposed to prevent a recurrence \*

Nationally Investigation needs to occur about the installation of a switch lock or cover to prevent another occurrence. If it has happened in Darwin there is potential for it to happen elsewhere.

Additional Information

In accordance with the relevant occurrence management procedure - is a formal investigation required? \*

☐ Yes ☒ No

If Investigation required select appropriate Investigation Commencement Criteria

Assigned Investigation Responsible Manager

Supporting Documents

Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
No Records	No Records	No Records	No Records	No Records	No Records

People to Notify

Surname	Given Names
No Records	No Records

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

## Impacted Risks and Controls

### Impacted Risks and Controls within CIRRIIS

#### Impacted Risks

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
No Records	No Records	No Records	No Records	



**Impacted Controls**

Control Number	Control Type	Control Title	Delete
No Records	No Records	No Records	

**Impacted Risks and Controls stored externally to CIRRIIS****Impacted Operational, Workplace and Safety Risks and Controls****Lessons Learned**

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

**Case Notes**

Date of Note	Person Making Note	Comments
 03/08/2016		I received an email notification for this occurrence, which indicates it was reported as an environmental hazard. I reviewed the report and am satisfied that this is not an ENV hazard, it is an operational procedural matter. No further involvement from an environmental SME is required, and it appears the ENV box has already been "unticked".

**Actions**

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

**Occurrence Closure**

Close Off Date \*

26/10/2016

Person Closing \*

Closing Comments

Close this  
Record? \*☒ Yes ☐ No

**This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls**

## Notification ( \* required fields )

Occurrence Number (generated on save)

OCC-0006342

Sensitive  
Occurrence ☐

Reported By \*

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

21/08/2016

Occurrence Time (HH:MM 24 hour format) \*

10:30

Reported Date \*

21/08/2016

Reported Time (HH:MM 24 hour format)

11:43

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT\MAIN FIRE STATION C

Specific Location \*

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Foam was produced in a training exercise at the large mock up training aid

Detailed Description \*

During a training exercise for the checks and standards visit to Darwin. We were conducting a training exercise where we were to open the deliveries of the Mk8. The foam switch was left in the "on" position and we produced foam through the foam making branch. The foam was contained in the bunded area of the large mock up training aid

Immediate Action Taken \*

The foam switch was moved to the "off" position. the training exercise was stopped and all deliveries were flushed free of foam

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if

All Impacts or Potential Impacts \*

☐ ARFF Operational Service Delivery Occurrence☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, f☐ WHS Injury or Illness or Death

**Witnesses**


Type	Employer	Role in Occurrence	
 <Undefined>		Fire Commander	

**Responsible Supervisor/Manager\*****ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

**Select "SAVE" to submit this report to your Manager.****Environmental**

Type of Environmental Impact	Description of Environmental Impact	Extent of Impact	
 Contamination - Water/Soil	Accidental release of Ansulite produced foam onto drill ground pad	Onsite	

**Review****Responsible Supervisor/Manager \*****Review Date \***


22/08/2016

**Manager's Action to Prevent Reoccurrence \***

Discussed with crew correct procedures required when training and provided theory training on ARFF procedures involving pump operations.

**Describe any longer term action taken or proposed to prevent a recurrence \***

Before training commences, verbal command from officers to turn foam switch off. Both driver and operator of vehicle to confirm foam switch is off.

**Additional Information****In accordance with the relevant occurrence management procedure - is a formal investigation required? \***☐ Yes ☒ No**If Investigation required select appropriate Investigation Commencement Criteria**  
  




## Assigned Investigation Responsible Manager

## Supporting Documents

Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
No Records	No Records	No Records	No Records	No Records	No Records

## People to Notify

Surname	Given Names
No Records	No Records

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

## Impacted Risks and Controls

## Impacted Risks and Controls within CIRRIS

## Impacted Risks

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
RSK-0000307	Application of firefighting agents including foam, water-only and DCP during training, maintenance checks or operational incident which is uncontained		C	
RSK-0000308	Spill / Leak of Diesel fuel, oil, or foam concentrate.		D	
RSK-0000311	Intentional AFFF foam application during operational incident or vehicle maintenance (foam production test).		B	


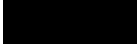
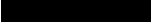

## Impacted Controls

Control Number	Control Type	Control Title	Delete
CTRL-0000097	Preventative	Management of foam use	
CTRL-0000107	Preventative	Training and competency: vehicular operations	

**Impacted Risks and Controls stored externally to CIRRIS****Impacted Operational, Workplace and Safety Risks and Controls****Lessons Learned**

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

**Case Notes**

Date of Note	Person Making Note	Comments
 22/08/2016		I spoke with Station Manager  He confirmed that the foam was all contained on the pad, no release to adjacent soil. Approximately 50L of produced foam was released (equivalent to 3L of Ansulite concentrate). As it is dry season, the foam was left to evaporate. The drill ground is on RAAF land, no notification was made to RAAF since the release was on the pad. No notification was made to DIA. Station Manager  also confirmed that the root cause was operator error, specifically the failure to set the foam switch to "off" during the training exercise. He suggested that a preferable operating procedure would be to have the foam valve set to off at all times, then selected "on" when needed at a turn out, but at this time this is not in conformance with ARFF national policy. It appears that since there was no use of the spill kit as per ENV-GUIDE-0004 p7, there will be a residue of Ansulite on the pad from this spill, which over time will go through the WWTP and be disposed to sewer.

**Actions**

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

**Occurrence Closure****Person Closing \***

**Close Off Date \***

06/09/2016

**Closing Comments****Close this  
Record? \***☒ Yes ☐ No

**This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls**

## Notification ( \* required fields )

Occurrence Number (generated on save)

OCC-0007120

Sensitive  
Occurrence

Reported By \*

[REDACTED]

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

04/09/2017

Occurrence Time (HH:MM 24 hour format) \*

18:40

Reported Date \*

04/09/2017

Reported Time (HH:MM 24 hour format)

20:21

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT

Specific Location \*

Large Mock Up North West Drill Ground

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Tripped over and landed on a landing of removable stairs at the North West I

Detailed Description \*

I walked over to the stairs entering into the Large Mock Up, walked up the stairs, went to step onto the landing, I tripped and fell my right knee and hands made contact with the mesh floor.

I picked myself up checked my hands, no signs of cuts or abrasions, the knee was cushioned from wearing Turn Out Pants and Boots .

Immediate Action Taken \*

Informed the Fire Commander immediately.

Classification \*

☐ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☒ Hazard (select if

All Impacts or Potential Impacts \*

☐ ARFF Operational Service Delivery Occurrence☐ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, f☒ WHS Injury or Illness or Death

Witnesses

Type	Employer	Role in Occurrence
No Records	No Records	No Records

**Responsible Supervisor/Manager\*****ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

**Select "SAVE" to submit this report to your Manager.****Additional Details****Control of the Workplace****Who had management or control of the workplace where the occurrence occurred? \***☒ Airservices Australia ☐ Other

If you have selected 'Other' please complete the following:

Agency/Department/Authority/Company

Australian Business Number (ABN)

Australian Company Number (ACN)

Street Address

Town/Suburb

State

Postcode

**Where did the Occurrence occur?****Workplace known as \***

Darwin ARFFS

**Occurrence Street Address \***

Gate India, Pederson Rd

**Occurrence Town/Suburb \***

Darwin

**Occurrence State \***

NT

**Occurrence Postcode \***

0812

**Occurrence Country \***

**Describe the sequence of events immediately leading up to the incident, including what, if anything, may have gone wrong \***

**Activity being performed at time of the occurrence \***

**What if any plant, vehicles, equipment, substances or things were involved in the Occurrence?**

**Was this related to Airlines business? \***

☒ Yes ☐ No

**Comcare notification requirement:  
Was there a serious risk to a  
person's health and safety that was  
immediate or imminent? \***

☐ Yes ☒ No

**If you have selected Yes to the previous question you must now select a Comcare Dangerous Incident type. If one of these DI incident types does not apply then select No to the previous question.**

**Dangerous incident type**

**The information below is required where death, serious injury or illness or a dangerous incident has occurred and requires notification to Comcare. If not applicable leave fields below blank.**

**Has the site where the incident occurred been disturbed?**

☐ Yes ☒ No ☐ I dont know

**If you have ticked 'yes' or 'don't know' please answer the following question.**

**Has a Comcare Inspector arrived at the site or authorised disturbance of the incident site?**

☐ Yes ☒ No ☐ I dont know

**If you have ticked 'yes' please complete the following**

**Inspector's name**

**Date authorised**

**Time authorised (if known)**

**If you have ticked 'no' please complete the following**

**Has the incident site been disturbed for one of the reasons set out in section 39(3) of the WHS Act?**

☐ Yes ☒ No ☐ I dont know

**Primary reason for disturbance**

- ☒ To assist an injured person
- ☐ To remove a deceased person
- ☐ To make the site safe or to minimise the risk of a further notifiable incident
- ☐ Police investigation
- ☐ Inspector of the regulator has given permission

**How was the site disturbed?**

It was not disturbed.

## Potential Consequences of Hazard

### Potential Consequence

#### Work Health and Safety

**Potential Mechanism of Occurrence**

Falls, trips and slips of a person

**Potential Detailed Mechanism**

02 Falls on the same level

**Potential Agency of Injury or Disease**

Machinery and Mainly fixed plant

**Potential Detailed Agency of Injury or Disease**

Other plant and machinery

## Hazard

**Hazard Number (generated on save)**

HAZ-1026

**Hazard Category \***

Falls

**Hazard Subcategory**

At level – Slips or trips

**If Other Hazard Category, Please specify**

### Controls

**What Controls were in place**

**What other controls should be considered**

## Review

Responsible Supervisor/Manager \*

Review Date \*

04/09/2017

Manager's Action to Prevent Reoccurrence \*

Immediately check with [REDACTED] if he was ok. He stated he was and that his over trousers protected his knee from injury. I suggested he put the Cirrus in once we returned to station for reporting purposes. Once back at the station [REDACTED] stated he need any medical assistance for his knee or hand, I advised to monitor if there are any signs of discomfort.

Describe any longer term action taken or proposed to prevent a recurrence \*

Monitor people around the large mock up, continue to encourage people to have a "take five" before performing an activity to consider work health safety.

Additional Information

There was no loss of work time, more just reporting

In accordance with the relevant occurrence management procedure - is a formal investigation required? \*

☐ Yes ☒ No

If Investigation required select appropriate Investigation Commencement Criteria

Assigned Investigation Responsible Manager

## Supporting Documents

Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description	
No Records	No Records	No Records	No Records	No Records	No Records	

## People to Notify

Surname	Given Names	Delete	
No Records	No Records		

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

## Impacted Risks and Controls



### Impacted Risks and Controls within CIRRIIS

#### Impacted Risks

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete	
No Records	No Records	No Records	No Records		

#### Impacted Controls

Control Number	Control Type	Control Title	Delete	
No Records	No Records	No Records		

### Impacted Risks and Controls stored externally to CIRRIIS

#### Impacted Operational, Workplace and Safety Risks and Controls

### Lessons Learned

Lessons Learned Number	Lessons Learned Type	Lessons Learned	
No Records	No Records	No Records	

### Case Notes

Date of Note	Person Making Note	Comments	
08/09/2017	[REDACTED]	Initial review completed on day of CIRRIIS entry.	
08/09/2017	[REDACTED]	entered "At level -slips or trips" in the Hazard subcategory (field was blank)	

### Actions

Due Date	Action Number	Assigned To	Action Title	Status	
No Records	No Records	No Records	No Records	No Records	

### Occurrence Closure

**Close Off Date \***

19/04/2018

**Person Closing \*****Closing Comments****Close this  
Record? \***☐ Yes ☒ No

**This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls**

## Notification ( \* required fields )

Occurrence Number (generated on save)

OCC-0005586

Sensitive  
Occurrence

Reported By \*

Occurrence Time \*

☒ UTC ☐ Local

Occurrence Date \*

24/07/2015

Occurrence Time (HH:MM 24 hour format) \*

16:07

Reported Date \*

30/07/2015

Reported Time (HH:MM 24 hour format)

13:49

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NTDARWIN AIRPORT

Specific Location \*

Near Sub-station 9

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Extinguishment of Grass fires

Detailed Description \*

ARFF attended a grass fire approximately 100m from Sub Station 9 (Sub station 9 is located on Airport). The fire was extinguished with approximately 2,500 L of water through a hose line from a Mk 8 Vehicle. The likely cause of the fire was a spark from a nearby power line.

Immediate Action Taken \*

Fire extinguished with 2500L of water

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if

All Impacts or Potential Impacts \*

☐ ARFF Operational Service Delivery Occurrence☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, f☐ WHS Injury or Illness or Death

Witnesses

Type

Employer

Role in Occurrence

<input type="radio"/>	<Undefined>	Aviation firefighter
<input type="radio"/>	<Undefined>	Aviation firefighter

**Responsible Supervisor/Manager\*****ARFF Operational Service Delivery Occurrences Only**

Operational Breakdown

ORS Number (Occurrence Only)

06683

**Select "SAVE" to submit this report to your Manager.****Environmental**

	Type of Environmental Impact	Description of Environmental Impact	Extent of Impact
<input type="radio"/>	Contamination - Water/Soil	2500L of water was discharge from a MK8 which holds AFFF. The water which was discharged may have residual levels of PFC.	Onsite

**Review**

Responsible Supervisor/Manager \*



Review Date \*

04/08/2015

**Manager's Action to Prevent Reoccurrence \***

This discharge of water is a normal operation to extinguish grass fires.  
NOTE that NO AFFF was discharged in this operation

**Describe any longer term action taken or proposed to prevent a recurrence \***

This discharge of water is a normal operation to extinguish grassfires.

**Additional Information****In accordance with the relevant occurrence management procedure - is a formal investigation required? \***☐ Yes ☒ No**If Investigation required select appropriate Investigation Commencement Criteria**

**Assigned Investigation Responsible Manager****Supporting Documents**

Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
No Records	No Records	No Records	No Records	No Records	No Records

**People to Notify**

Surname	Given Names
No Records	No Records

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

**Impacted Risks and Controls****Impacted Risks and Controls within CIRIS****Impacted Risks**

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
No Records	No Records	No Records	No Records	

**Impacted Controls**

Control Number	Control Type	Control Title	Delete
No Records	No Records	No Records	

**Impacted Risks and Controls stored externally to CIRIS****Impacted Operational, Workplace and Safety Risks and Controls****Lessons Learned**

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

## Case Notes

	Date of Note	Person Making Note	Comments
⊙	06/08/2015	██████████	In further conversations with ██████████ (Site Contamination Assessment and Management Unit Manager), it was decided that Defence will be notified in a formal letter on Airservices use of AFFF at Darwin and Townsville.
⊙	31/07/2015	██████████	For the following reasons on review of the occurrence (which included conversations with Fire Fighter ██████████) I consider this operation response not to have an adverse environmental impact and therefore I will make the recommendation to ARFF that this occurrence be closed. The response involved the discharge of water only, no AFFF was discharged. However, the Darwin fire fighting tenders do carry Ansulite (on request from Defence). Consequently, it can not be discounted that trace levels of PFCs may have been discharged due to potential residual product in the water lines/hose of the vehicle. On consideration, and being mindful of recent analysis results of PFC impact on Mk7 vehicles which had been primarily exposed to 3M Lightwater Mk8s had not, I have concluded that should any PFCs have been released into the environment at the response site the detection level in the soil will be immaterially low and unlikely to have exceeded relevant (WHS/ecological) interim screening levels provided in the Airservices document Managing PFC Contamination at Airports, dated July 2015. Further, the response occurred on Commonwealth (Defence) land and as such Defence in requiring Airservices to use AFFF would be mindful of the risk profile of their requirement. Should ARFF have discharged AFFF as part of the response Defence would be contacted immediately; nevertheless I will recommend if it hasnt occurred that as a precautionary measure Defence be advised of the application of water resulting from the response. Furthermore, this occurrence has identified that internal discussions are required to determine the adequacy of Section 7.2, ENV-001, which relates to ARFF operational responses and the associated release of water. Discussion will be held with ██████████ (ARFF), representatives of Environmental Services and Strategy, Systems and Analysis (SEA) to consider the adequacy of the section, and whether amendment is required and/or the requirement to enter such a response in CIRRIIS as per the sections requirement is reinforced
⊙	30/09/2015	██████████	Discussion have been held with ARFF ██████████ relating to the reporting of operational responses involving water. ARFF are currently developing a reporting template outlining the minimum information, which ARFF are to provide, when they report water discharge at an operational response. ██████████ is considering revising the requirement of ENV-001 and sections related to the discharge of water at operational responses. As previously mentioned in an earlier case note, I recommend this occurrence be closed. I will send an email to ██████████ requesting him to close this occurrence.

## Actions

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

**Occurrence Closure****Close Off Date \***

07/08/2015

**Person Closing \***

[REDACTED]

**Closing Comments****Close this  
Record? \***☒ Yes ☐ No

**This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls**

## Notification ( \* required fields )

Occurrence Number (generated on save)  
OCC-0007491

Sensitive  
Occurrence



Reported By \*

[REDACTED]

Occurrence Time \*

☐ UTC ☒ Local

Occurrence Date \*

27/02/2018

Occurrence Time (HH:MM 24 hour format) \*

08:41

Reported Date \*

27/02/2018

Reported Time (HH:MM 24 hour format)

11:11

Location of Occurrence \*

AIRSERVICES AUSTRALIA\NT\DARWIN AIRPORT

Specific Location \*

Next to staion, off taxiway Zulu

Group/Branch (SDL)/Unit of the person involved \*

Airservices Australia\Aviation Rescue Fire Fighting Services\Western Operat

If this occurrence relates to a project then select it below

Summary \*

Foam discharge

Detailed Description \*

Daily vehicle pump test conducted on Tender 3. The foam and hose reel switch was confirmed off multiple times between LFF [REDACTED] the driver and operator, LFF [REDACTED]. I as the operator LFF [REDACTED] discharged the hose reel that immediately produced a small amount of foam. Approximately held down for 1 second.

After notifying the FSM, FC and SO the procedures were followed to contain and clean up the foam. Tender 3 was taken to the pad and tested through all the outlets. No further foam was produced. EVT [REDACTED] was convinced that the foam was residual leftover from a previous discharge and T3 was put back online as operational.

Immediate Action Taken \*

Notified FSM, FC AND SO immediately. Procedures followed after foam had been produced.

Classification \*

☒ Occurrence (select if there was an ACTUAL injury/illness or environmental spill, etc.) ☐ Hazard (select if

All Impacts or Potential Impacts \*



- ☐ ARFF Operational Service Delivery Occurrence  
☒ Environmental (i.e. Environmental damage including: fuel/chemical spills, harm to soil, water, flora, fauna, etc.)  
☐ WHS Injury or Illness or Death

**Witnesses****Type****Employer****Role in Occurrence**

No Records

No Records

No Records

**Responsible Supervisor/Manager\***

[REDACTED]

**ARFF Operational Service Delivery Occurrences Only****Operational Breakdown****ORS Number (Occurrence Only)****Select "SAVE" to submit this report to your Manager.****Environmental****Type of Environmental Impact****Description of Environmental Impact****Extent of Impact**

No Records

No Records

No Records

**Review****Responsible Supervisor/Manager \***

[REDACTED]

**Review Date \***

27/02/2018

**Manager's Action to Prevent Reoccurrence \***

This appeared to be residual foam left in hose reel from accidental foam discharge from previous day. Staff followed correct testing procedures and only a small amount of diluted foam was released (approximately 1L). Staff followed correct clean up procedures and vehicle was taken to the LMU pad for flushing. EVT was notified and assisted with flushing of vehicle. EVT checked vehicle and advised it appeared to be residual left over from last accidental discharge. FC [REDACTED] notified [REDACTED] Environmental Specialist, ARFFS and [REDACTED] DIA Environmental Officer of discharge and actions.

**Describe any longer term action taken or proposed to prevent a recurrence \***

Emails have been sent (see below attachments) to Fire Commanders to provide lessons to all staff on correct pump test procedures and foam flushing procedures. Li's to be updated on correct procedures. Reiterate to staff when doing flushing to ensure to a full flush is completed.

**Additional Information**



██████████ and myself have discussed with CFO ██████████ regarding Townsville and Darwin be exempt from the vehicle having to have the foam switch in the on position. In the past the vehicles used to have the foam switch in the off position and be turned on when required. It is currently kept in the on position and is required to be turned off when testing the vehicles.

In accordance with the relevant occurrence management procedure - is a formal investigation required? \*

☐ Yes ☒ No

If Investigation required select appropriate Investigation Commencement Criteria

**Assigned Investigation Responsible Manager****Supporting Documents**

	Date Loaded	Attached File	File Type	File Size - KB	File Uploaded By	File Description
	27/02/2018	<a href="#">foam discharge SEC UNCLASSIFIED</a>	msg	41	██████████	Email sent to Fire Commanders regarding lesson for staff and pump testing procedures
	27/02/2018	<a href="#">FW residual Foam Discharged SEC UNCLASSIFIED</a>	msg	1,131	██████████	Email sent to Fire Commanders on lessons to staff and flushing procedures

**People to Notify**

Surname	Given Names	Delete
No Records	No Records	

Once ?saved? / ?submitted? you may continue to add new information to this record until you lock the record at the end of this report process.

**Impacted Risks and Controls****Impacted Risks and Controls within CIRRIIS****Impacted Risks**

Risk Number	Top Event Name	Specific Location	Overall Risk Classification	Delete
No Records	No Records	No Records	No Records	

No  
Records

**Impacted Controls**

Control Number	Control Type	Control Title	Delete
No Records	No Records	No Records	

**Impacted Risks and Controls stored externally to CIRRIIS**

Impacted Operational, Workplace and Safety Risks and Controls

**Lessons Learned**

Lessons Learned Number	Lessons Learned Type	Lessons Learned
No Records	No Records	No Records

**Case Notes**

Date of Note	Person Making Note	Comments
No Records	No Records	No Records

**Actions**

Due Date	Action Number	Assigned To	Action Title	Status
No Records	No Records	No Records	No Records	No Records

**Occurrence Closure**

Close Off Date \*  
23/07/2018

Person Closing \*

Closing Comments

☐ Yes ☒ No

Close this  
Record? \*

This occurrence will be locked after closure however the following pages can still be edited if further information becomes available: Hours lost, Lessons Learnt, Promotional Activities, Case Notes, Actions and Impacted Risks and Controls