



# MELBOURNE AIRPORT

## PFAS Management Framework

16 August 2019

### Document control

Version	Date Issued	Approved By
FINAL DRAFT	16 August 2019	Nick Walker - Environment and Sustainability Manager

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## ABBREVIATIONS

Abbreviation	Description
AFFF	Aqueous film forming foams
APAM	Australia Pacific Airports (Melbourne)
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure
ASLP	Australian Standard Leaching Procedure
CEMP	Construction Environmental Management Plan
EMP	Environmental Management Plan
IW	Industrial Waste
LLDPE	Linear low-density polyethylene
PFAS NEMP	PFAS National Environmental Management Plan
PFAS	Per- and poly-fluoroalkyl substances
PFHxS	Perfluorohexane sulfonate
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
PIW	Prescribed Industrial Waste

## GLOSSARY OF TERMS

Term	Description
Soil	Soil includes any fill or natural materials, including rock.
Major Development Plan	Required to be submitted for significant developments at Melbourne Airport to the Federal Government for approval in accordance with the requirements of the Commonwealth Airports Act 1996.
Wastewater	Wastewater includes: captured stormwater, extracted surface water from drains or surface water bodies, extracted groundwater, wastewater generated from some management options (e.g. leachate from stockpiles).

## 1.0 INTRODUCTION

This PFAS Management Framework is designed to deliver consistent environmental management practices for potential environmental risks that are posed by PFAS impacted material on construction and maintenance projects at Melbourne Airport.

### 1.1 Background

PFAS is a common contaminant on airport land associated with the former use and storage of legacy aqueous film forming foams (AFFF). Legacy formulations of AFFF contained a number of PFAS, specifically PFOS, PFHxS and PFOA, as active ingredients that are now known to be persistent in the environment. PFAS are highly soluble and mobile and require management during construction and maintenance projects to mitigate potential impact to the environment and off-site receptors (the subject of this framework).

Further details regarding the nature, knowledge and management options for PFAS are outlined in the PFAS National Environmental Management Plan (PFAS NEMP) (January 2018).

### 1.2 Purpose of this document

The purpose of this document is to:

- Outline the minimum environmental management requirements to be included in any project specific CEMPs to meet APAM's PFAS management goals and commitments.
- Provide guidance that is consistent with the PFAS NEMP.

### 1.3 PFAS Management Framework application

The PFAS Management Framework is a subordinate document to the Melbourne Airport Environment Management Plan (EMP). It applies to any maintenance or construction activities within the boundaries of Melbourne Airport controlled land where PFAS impacted materials (including soil<sup>1</sup> and construction and demolition waste) is to be disturbed or wastewater<sup>2</sup> is to be generated/intersected. More specifically, the framework outlines requirements for:

- Soil management (Section 2.0)
- Stockpile management (Section 3.0)
- Construction and demolition waste management, including asphalt and concrete (Section 4.0)
- Wastewater management (Section 5.0)
- Slurry management (Section 6.0)
- Off-site disposal (Section 7.0)
- Material tracking procedures (Section 8.0)

Note:

- This framework does not outline occupational health and safety requirements.
- This framework relates to the environmental management of PFAS impacted materials associated with construction and maintenance projects at Melbourne Airport. It must not be used as a framework for the management and remediation of legacy source areas.
- This framework outlines minimum management requirements. Additional management measures may be required on a project specific basis where warranted to manage potential risks associated with PFAS contamination.

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<sup>1</sup> Soil includes any fill or natural materials, including rock.

<sup>2</sup> Wastewater includes: captured stormwater, extracted surface water from drains or surface water bodies, extracted groundwater, wastewater generated during works (e.g. equipment wash water, leachate from stockpiles).

- For projects subject to a Major Development Plan, additional requirements above those outlined in this Framework may be required as part of the approval process.
- As per other requirements outlined in the Melbourne Airport EMP, all works will be subject to verification and compliance monitoring by APAM.

## 1.4 Roles and responsibilities

The roles and responsibilities that apply to this framework are set out in the Melbourne Airport EMP.

## 2.0 SOIL MANAGEMENT

Soil that requires management under this management framework includes any fill or natural materials, including rock and sediments (i.e. excavated from drains) that are disturbed and excavated during maintenance or construction works.

Where small volumes of material are to be excavated and replaced within 7 days (i.e. minor maintenance works), APAM Environment Team may at its discretion determine that a project is exempt from requirements outlined in this framework. Any application that seeks an exemption must be able to demonstrate that:

- Works will be completed within the 7 day timeframe.
- Excavation depths will not intersect groundwater.
- Works are not being completed where runoff or saturated soil may be present (e.g. due to a leaking service or known ground conditions).
- All material will be replaced into the excavation and appropriately compacted to minimise potential increased mobilisation.
- Any surface coverings will be replaced within a 7 day timeframe (i.e. concrete, crushed rock etc).
- Works will be undertaken in favourable weather conditions (no heavy rain events or high winds).

### 2.1 Desktop assessment

Prior to any excavation works, the APAM Environment Team should be contacted so that they can provide any relevant previous reports and/or data with regard to PFAS contamination. The APAM Environment Team will advise if there is sufficient data to inform the works, or if additional sampling and analysis is required.

### 2.2 Sampling & analysis

Where practicable, in-situ sampling of soil must be undertaken prior to disturbance to be able to determine appropriate level of management controls. Sampling must consider the full vertical and lateral extent of proposed excavations, including both fill and natural profiles, as well as the proposed reuse area (if reuse onsite is proposed).

Soil is to be sampled and analysed in accordance with the PFAS NEMP, which includes reference to the National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM). At a minimum, this will include analysis for the PFAS 28 compounds analytical suite and Australian Standard Leaching Procedure (ASLP) analysis at pH neutral by a NATA accredited testing laboratory.

Sampling densities and distribution should be sufficient to characterise the range, distribution and average concentrations of PFAS in the soil areas under consideration. Sampling densities and spatial distribution should take into consideration Australian Standard 4482.1 and EPA Industrial Waste Resource Guideline (IWRG702).

All laboratory results, GPS coordinates of sample locations and a summary of sampling activities must be provided to the APAM Environmental Team electronically in both PDF and excel format. Laboratory data must be provided in ESdat database format (.csv file).

## 2.3 Management & Reuse Principles

The PFAS NEMP outlines the general requirements for management, containment and reuse of PFAS impacted materials. The governing principle is that any reuse does not lead to an unacceptable risk to human health or the environment, or an increase in risk at or near the location of reuse. Reuse options that are recognised within the PFAS NEMP include:

- Use as fill in a commercial/industrial setting where there is minimum access to soil.
- Use as fill below sealed surfaces such as car parks, roads, pavements and runways.
- Use as construction fill on road embankments where stormwater runoff is limited or controlled.
- Use as fill in areas where background PFAS concentrations present a similar or higher risk profile, provided that the total contamination mass is substantially lower than that already present.
- Reuse as construction materials (both soil and crushed construction waste such as concrete and bricks) provided that leachability of materials does not increase the risk profile.

### 2.3.1 Assessment for reuse suitability

When assessing the suitability of on-site reuse, the following factors need to be considered:

- Pre-existing conditions at the proposed re-use area.
- Current and likely future uses of the re-use area.
- Potential impacts to groundwater.
- Proximity to surface water bodies, stormwater networks and sensitive receptors.
- Potential for reuse area environmental conditions to increase mobilisation/release of contaminants.

### 2.3.2 Areas where reuse is generally not acceptable

Areas that are considered unacceptable for reuse within airport land without further risk assessment being undertaken include (but are not limited to):

- Fill or burial within 2m of maximum groundwater levels<sup>3</sup>.
- Reuse within 200m of a surface water body or wetland area.
- Reuse within 50m of stormwater drain or ephemeral drainage line.
- Reuse within areas of ecological or heritage significance.
- Fill, burial or reuse in locations potentially affected by reasonably foreseeable future rising water levels.
- Reuse in areas where background PFAS concentrations are lower than those in the material to be reused.

## 2.4 Reuse management levels and requirements

Table 1 below provides a framework for the on-site reuse of PFAS impacted soils, including PFAS concentration levels and minimum management requirements for each level. The reuse area must also meet the requirements outlined in Section 2.3. Any deviation from these requirements is subject to further risk assessment and approval from the APAM Environment Team before proceeding.

**Table 1: Reuse management levels and requirements**

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<sup>3</sup> Regional investigations undertaken on airport land suggest that groundwater is >2 m below ground surface. However, the Project Manager must satisfy the APAM Environment Team that it has considered the potential for shallow groundwater including perched systems.

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Management Level	Total Concentration (PFOS + PFHxS)	ASLP Concentration (PFOS + PFHxS)	Management Requirement
Level 1	≤0.14 mg/kg	≤0.07µg/L	Unrestricted reuse in accordance with minimum requirements of the PFAS NEMP and at APAM approved locations
Level 2	>0.14 mg/kg to 20 mg/kg	>0.07 µg/L to 0.7 µg/L	Capping at surface
Level 3	>20 mg/kg but <50 mg/kg	>0.7 µg/L to 7 µg/L	Engineered containment

Notes:

- 1) Soils not impacted by detectable PFAS concentrations can be reused on-site in line with the *Airports (Environment Protection) Regulations 1997* or disposed of off-site in line with the *Industrial Waste Resource Regulations 2009*, without restrictions outlined in this framework.
- 2) The maximum total concentration considered for reuse is 50 mg/kg. Any material that exceeds this concentration must be segregated and an appropriate remediation solution identified in consultation with the APAM Environment Team.
- 3) The use of statistical analysis and 95% upper confidence limits can be used for establishing PFAS Management Levels where sufficient data is available (e.g. 10 samples for like soil material).

## 2.4.1 Level 1 – Unrestricted use

Level 1 materials can be reused within the project boundary areas with no additional PFAS control measures, aside from the PFAS NEMP requirements outlined in Section 2.3. Where construction design cannot accommodate reuse within the project boundary, reuse within the APAM controlled areas of the airport may also be possible with similar or higher PFAS management levels, subject to approval from the APAM Property Team and the APAM Environment Team.

## 2.4.2 Level 2 – Capping at surface

Level 2 materials must be reused beneath a separation layer to provide a physical barrier over the PFAS impacted soils and mitigate potential leaching and mobilisation of PFAS into surface water run-off. Where possible, Level 2 materials should be preferentially reused under hardstand surfaces (concrete, asphalt). Where construction design cannot accommodate this preference, a minimum of 0.3 m of non-PFAS impacted clean soil (preferably low permeable soils) is required over a suitable indicator layer (i.e. a geotextile layer such as a high visibility warning layer or similar). Any such cover system should also be installed so that it covers the full extent of the reused soils and mitigates potential horizontal seepage at the edges of the reuse area.

## 2.4.3 Level 3 – Engineered containment

Level 3 materials must be contained beneath an engineered impermeable barrier or within an encapsulated engineered facility. Any engineered containment must consider soil leachability so that the levels of control are proportionate to the level of potential risk. The PFAS NEMP provides guidance on lining requirements for landfills based on PFAS concentrations and leachability of soil. This guidance is considered appropriate to inform the lining design of any engineered on-site containment. Surface capping will need to be either an impermeable barrier such as hardstand (concrete, asphalt) or an engineered clay barrier.

## 3.0 STOCKPILE MANAGEMENT

In addition to Section 5.2 – Management of Excavated Soil and Section 5.5 – Land and Groundwater Contamination of the Melbourne Airport EMP, the following outlines minimum environmental management requirements for short, medium and long term temporary stockpiling of PFAS impacted material.

### 3.1 General requirements

The following general requirements apply:

- Siting of stockpiles must only be in areas that meet requirements outlined in Section 2.3. Stockpiling outside the project area or in areas that do not meet requirements outlined in Section 2.3 will require approval by APAM Environment Team. Additional controls may be required to mitigate potential risks in these locations.

- Where possible, excavation and handling of PFAS impacted material during heavy rain or strong winds should be avoided.
- Preparation and management of stockpiles must be undertaken to minimise the potential for contamination of underlying and surrounding areas including uncontrolled runoff. In general this involves keeping stockpiles dry and installation of appropriate covering, base layers and bunding. The level of management required will depend on the duration of stockpiling and the PFAS concentrations.
- Where more than one PFAS Management Level is identified, segregation of materials is required.
- Where sampling is not undertaken in situ prior to excavation, material must either be:
  - stored in skip bins or other appropriate waste collection containers that are fully contained to prevent discharges, leaching and loss of waste; or
  - stockpiled in accordance with Level 3 PFAS Management Level Requirements as detailed below in Section 3.4, until adequate testing and classification of the material has been conducted.

## 3.2 Base requirements

The following requirements apply for the base of temporary stockpiles, in order of preference:

- Where possible, any PFAS impacted material should be stockpiled on hardstand such as concrete or asphalt to minimise potential for leaching of contaminants into underlying soils. A minimum 0.25 mm linear low-density polyethylene (LLDPE) sheet with a minimum 300 mm overlap between sheets must be placed between the hardstand and stockpile to prevent PFAS contamination of underlying hardstand.
- Where hardstand areas are not available or practical for stockpiling for Level 1 and 2 PFAS impacted material, it must be stockpiled within the project boundary where surface soils have a similar or higher PFAS Management Level. If this is not possible, a base liner will be required as per the point below.
- Where hardstand areas are not available or practical for stockpiling for Level 3 PFAS impacted material, it must be stockpiled on a minimum 0.25 mm LLDPE sheet with a minimum 300 mm overlap between sheets for stockpiles <7days. For stockpiling >7days to 12 months, a base liner will be required in the stockpiling area, including:
  - Stripping of the top soil (as required) and compaction of surface materials with a smooth drum roller.
  - Placement of clay or single composite lined base layer, depending on concentrations and duration.
  - Appropriate bund/leachate collection zone.

## 3.3 Cover requirements

The following requirements apply for the covering of temporary stockpiles:

- For stockpiling of PFAS impacted material <7 days with forecast rain or high winds, cover stockpiles with waterproof geotextile with appropriate anchoring or APAM approved soil binder / polymer to limit water infiltration and generation of dust.
- For stockpiling Level 1 PFAS impacted material for >7 days the above cover option can be maintained, alternatively the stockpile can be stabilised by applying topsoil and seeding, Hydromulch or similar.
- For stockpiling Level 2 and 3 PFAS impacted material >7 days to 12 months, more stringent levels of covering are required including:
  - Minimum 0.25 mm linear low density polyethylene (LLDPE) with a minimum 300 mm overlap between sheets.
  - Overlap to be positioned to minimise water ingress (i.e. overlap facing downslope).

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- Covering to extend 300 mm beyond toe of stockpile or anchored into the underlying soil.
- Appropriate anchoring of covering (i.e. sandbags) to prevent movement of covers and water infiltration.

The cover system should also be designed and / or maintained to withstand the weather elements at the airport.

### 3.4 Stockpile base preparation and cover matrix

The following matrix outlines the types of base and cover required depending on duration and contaminant levels. Stockpiles that are proposed to be stockpiled for periods longer than 12 months will require more rigorous engineering design and require approval from the APAM Environment Team before proceeding.

Stockpile Period	<7 days (with forecast rain and/or high winds)			7 days to 3 months			3 to 12 months		
	1	2	3	1	2	3	1	2	3
<b>Base requirements</b>									
Stockpile on hardstand area with minimum 0.25 mm LLDPE liner	X	X	X	X	X	X	X	X	X
Stockpile in unpaved area with similar PFAS Management Levels	X	X		X	X		X	X	
Stockpile in unpaved area with minimum 0.25 mm LLDPE liner			X						
Stockpile in unpaved area with clay or single composite liner						X			X
<b>Cover requirements</b>									
Waterproof geotextile with appropriate anchoring or APAM approved soil binder / polymer	X	X	X	X			X		
Topsoil and seeding, Hydromulch (or similar)				X			X		
Minimum 0.25 mm LLDPE sheeting with appropriate anchoring					X	X		X	X

Notes:

- 1) Stockpile construction and dimensions must also meet the requirements outlined in the Melbourne Airport EMP.

### 3.5 Monitoring requirements

The following monitoring requirements apply:

- For stockpiles of Level 1 PFAS impacted material that has topsoil and seeding, Hydromulch or similar applied, weekly inspections are required until such time that grass has established over the extent of the stockpiles.
- For all stockpiles, routine monthly inspections are required to verify that the controls are maintained.
- Prior to forecasted significant storm/ weather events, stockpiles must be checked to ensure that coverings are secure.

- Post any significant storm/ weather events, stockpile management integrity must be confirmed and rectified if required. Any uncontrolled discharges of sediment or leachate from stockpiles to surrounding areas are to be reported as an environmental incident.

## 4.0 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

Excavated hardstand materials, in particular concrete and asphalt, have the potential to be impacted by use and storage of PFAS products at Melbourne Airport and therefore need to be considered under this framework.

In areas where the use of PFAS products in fire training and response exercises may have been prevalent (i.e. fire station, training ground or aircraft maintenance facility), other construction and demolition wastes such as bricks, wood, internal structures etc. could be impacted. The potential for these wastes to be impacted by PFAS should be considered in consultation with the APAM Environment Team.

For the purpose of this framework, the management requirements for the excavation, handling, stockpiling and reuse of construction and demolition waste, are considered comparable to management of PFAS impacted soil. However, the reuse of construction materials must be a viable reuse / recycling option that is appropriate and a geotechnically suitable replacement for other construction materials (i.e. not as use as or within earth mounds). Examples of appropriate use include but are not limited to: haul roads, geotechnical sub-layers in pavement construction, crushed rock/concrete hardstand layers.

## 5.0 WASTEWATER MANAGEMENT

In addition to wastewater, surface water and stormwater management requirements outlined in the Melbourne Airport EMP, the PFAS NEMP requires that any proposed reuse of water must not result in an unacceptable or increased risk to human health or the environment. The reuse must also be consistent with regulatory requirements.

### 5.1 Wastewater sources

During construction and maintenance activities, the following sources of wastewater are generally encountered:

- Captured stormwater.
- Extracted surface water from drains or surface water bodies.
- Extracted groundwater (where encountered during excavations).
- Wastewater generated during works (e.g. equipment wash water, leachate from stockpiles).

Management controls must be considered to limit the potential for contamination of the environment (soil, groundwater and surface water) from activities. Where possible, stormwater must be diverted around the project area to minimise the generation of potential wastewater.

### 5.2 Sampling & analysis

In general, any water that is collected on site is required to be tested before any reuse or disposal options can be considered (except where noted in Section 5.5.2 below). Collected samples must be representative of the total volume of water being assessed.

Analysis must be undertaken in accordance with the Melbourne Airport EMP, PFAS NEMP and ASC NEPM. At minimum this will include analysis for the PFAS 28 compounds analytical suite.

### 5.3 Off-site disposal

PFAS impacted water may be disposed of to a suitably licensed facility off-site. Refer to Section 7.0 for more details.

## 5.4 Discharge to sewer

At low concentrations (up to 1µg/L) PFAS impacted water may be discharged to sewer, subject to obtaining a Trade Waste Agreement from City West Water. Contact the APAM Environment Team in the first instance for further details.

## 5.5 Reuse

Acceptable reuse options for PFAS impacted water the airport may include:

- Dust suppression.
- Re-infiltration.
- Irrigation (i.e. grassed areas).

### 5.5.1 Reuse general requirements

As any reuse option may impact on the environment (soil, groundwater and surface water), a risk-based approach for reuse must include consideration of:

- Concentration of PFAS in wastewater and proposed reuse area.
- Existing groundwater conditions, including depth to water table and PFAS concentrations.
- All potential receptors and potential exposure pathways.
- Potential runoff areas.
- Potential mobilisation of contaminants from soil.

In particular, the volume and rate of discharge during any reuse event must be undertaken in a controlled manner to limit impacts to existing environmental conditions and potential run-off into neighbouring stormwater drains.

### 5.5.2 Reuse management requirements

The following presents potential reuse options and testing requirements based on the type of wastewater generated.

Wastewater source	Testing requirements	Potential reuse options
Captured stormwater	If water is captured or stored in the defined project area, testing is required for >1000 L and >48 hour holding time. If natural pooling/inundation occurs, re-infiltration in-situ is acceptable without testing	Dust suppression Re-infiltration Irrigation
Extracted surface water from drains or surface water bodies	Testing of any extracted water is required before any re-use or disposal (unless pre-approved by APAM Environment Team).	Dust suppression Re-infiltration Irrigation
Extracted groundwater (where encountered during excavations)	If groundwater is pumped from excavations, testing must be undertaken before any reuse or disposal options can be considered.	Re-infiltration (in-situ only) Unlikely to be suitable for reuse unless analytical results can demonstrate acceptable risk
Wastewater generated during works (i.e. equipment wash water, leachate from stockpiles)	Must be tested before off-site disposal (or reuse if results can demonstrate acceptable risk).	Unlikely to be suitable for reuse unless analytical results can demonstrate acceptable risk

Any proposed reuse of PFAS impacted water requires approval from the APAM Environment Team before proceeding, and must demonstrate that the appropriate levels of control are in place to manage risks in line with the PFAS NEMP.

## 6.0 SLURRY MANAGEMENT

During construction and maintenance works, slurry is often generated during non-destructive drilling and from drilling muds. This generally consists of a mix of water and soil in a liquid/non-spadable form. Slurry wastes are generally disposed of off-site as the volumes are typically low and not suitable for reuse due to high water content and limited geotechnical properties. Refer to Section 7.0 for more details.

Where larger volumes of slurry are expected to be generated, the slurry can be separated into liquid and spadable soil (e.g. using settlement tanks / or engineered drying ponds) and treated using the soil and wastewater management requirements outlined in the sections above. Any such on-site treatment of slurry will require approval from the APAM Environment Team before proceeding, and must demonstrate that the appropriate levels of control are in place to manage risks in line with the PFAS NEMP.

## 7.0 OFF SITE DISPOSAL

The *Environmental Protection (Industrial Waste Resource) Regulation 2009* sets out the regulatory framework for the management of Industrial Waste (IW) and Prescribed Industrial Waste (PIW) in Victoria. These regulations are triggered when these wastes (e.g. contaminated soil, slurry and/or water) generated from Federal Airport Land are transported or disposed of outside the airport land.

The Environment Protection Authority (EPA) Victoria has provided several publications on aspects of these regulations in the form of Industrial Waste Resource Guidelines ([www.epa.vic.gov.au](http://www.epa.vic.gov.au)). However, the Industrial Waste Resource Guidelines currently do not have threshold criteria for PFAS impacted soil and such soils cannot be transported to landfill without an EPA Victoria approval, via a "Classification" process in line with EPA Publication IWRG1669.2 – Interim Position Statement on PFAS (August 2018).

Several treatment technologies are in the research and development phase with few commercially available technologies currently suitable for remediation of PFAS impacted wastes. The following operators hold temporary licences (known as Section 30A Approvals under the Environmental Protection Act 2017), for the off-site treatment of PFAS impacted soil, slurry and / or water.

- Veolia – 15-19 McDonald Road, Brooklyn, 3025 (Ph: 13 29 55)
- Renex - 109-131 Ordish Rd, Dandenong South VIC 3175 (Ph: 8787 0444)
- Enviropacific – Solve, 541 – 583 Kororoit Creek Road, VIC, 3018 (Ph: 1300 995 116)

Where off-site disposal to a licenced treatment facility other than those listed above is proposed, the Project Manager must obtain evidence that the receiving facility is licenced to accept such waste. This information must be provided to the APAM Environment Team for approval before proceeding.

For any off-site disposal of PFAS impacted waste, EPA transport and disposal certificates must be obtained and kept on file. This documentation must be provided to the APAM Environment Team upon request.

## 8.0 MATERIAL TRACKING PROCEDURES

All construction projects are required to have a material tracking procedure to document the management and movements of PFAS impacted material. At a minimum, the procedure should include documentation of the following:

- Sources of PFAS impacted material, volumes generated and corresponding analytical test results (where available).
- Description of management measures implemented for each waste stream.

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- Record of any associated approvals or permits for PFAS management issued by APAM or any other Authority, and documented compliance with any conditions of such approvals.
- The location of reuse or stockpiling areas (map and GPS coordinates).
- Maintenance records for temporary stockpile areas.
- Waste transport and disposal records for any material sent off-site.

It is recommended that the above procedures are also implemented more broadly for maintenance works.

## **9.0 COMPLIANCE STATEMENT FORM**

As part of project approvals process, the Compliance Statement Form included in Appendix A must be completed and submitted to APAM Environment Team including any required supporting documentation.

**APPENDIX A**  
**Compliance Statement Form**

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## Appendix A – Compliance Statement Form

Tenant / Contractor / Operator Details			
Project or Activity		PERCOW No. (if applicable)	
Company		Representative	
Contact Email		Contact Phone Number	
PFAS Contamination Levels & Material Volumes			
What is the location of the area where material is to be excavated/disturbed?	<i>A location plan showing proposed excavation locations must be attached</i>		
What is the estimated total volume of material to be excavated/disturbed? (m <sup>3</sup> )			
What is the maximum proposed depth of excavations?			
What is the sampling density of the material to be excavated/disturbed?	<i>List the number of soil sample locations and the number/depth of samples. Demonstrate how the sampling density meets the requirements of the PFAS NEMP / ASC NEPM or if not, provide justification for the reduced sampling density.</i>		
Is groundwater likely to be intersected during the works?	<i>Based on available data, what is the expected depth to groundwater?</i>		
What are the expected material types and volumes?	<i>Soil – Fill/ Natural Construction Materials (concrete, asphalt etc.)</i>		
What are the total concentrations of PFAS (mg/kg)?	<b>Range:</b> <b>Average:</b> <b>Any results &gt;50mg/kg?</b>		
What are the ASLP concentrations of PFAS (ug/L)?	<b>Range:</b> <b>Average:</b> <b>Any results &gt;7ug/L?</b>		
What volumes of PFAS impacted material have been confirmed for potential reuse, in line Section 2.4 of the PFAS Management Framework?	<b>Level 1 (m<sup>3</sup>):</b> <b>Level 2 (m<sup>3</sup>):</b> <b>Level 3 (m<sup>3</sup>):</b>		
Proposed disposal/re-use (in order of hierarchy) for each material type and estimated volume	<i>Provide specific details on proposed option(s), including plans and cross-section where appropriate. E.g. reuse in project area, reuse at other APAM location, on-site temporary stockpiling, treatment, off-site disposal.</i>		
Reuse			
What is the location of the proposed area where material is to be reused?	<i>A location plan showing proposed reuse locations must be attached</i>		
What is the sampling density at the proposed reuse area?	<i>List the number of soil sample locations and the number/depth of samples. Demonstrate how the sampling density meets the requirements of the PFAS NEMP / ASC NEPM or if not, provide justification for the reduced sampling density.</i>		
What are the total concentrations of PFAS (mg/kg) at reuse site?	<b>Range:</b> <b>Average:</b>		
What are the ASLP concentrations of PFAS (ug/L) at the reuse site?	<b>Range:</b> <b>Average:</b>		
Are background PFAS concentrations in the reuse area of a similar or higher risk profile?			
What are the current and likely future uses of the reuse site?			

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Is the level of PFAS or other contamination acceptable for the current and likely future uses of the site?	
Is there potential for impacts to groundwater?	<i>Consider hydrogeological conditions, and potential pathways for runoff and infiltration to groundwater. Provide justification for the assessment of potential impact.</i>
What is the proximity to surface water bodies, stormwater networks and sensitive receptors?	<i>Identify the distances to all surface water pathways/receivers. Refer to Section 2.3 of the PFAS Management Framework.</i>
Does the reuse site present a potential increase in mobilisation/release of contaminants?	
<b>Stockpiling</b>	
What is the proposed location of stockpiles? Are stockpiles to be managed within or outside project boundary?	<i>A location plan showing proposed stockpile locations must be attached</i>
What is the proposed duration of stockpiling?	<i>&lt;7 days, 7 days to 3 months, 3 to 12 months</i>
What are the PFAS Management Levels and estimated volumes for each level?	<b>Level 1 (m<sup>3</sup>):</b> <b>Level 2 (m<sup>3</sup>):</b> <b>Level 3 (m<sup>3</sup>):</b>
What is the proximity to surface water bodies, stormwater networks and sensitive receptors?	<i>Identify the distances to all surface water pathways/receivers. Refer to Section 2.3 of the PFAS Management Framework.</i>
Can the stockpiles be placed on hardstand?	<b>YES / NO</b>
What are the proposed base preparations?	<i>Refer to Section 3.2 of the PFAS Management Framework</i>
What stockpile covering is proposed?	<i>Refer to Section 3.3 of the PFAS Management Framework</i>
What level of monitoring is proposed?	<i>Attach copy of Monitoring Form template or post-construction EMP</i>
Who will be responsible for ongoing monitoring of stockpiles?	
<b>Wastewater</b>	
What types of wastewater are expected to be encountered and at what volumes?	<i>Refer to Section 5.1 of the PFAS Management Framework.</i>
What is the proposed sampling program for wastewater?	<i>Refer to Section 5.2 of the PFAS Management Framework.</i>
What management options are proposed for wastewater?	<i>Provide specific details, including summary of any correspondence/endorsement from APAM Environment Team. Refer to Sections 5.3, 5.4 and 5.5 of the PFAS Management Framework.</i>
<b>Slurry Management</b>	
Is any slurry expected to be generated during the works, and if so at what volume?	
What management options are proposed for slurry?	<i>Provide specific details, including summary of any correspondence/endorsement from APAM Environment Team. Refer to Section 6.0 of the PFAS Management Framework.</i>
<b>Off Site Disposal</b>	
Are PFAS impacted materials proposed to be transported off-site?	<i>Provide details of volumes and evidence that service provider is licenced to transport and dispose of PFAS contaminated material.</i>