

Guidance on managing PFAS contamination in Australia

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Background

In March 2017, CRC CARE published interim risk-based guidance for the assessment, management and remediation of PFAS site contamination. Due to the persistence and difficulty of treating PFAS contamination, the guidance recognises that there is considerable uncertainty about how such contamination can be managed and remediated.

2014 – 2017: CRC CARE Guidance

In 2014, when this project started, there were no recognised criteria in Australia for protecting human health and ecological systems, making it difficult to determine the risk posed by contamination. A large consultation forum comprising regulators, industry and experts led to the draft CRC CARE Guidance on PFAS. Since 2017, there have also been number of government responses to PFAS site contamination issues in Australia, leading to the development of a nationally consistent **National Environment Management Plan**. The understanding with EPAs is that the **CRC CARE guidance work will continue to ensure complementarity to the national processes**.

2017 - 2019: National Processes

- 3 Apr 2017 FSANZ (peak health body) revised TDI and drinking water guideline values for PFOS [+PFHxS] and PFOA
- 4 Apr 2017 PFAS Summit led by EPAs and the Commonwealth.
- Sept 2017 Public consultation on draft PFAS National Environment Management Plan. Agreement with stakeholders to provide the updated CRC CARE guidance document as a submission in national process.
- Feb 2018 Release of the final **PFAS National Environment Management Plan**. Release of a high-level **Inter-governmental agreement on PFAS**.
- May 2018 Publication of the CRC CARE guidance document as a reference document for practitioners
- Feb 2019 Revised National Environment Management Plan

Guidance in a nutshell

- Technical resource on a risk-based approach in the assessment and remediation of PFAS site contamination.
- Lit review on the physical and chemical properties, toxicity, and behaviour, fate and transport in the environment of PFOS and PFOA - considered in terms of their relevance to risk-based site contamination decision-making.
- Any draft screening values developed for PFAS are subject to numerous assumptions, uncertainties and limitations. These have been outlined. The revised version refers to new screening levels recommended by the PFAS National Environment Management Plan (see Tables 1 and 2). The National Plan acknowledges the ecological screening levels developed in the CRC CARE guidance for marine and terrestrial environments.
- Detailed investigations would be required in most cases where there is potentially unacceptable risk to human health or the environment, including site-specific investigations.
- Guidance is provided on the development of a conceptual site model for PFOS and PFOA, which may be extended to other PFAS where relevant. Strategies to avoid off-site migration of PFAS are critically important.
- Exceedances of screening levels does not necessarily imply that contamination poses an unacceptable risk, and these should not be used as remediation targets, as this could result in unnecessary remediation.
- Provides guidance on remediation and management

Illustration 1. Examples of inputs in a CSM

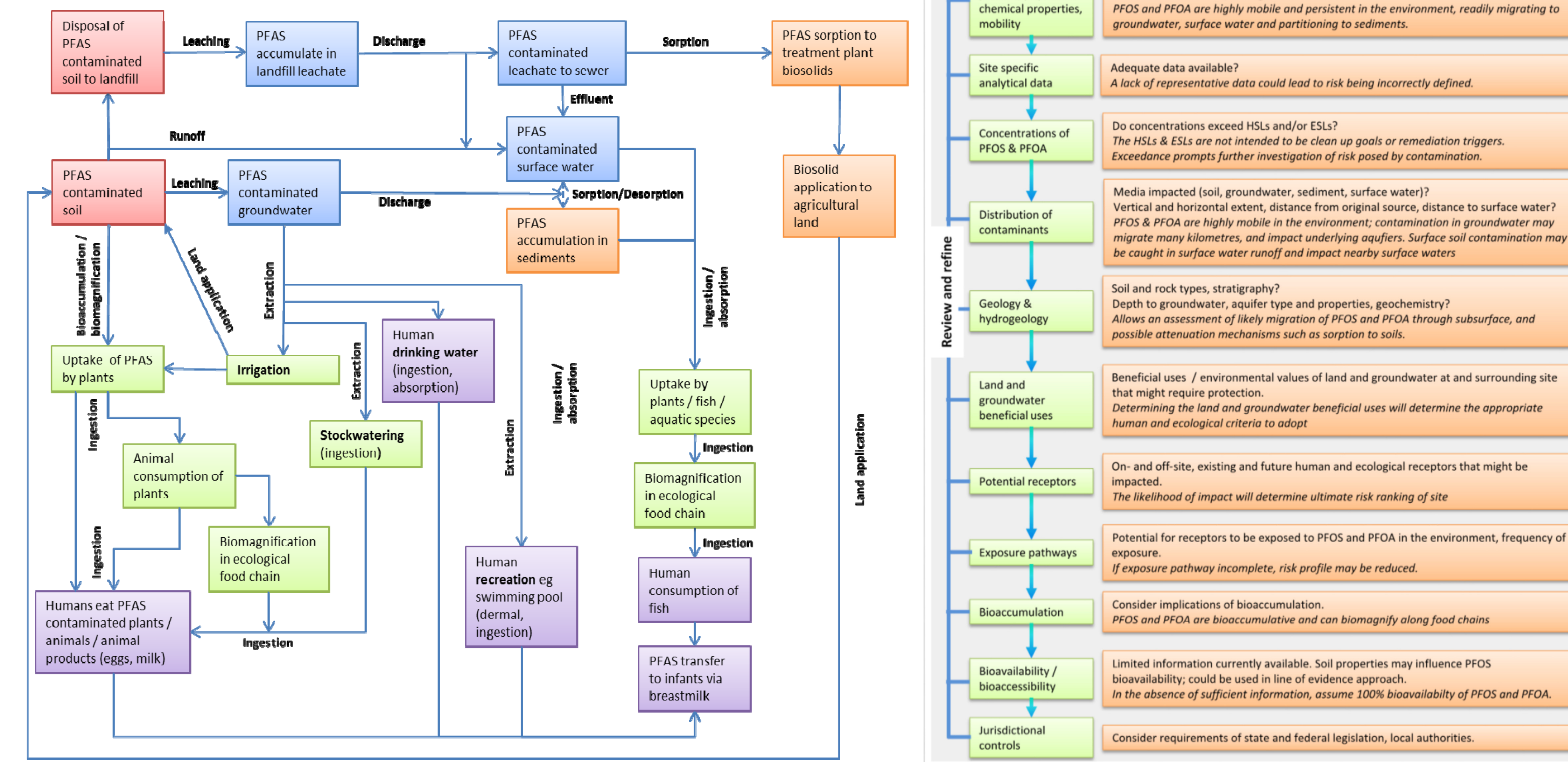


Table 1. Human health-based values

Region	Drinking water ug/L		Soil – human health mg/kg		Fish ng/L
	PFOS	PFOA	PFOS	PFOA	
Denmark (DEPA 2015)	0.1		0.39		
Germany (MoH 2006)	0.3' (inc. other PFAS)				
Sweden (NFA 2015)	0.09' (inc. other PFAS)				
UK (UK EA 2007)	0.3	0.3	PFOS only: 39 µg/kg ww (46 µg/kg dw) – agriculture top soil		
Minnesota (MDH 2011, MPCA 2015)	0.3	0.3	1.1 (res/rec)	1 (res/rec)	
New Jersey (NJDEP 2017)	-	0.014	14 (com/ind)	14 (com/ind)	
US EPA (2009)			6 (agric)	16 (agric)	
US EPA (2016)	0.07 *				
Canada (Health Canada 2016, ECCC 2017)	0.6	0.2	See Table 2.		
Netherlands (RVIM 2010)	0.53				0.65 (fresh)
Australia (FSANZ 2017; NEMP 2018)	0.07 (inc. PFHxS)	0.56	0.009 - 2 (res) 1 (public space) 20 (com/ind)	0.01 - 20 (res) 10 (public space) 50 (com/ind)	

Table 2. Ecological values

Region	Soil – ecological / irrigation/ agric./ etc mg/kg	Aquatic ug/L		Other
		PFOS	PFOA	
UK (UK EA 2007)		<1 (fresh) 2.5 (marine)		
Canada (Health Canada 2016, ECCC 2017)	PFOS only: 0.01 (agric /res/park) 0.14 (com/ind -coarse soil) 0.21 (com/ind - fine soil)			PFOS - mammalian and avian predators - 4.6 and 8.2 ng/g ww in food
Netherlands (RVIM 2010)		Short term: 36 (fresh); 7.2 (marine) Chronic: 0.023 (fresh); 0.00053 (marine)		Secondary poisoning: 0.0026 ug/L (fresh) 0.00053 ug/L (marine)
Australia (NEPM 2018, Commonwealth 2017)	Interim: Public open space PFOS 1mg/kg PFOA 10 mg/kg Other PFOS: Adopts Canadian values for: • agric /res/park: 0.01 • com/ind: 0.14	Freshwater PFOS 0.00023 – 31 PFOA 19-1824 Marine Interim – adopt freshwater values. CRC CARE guidelines under review.		Adopts Canadian PFOS values for mammalian and avian predators Landfill criteria also developed based on a factor of human health criteria, and in accordance with landfill type.

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