

ReSAGPAPR Working Group: Australia Report 2020

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Background

Australia endured a terrible end to 2019 and start of 2020 as the result of a significant number of devastating bushfires. The bushfires burned more than 46 million acres, at least 3,500 homes and sadly 34 people died. The fires and the recovery effort overlapped with the beginning of the global coronavirus pandemic. In Australia the virus has infected nearly 28,000 people and sadly resulted in over 900 deaths. Australia governments responded strongly to the latter closing both its external border and internal borders. Rapid, decisive and effective interventions, to reduce the spread of the virus, were implemented across the nation. This has resulted in an extraordinarily positive health outcome but a negative financial, employment and business outcome. The community response to the prevention strategies has been mixed.

Regulatory oversight and interventions have continued as routinely as possible. Environment assessment and remediation has continued throughout this period. However, the quantity and speed of the assessment and remediation programs have reduced for the reasons described above.

PFAS

The assessment of sites impacted by per-and poly-fluoroalkyl substances (PFAS) has continued to increase. The understanding of its use continues to grow. PFAS has been identified in paints and coatings, adhesives and sealants, agrochemicals, chemical synthesis and polymers. As a result, some sites previously closed have been reopened. This, along with routine testing, has resulted in an increased detection of the substances and the subsequent community concern that follows.

The Australian Department of Defence contractors have successfully removed PFAS from soil and groundwater at the Edinburgh Airforce base in South Australia. This is a first for Australia. This has been achieved by soil washing (Ventia Pty Ltd) using patented technologies and through the use of activated carbon for groundwater (Enviropacific Pty Ltd).

The disposal of contaminated soil and solids to engineered landfill cells is permitted at a small number of sites in Australia. However strong community opposition has resulted at a highly engineered landfill, that has recently sought SA EPA approval for disposal of PFAS contaminated soils and solids.

A second National Environmental Management Plan (NEMP 2.0) for PFAS was released by the Heads of EPAs (Australia and New Zealand) in January 2020. The Plan includes criteria and standards for:

- environmental and human health (soil and bird eggs)
- soil re-use
- water utilities (wastewater management)
- on-site storage and containment
- ecological protection – disturbed and non-disturbed systems

The Plan can be found at: <https://www.environment.gov.au/system/files/resources/2fadf1bc-b0b6-44cb-a192-78c522d5ec3f/files/pfas-nemp-2.pdf>

Petroleum hydrocarbons

In South Australia, since 1 January 2020, new legislation has required all petrol (service) stations to hold an EPA licence. Each licence requires:

- all tanks and product piping to have an appropriate leak detection system capable of detecting a leak rate of 0.76 L.hr^{-1} with greater than 95% confidence and less than 5% false positive;
- equipment integrity testing as soon as reasonably practicable after suspecting a leak;
- EPA notification as soon as reasonably practicable, but in any case within 24 hours if confirmed loss of integrity.

This has resulted in an increase in the detection of failed infrastructure, the subsequent notification to the EPA and then regulation of the loss of containment. All of this occurring much earlier than if the loss of containment is detected in groundwater.

The assessment of petroleum hydrocarbons is generally a harmonized approach across the nation. Considerable research in relation to petroleum hydrocarbons, led by CRC CARE, has concluded. This has resulted in the publication of many technical guidance documents which includes natural source zone depletion, weathered hydrocarbons, groundwater flux, MTBE, assessment and remediation, vapour intrusion, monitored natural attenuation, biodegradation, characterization and health screening levels. These documents can be found at the CRC CARE website: <https://www.crccare.com/publications/technical-reports>.

Chlorinated hydrocarbons

Chlorinated hydrocarbons associated with (historic) manufacturing continue to be identified in the environment. Of increasing detection are chlorinated hydrocarbons (particularly perchlorinated ethene) associated with dry cleaning. Large groundwater plumes have been observed resulting from dry-cleaning undertaken at an industrial scale.

The SA EPA has now successfully installed 15 below floor mitigation systems in private homes. This has resulted in the reduction of indoor air (TCE) from $> 40 \mu\text{g.m}^{-3}$ to $< 2 \mu\text{g.m}^{-3}$ ($< 2 \mu\text{g.m}^{-3}$ is considered safe). In exchange for a no-cost mitigation system, each home owner is required to enter into a statutory agreement with the EPA. These agreements are registered against the certificate of title and, as a result, bind all future owners to maintain and operate the system.

Clean Australia CRC

The Cooperative Research Centre (CRC) for Contamination Assessment and Remediation of the Environment CRC CARE (<http://www.crccare.com>) was launched in 2005 and, by rule, must conclude on 30 June 2020. CRC CARE has been extended by 1 year to 30 June 2021 (mainly in response to the pandemic) and has been extremely successful. Professor Ravi Naidu has been credited for much of its success.

Professor Naidu has proposed a new CRC – the Clean Australia (CA) CRC. The Clean Australia CRC partners have committed \$129.6M AUD (\$44.2M cash and \$85.4M in-kind) over ten years. The application to form this CRC has proposed four programs that plan to:

- Change the way Australia defines and measures risk.
- Reduce and better manage hazardous waste.

- Harness new technologies to treat and recover value from waste (including wastewater).
- Better assess, regulate and treat complex and emerging contaminants (e.g. PFAS, pharmaceutical residues, micro/nanoplastics).

The Australian Government is considering this application along with many others. The bid process is highly competitive as funding is limited.

Community engagement

Community engagement continues to be a key component of all EPA work. The SA EPA has established a dedicated website for this purpose: <https://engage.epa.sa.gov.au/>. Many EPA staff are trained to assist the full-time community engagement professionals. This is particularly useful for large community engagement events. These professionals also provide advice to government and private sector organisations undertaking engagement. Engagement methods have been subject to considerable change due to the global pandemic.

There remains a strong reluctance for many organisations to initiate community engagement. The EPA can require this as a condition of an Order if needed.

The EPA has recently begun making its records available online in GIS format. This can be found at <https://location.sa.gov.au/viewer>. Currently two layers are available - groundwater prohibition areas (GPA) and s83A notifications (notifications of harm to groundwater).

Development legislation

Legislation to formalise the assessment of site contamination, when a site is developed, is currently subject to consultation.

The objectives of the legislation are to:

- safeguard community health by providing a consistent State-wide planning approach to site contamination assessment
- specify site contamination assessment steps that must be taken whenever land use is proposed to be changed (including an application for land division) to a more sensitive use
- ensure land is suitable, or will be made suitable, for the intended uses(s) where a more sensitive use of land is proposed.

The key document can be accessed here:

https://plan.sa.gov.au/_data/assets/pdf_file/0010/744292/Draft_Practice_Direction_-_Site_Contamination_Assessment.pdf

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