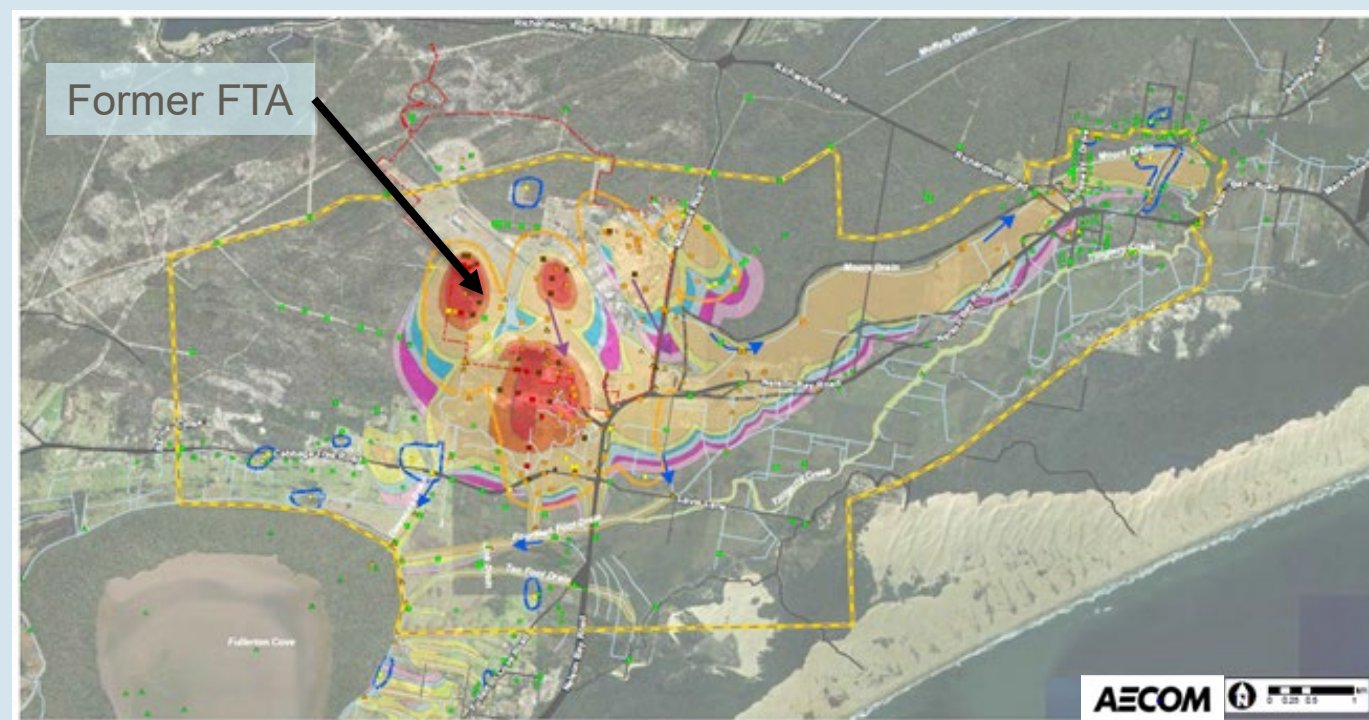


# Ion Exchange Groundwater Treatment System Addresses PFAS Contamination in Former Fire Training Area at an Australian Air Base

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## Background

- Historical use of AFFF at RAAF Base Williamtown in NSW, Australia has resulted in PFAS contamination of groundwater, which migrates off base.
- After defining the nature and extent of PFAS contamination, the Australian Department of Defence retained ECT2 to supply and operate a PFAS water treatment system that would manage contaminated groundwater at the former Fire Training Area (FTA).
- The primary PFAS compounds found at the Site are PFOS and PFHxS at combined concentrations above Australia's HBGV of 0.07 µg/L.
- The SORBIX RePure regenerable resin system was selected for full-scale application, based on system performance and a lower overall lifecycle cost than GAC.



Extent of PFAS contamination at RAAF Base Williamtown

## Objectives

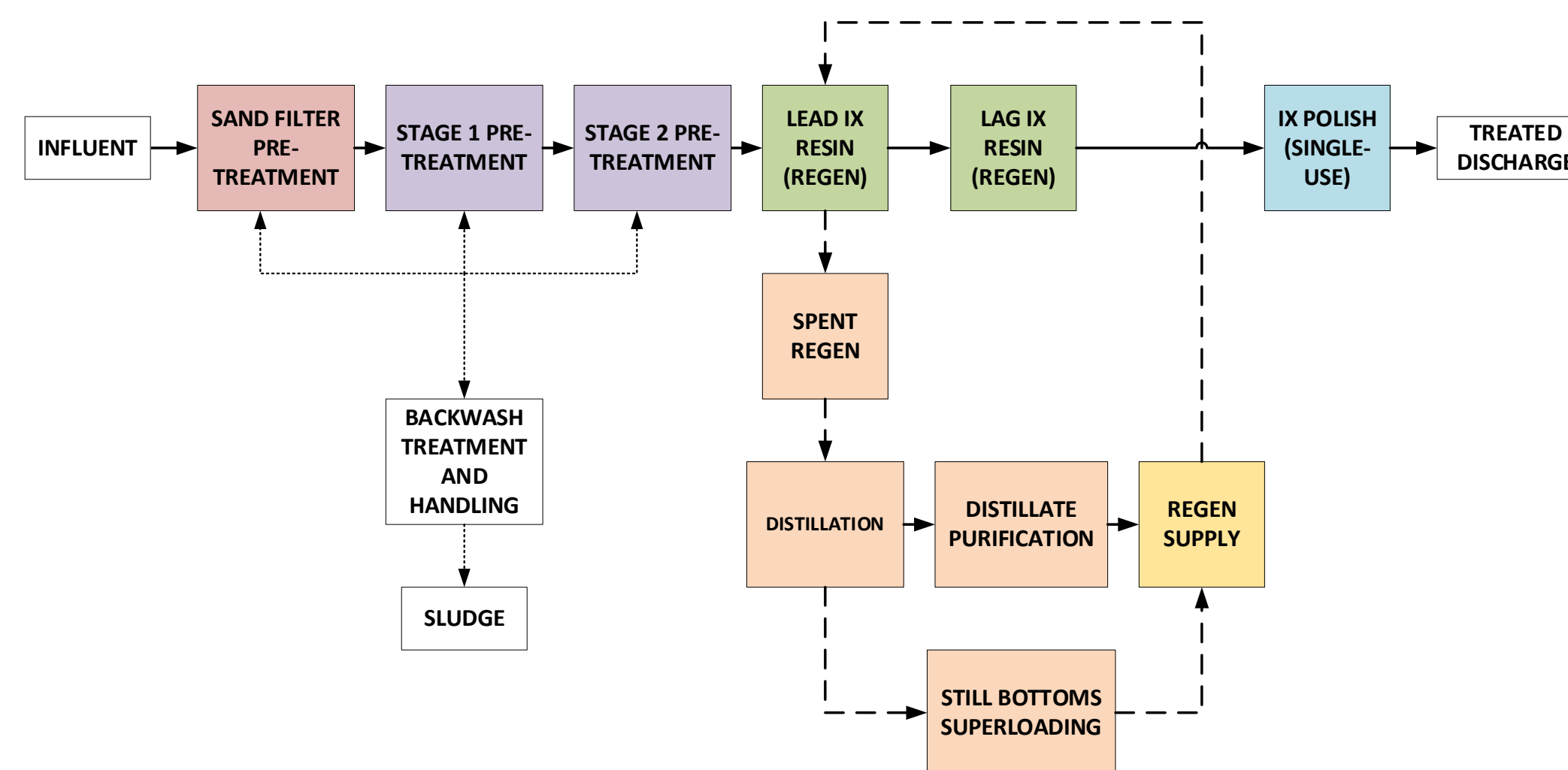
- Install a full-scale regenerable IX treatment system capable of treating up to 12.6 L/s of PFAS-contaminated groundwater from the former fire training area.
- Control off-site migration of the PFAS plume, while consistently maintaining treated effluent less than the 0.07 µg/l HBGV.

| PFAS Compound     | Initial Average Influent Concentration (µg/L) |
|-------------------|---|
| PFOS + PFHxS      | 29.1  |
| Other PFAS        | 1.7   |
| Total PFAS (n=28) | 30.8  |

## Approach and Results

### The PFAS removal system includes:

- Sand filters to remove iron and solids
- Back-washable pretreatment IX resin to remove organic compounds and colloidal iron
- Two parallel trains of lead-lag SORBIX RePURE IX resin vessels for PFAS removal
- Two parallel trains of lead-lag SORBIX PURE polish IX resin vessels to enhance short-chain PFAS removal
- A centralised resin regeneration system to remove PFAS from the IX resin
- A distillation system to recover and reuse the regenerant solution
- A PFAS super-loading system to further reduce PFAS waste volume

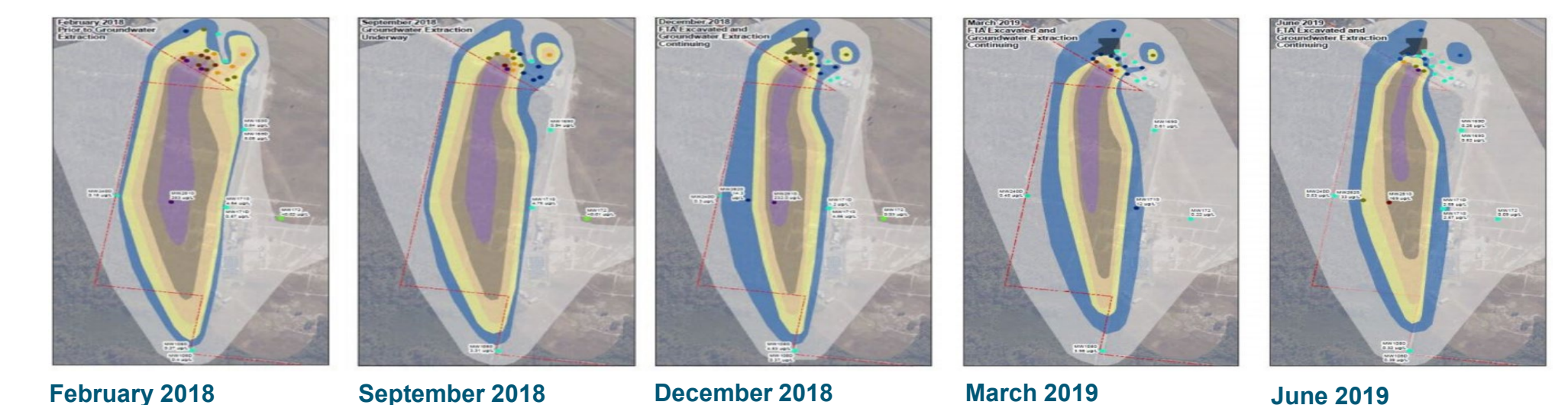
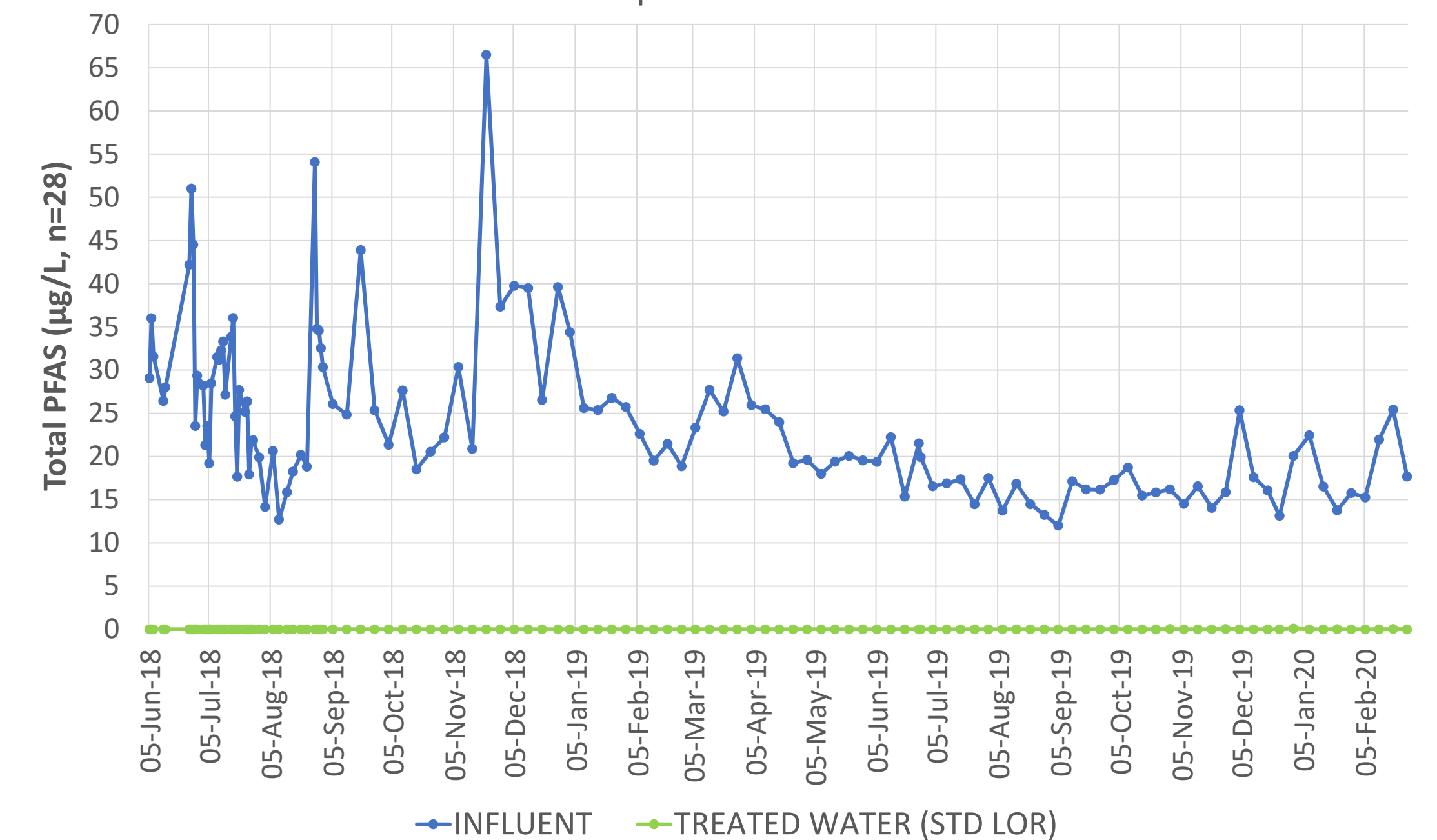


System Process Flow Diagram



Constructed Treatment System (left) and Centralised Regeneration Facility (right)

RAAF Base WLM FTA WTP - Influent and Treated Water Total PFAS from Start-up: 05-Jun-18 to 26-Feb-20



PFAS plume reduction; Figures provided by AECOM

## Summary and Conclusions

- The SORBIX regenerable resin system is highly effective at treating waters impacted by PFAS. Over 575 million liters have been treated to date.
- The treatment system operates 24/7; achieving an average uptime of 98%.
- The treated water quality from the treatment system has been consistently below the standard level of detection for PFHxS + PFOS, readily achieving compliance with the 0.07 µg/L HBGV target.
- Flexible treatment systems are highly adaptable to varying site needs, including the addition of pretreatment and polish stages, and the capacity to increase flow rate with minimal increase in footprint.
- Central resin regeneration maximises treatment capacity and minimises waste generation and operating costs. Seventeen successful SORBIX RePURE regenerations have been performed to date at the centralized regeneration facility, including 4 regenerations for the WLM FTA WTP.