TELLUS™

CASE STUDY

Tellus' near surface geological repository to provide a safe and permanent solution for hazardous PFAS contaminated waste

CLIENT'S SECTOR

Wide variety of sectors use PFAS products due to their water and stain repellent properties and thermal resistance

CLIENT'S WASTE TYPE

PFAS contaminated waste

THE CLIENT CHALLENGE

Disposal of legacy stockpiles of unused AFFF and hazardous PFAS contaminated materials

Most of the contaminated waste consisting of per- and poly-fluoroalkyl substances (PFAS) can be traced back to the historical use of aqueous film forming foams (AFFFs), which are used to control fires involving flammable liquids (e.g. aviation fuels). AFFFs have been in use since the 1960s, when their environmental effects were not well understood. This previous use of AFFFs containing PFOS, PFOA, PFHxS and fluorotelomers has caused wide-spread contamination of soil and water.

With increasing scientific understanding, it is now known that PFAS compounds are highly soluble, highly mobile in the environment, persistent, bio accumulative and toxic.

Production of AFFFs containing PFOS and PFOA has mostly been phased out and their use is heavily regulated and restricted. Unfortunately, previous use has led to widespread land and ground water contamination, posing considerable long-term risk to public health as well as potentially causing damage to the environment.

Historically, the PFAS compounds of note in firefighting applications have been perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). PFAS compounds are also known to be present in everyday consumer products such as carpet, plastics and electrical components. PFOS is listed on the Stockholm Convention (2009), and PFOA

has a Group 2B carcinogen classification according to the International Agency for Research on Cancer (IARC). However, the Heads of EPAs Australia and New Zealand, 2019: PFAS National Environmental Management Plan ('PFAS NEMP 2.0) considers the impacts of all PFAS compounds, including fluorotelomers, fluorinated alkyl ethers and polyfluorinated decomposition products. In Australia, wastes containing PFAS compounds must be managed in accordance with the PFAS Management plan.

Legacy stockpiles of unused AFFF and PFAS contaminated materials (e.g. soils) have proven difficult to dispose of due to the limitations of traditional infrastructure aligned with declining available capacity and a reducing capability to deal with some of the more persistent and emerging contaminants safely. This challenge is creating significant environmental harm and financial burden. Increasing scientific understanding and regulation of contaminants and potential contaminants means the industry is facing additional significant challenges every year.

TELLUS SOLUTION

Safe and cost-effective disposal and permanent isolation at the Sandy Ridge near surface geological repository

Tellus' Sandy Ridge Facility is licenced to accept and permanently isolate PFAS contaminated waste under the WA Government's approval (Ministerial Statement 1078) and the Australian Government's approval (EPBC 2015/7478). This Facility meets the requirements of the National PFAS NEMP 2.0.

We can cost effectively handle everything from a small liquid concentrate PFAS container, to contaminated equipment in all shapes and sizes, to tens of thousands of tonnes of bulk contaminated PFAS soil that can be removed from a client's site in one campaign or in stages over a period of time.

Tellus has commenced operations at its Sandy Ridge Facility, Australia's first commercial near surface geological repository, providing best practice permanent isolation for legacy, production and emerging waste streams across all sectors. With superior site selection and a multi-barrier safety case, Sandy Ridge offers permanent isolation of AFFF legacy stockpiles and PFAS contaminated waste materials that is both safe and cost-effective.

Disposal and permanent isolation of these hazardous waste materials at the Sandy Ridge Facility satisfies the Basel and Stockholm conventions' definitions of hazardous waste management and meets the requirements stipulated in the PFAS Management plan.

Hazardous PFAS contaminated waste can be placed and encapsulated in the Sandy Ridge near surface geological repository, providing permanent isolation from the biosphere over geological time (millions of years). This long-term and environmentally sound management of waste materials prevents discharge of hazardous chemicals to the environment and decreases risk to community health.

> "We have the licence, capacity, proprietary technology, people, plant and equipment to permanently solve this emerging problem cost effectively. Tellus' world class financial assurance and insurance framework (well over $400 million) gives confidence to regulators, clients and the community that the Sandy Ridge Facility is prepared for and protected against any plausible uncertainty. Additionally we take "risk and title" at our gate and can issue a valuable Tellus Permanent Isolation Certificate (Tellus PIC™) which certifies critical facts that provide a basis for derecognising a liability provision on financial statements under accounting standard AASB 137."
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> **Duncan van der Merwe, Tellus MD**