

Classes of water at Ranger



ERA

Managing water safely and effectively is one of the most important environmental and operational aspects of ERA's activities.

Water generated during the life of the underground mine, will be classified and managed under the existing water management system.

ERA's water management plan describes how the various classes of mine water are managed on site. Water classes are based on catchment areas and treatment streams. The three main classes of water are: process water, pond water and potable water. Other classes of water include treated water (known as permeate) and release water.

Process water

Process water is water that has come into contact with the uranium processing circuit. Process water is stored in the tailings dam where it is recycled through the processing circuit.

The brine concentrator, commissioned in September 2013, has the capacity to treat approximately 1.8 billion litres of process water per year. Once treated, this water can be released to the surrounding environment under strict regulatory guidelines.

Pond water

Pond water is water derived from rainfall onto mine catchments and is of a quality that requires active management. Examples of pond water include: seepage and surface runoff from mineralised rock stockpiles, seepage from the low-grade rock stockpiles and runoff from the processing areas that are not directed to the process water circuit.

Pond water generated during the wet season is stored in one of several retention ponds on the Ranger Project Area. Pond water is used as cooling water in the power station, for fire control, dust suppression in the crushing plant and on haul roads and as makeup water in the processing circuit.

The pond water inventory is managed by treating it through a water treatment plant utilising ultra-filtration/microfiltration and reverse osmosis.

In the dry season, some of the excess pond water naturally evaporates from the retention ponds or once treated, it is discharged through one of the dedicated sprinkler circuits onto tracts of land known as land application areas. Treated pond water can also be discharged to onsite constructed wetlands where it is either recycled or released to a land application area.

In the wet season, treated pond water can be released to the environment as described below.

Potable water

Potable water is drawn from the Brockman and Magela borefields and is used for drinking, washing and ablution. Septic is captured and transferred to septic tanks and infiltration galleries for disposal.

Treated water

Treated water is pond or process water that has been treated through a water treatment plant or the brine concentrator. This water is directed to a range of locations on site depending on operational requirements.

When specific conditions are met, treated process water can be released into the Corridor Creek constructed wetland. As previously outlined, treated and partially treated pond water can be discharged to constructed wetland filters, recycled for use in operations and in land application.



Classes of water at Ranger

ERA

During the wet season, treated and partially treated pond water can be released from Ranger, providing it meets specific water quality criteria to ensure protection of the downstream environment.

Release water

Rain falling on the outer extremity of the catchments around the mine footprint, is referred to as release water. The quality of this water is such that it is not included in the pond or process water inventory but is able to leave the site as stormwater run-off. This water is diverted away from disturbed or operational areas of the mine and directed to waterways as natural rainfall run-off. It is closely monitored as an integral part of statutory and operational monitoring to ensure that water quality objectives for the Magela Creek are met.

Specific streams are routed through passive treatment systems or staging points for management and release. The water management plan incorporates operational surface water monitoring as well as statutory monitoring. The Commonwealth Government's Supervising Scientist Division independently monitors surface water quality upstream and downstream of the Ranger operation.

Fast Facts

- Managing water safely and effectively is one of the most important environmental and operational aspects of ERA's activities.
- ERA's water management plan describes how the various classes of mine water are managed on site.
- The three main classes of water are: process water, pond water and potable water. Other classes of water include treated water (known as permeate) and release water.
- The Commonwealth Government's Supervising Scientist Division independently monitors surface water quality upstream and downstream of the Ranger operation.

Further reading:

Refer to Chapter 8 of the *ERA Ranger 3 Deeps Draft Environmental Impact Statement*.