# Pit lakes

A pit lake is body of water formed within a mine pit at cessation of mining activities by either ground, surface or marine water inflow. These may form naturally or may be planned and deliberately filled, or allowed to fill.

Pit lakes are a commonly chosen option to rehabilitate mines around the world. The flooding of former mine sites can pose hazards as they fill, such as the potential for drowning (humans and animals), and because, for the period of fill, they may reduce the volume of water available to other users. There are many examples that demonstrate that pit lakes provide beneficial cultural and social opportunities for e.g., tourism and landscape restoration.

The characteristics of pit lakes, as well as the related risks and opportunities vary between mines and regions. In Victoria’s brown coal mines, lakes provide risk mitigation for bushfire and geotechnical instability. The volumes required to create and maintain any lakes, however, pose unique challenges in a changing climate.

## Understanding pit lakes in mine rehabilitation

The Hazelwood Mine Fire Inquiry found that using water to create pit lakes in areas where coal has been mined is likely to be the most viable way to achieve safe and stable rehabilitation of the mines. However, the Inquiry recognised that significant knowledge gaps existed in relation to the feasibility of pit lakes as a rehabilitation option and recommended further investigations be carried out.

Specific technical studies are being undertaken by declared mine licensees in order to address relevant knowledge gaps. These studies will be assessed by Victorian government regulators.

High level investigations focussing on geotechnical, water and land use planning were undertaken as part of the Latrobe Valley Regional Rehabilitation Strategy (LVRRS). The studies, which were carried out by technical specialists between 2017 and 2019, considered the regional benefits and risks associated with stabilising the mine pits by creating full or partial pit lakes. The studies noted that there were issues that remained unresolved and required further consideration.

In addition to the work being completed by the mine licensees, the Mine Land Rehabilitation Authority is collaborating with the Cooperative Research Centre for Transformations in Mining Economies (CRC TiME) in their research into pit lakes. When this study is completed it will be publicly available.

## How does this affect you?

You may have a vision for the use of the rehabilitated mines in the future. Learning more about the technical, environmental and social issues around mine rehabilitation can help inform this vision. An informed community is an empowered community.

One way of staying informed about the technical, environmental and social issues around mine rehabilitation is by watching our videos and following us on social media.

rehabilitation means minimising the ongoing costs of long-term management and maintenance of mined land.

Contact the MLRA for more information on 1800 571 966 or contactus@mineland.vic.gov.au

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