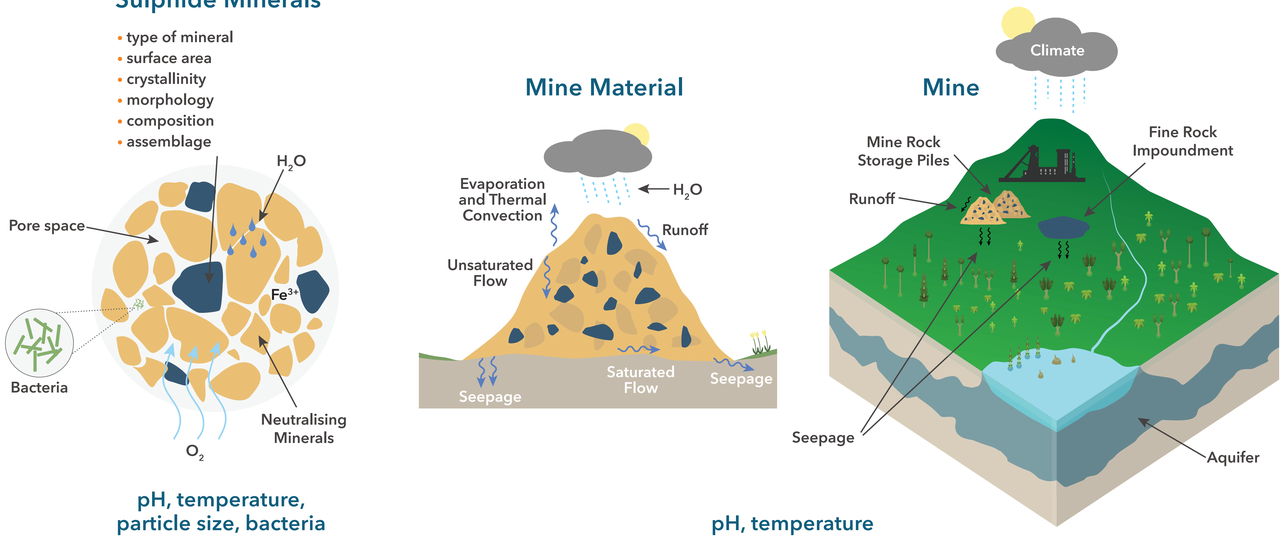
ACID ROCK DRAINAGE (ARD)

TENAS PROJECT

Acid Rock Drainage (ARD) Refers to the Outflow of Acidic Water from Rock

This is a natural chemical oxidation reaction which occurs when sulphide minerals (such as pyrite) are exposed to air and water where these minerals release sulphuric acid and metal oxides into watercourses downstream.

Bedrock buried in the Earth is chemically stable as it is not exposed to air, but when it becomes exposed to air and water the rock becomes destabilized through chemical and physical changes.

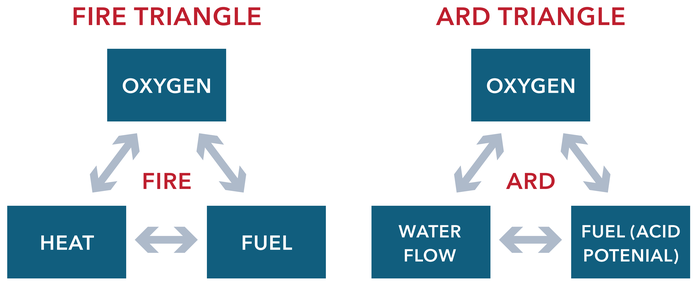


While these processes occur naturally, exposing and physically disturbing sulphide-bearing rock can accelerate ARD generation.

When mining begins bedrock is primarily undisturbed and unweathered, with weathering and oxidation beginning as mining exposes open pit walls and places non-economic materials into storage piles, backfill, or embankments and buttresses.

The components of the ARD reaction can be thought of in the same manner as the combustion reaction for fire, in that almost the same three inputs are required for the ARD reaction to occur.

Much like the fire triangle, the ARD triangle shows the reaction can be prevented if one of the inputs is removed.



- In advance of, and during mining, TCL proposes to progressively construct three management ponds for the permanent submersion of PAG material.
- PAG material will be submerged under at least 2 m of water once the management pond has met its PAG material storage requirements. During interim period, PAG materials are submerged under 1 meter of water within an average of 6 months but no longer than 12 months after placement.
- The North Management Pond will be completed first, followed by the East Management Pond and finally the West Management Pond.
- A layer of non-PAG rock will be placed on top of the submerged PAG material below the active water level of the respective management pond, followed by a layer of overburden and reclamation materials (surface soils) to create a dry landform above water, similar to pre-Project development.

The most effective approach for mitigating the effects of ARD is avoidance, which can be accomplished by proactive identification and segregation of Potentially Acid Generating (PAG) rock for management.

TML has developed a Metal Leaching /Acid Rock Drainage Management Plan (ML/ARDMP) to address the management of of potential acid generating materials, and the plan will be implemented for all Project phases.

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