

Recycling and Reusing Process Water to Minimize Environmental Impacts

12/14/2023

Thacker Pass lithium mining operations will be efficient and sustainable, using less freshwater than what is used by surrounding agricultural operations



A Lithium Americas Technical Development Center Pilot Plant Technician extracts a filter cake, which helps maximize water recycling. After leaching and neutralization, waste solids are filtered to recover water and generate material for dry stack storage.





After the leaching and neutralization process, the solids from the lithium-containing brine are separated using pressure filtration. The result of this process are the solid filter cakes, pictured here, which are a dry, neutralized material. Next, the filter cakes will be stored in our clay tailings filter stack facility. Our process offers several environmental advantages in that we have no tailings dams on-site, and our tailings are completely neutral which makes them benign for the environment.



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Lithium Americas is implementing responsible mining practices, while also demonstrating leadership in environmental sustainability. Our water conservation plan supports one of our priorities – to sustainably manage water resources by limiting its use and safeguarding its quality. Thacker Pass has been designed as a zero liquid discharge (ZLD) process to maximize water recycling and reuse, and to not discharge industrial wastewater.

Lithium Americas will receive approximately 34 separate local, State and Federal agency permit approvals for Thacker Pass when the project completes construction and moves into operations. Two of these permits apply to water.



Lithium is a **top 50 critical mineral**, as well as a critical material, that is used in the batteries needed to power electric vehicles (EVs), tech and mobile devices. Traditionally, lithium is mined from hard rock that is crushed and roasted, or pumped from brine wells which require large evaporation ponds for solar processing. Thacker Pass is a sedimentary (clay) lithium resource, and the unique nature of the ore allows for low water intensity, as well as low energy intensity, to process into battery-quality lithium carbonate.

The Thacker Pass flowsheet is an end-to-end combination of commonly used mining and standard chemical unit operations that have been proven for decades in traditional phosphate, mining and hydrometallurgy industries. Following is a look at how Thacker Pass will use less freshwater and recycle process water to reduce the environmental impact of lithium mining operations.



Lithium Americas Chief Geologist, Randal Burns collects samples of the water at Thacker Creek and tests pH levels for environmental baseline data. Checking the total dissolved solids and pH are important measurements for determining overall quality of water.

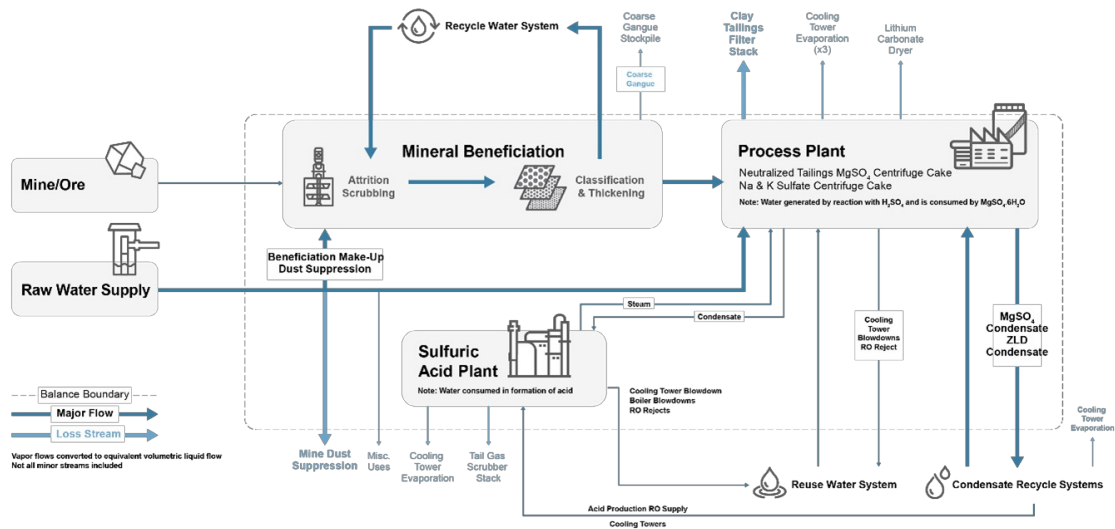
Lithium Americas is committed to sustainably managing water resources by limiting water use and safeguarding water quality.

WATER RECYCLING

The process flowsheet design for Thacker Pass will have efficiencies designed throughout the entire process that leverages filtration, evaporation and centrifuge technologies, to maximize the reuse and recycling of processed water and limit the amount of water obtained from natural sources.

Based on a detailed water cycle assessment, any water withdrawn for the operation is expected to be recycled and reused an average of approximately seven times within the production process. The ZLD design is an extensive

commitment because it means all processed water, including water filtered from tailings, must be recycled in the site's production process. Thacker Pass lithium processing will recycle 85% of the total water used. The following diagram shows how water flows at Thacker Pass.



WATER QUALITY PERMIT

Lithium Americas received the Thacker Pass Water Pollution Control Permit (WPCP) issued by the Nevada Division of Environmental Protection – Bureau of Mining, Regulation, and Reclamation (NDEP-BMRR) in April 2022.

The WPCP ensures the protection of both ground and surface water quality and are issued prior to the construction of any mining, milling or other beneficiation process activity. The WPCP application is prepared by a professional engineer licensed in the State of Nevada and demonstrates how all waters in the State of Nevada will not be degraded as a result of any mining, milling or other beneficiation process activity.

The WPCP outlines the specific limits and regulations for water-quality management, specifying what is allowed or prohibited, and specifying adherence to pollution control measures to safeguard water quality. The permit lists monitoring requirements, reporting and ultimately expectations for various pieces of an operation that can have a potential impact on the waters in the State of Nevada.

WATER CONSUMPTION

The consumptive water requirement for operations at Thacker Pass for Phase 1 is estimated at approximately 2,850 acre feet per year, which is the equivalent of around five alfalfa irrigation pivots of well water, per year. An acre foot

of water equals about 326,000 gallons, or enough water to cover an acre of land, 1-foot deep.

When the State Engineer issued the Phase 1 water rights, which changed the use from irrigation to mining and milling, they discounted the volume of water transferred to Lithium Americas by 22.5%. This discount results in less water being pumped from the Quinn River Valley, Orovada Subarea Hydrographic Basin. The two production wells for Thacker Pass were situated in areas with lower pumping, which would help balance aquifer withdrawal. In addition, most of the water was previously pumped during the growing season. Lithium Americas expects to pump less water quantities over the span of the entire year.

For additional information, visit the **[Final Environmental Impact Statement Thacker Pass Lithium Mine Project](#)**.

To learn more about our commitment to reducing our environmental impacts, refer to our **[Biodiversity Factsheet](#)** and our **[2022-2023 ESG-S Report](#)**.