Performance and metrics

Investment

In 2024, investment efforts shifted toward the development of new tailings storage capacity. This contrasts with the previous three years, during which investments primarily focused on geotechnical investigations, technical studies, and construction projects aimed at reinforcing existing facilities.

Total investment in 2024 reached $83.0 million, with $66.5 million allocated to 11 construction projects and $16.5 million directed toward six projects in the pre-feasibility or feasibility stages. Notable projects include the construction of Cell 2 of the Juanicipio Tailings Deposit, second and third raises of the San Carlos at Minera Fresnillo, Phase II of the Saucito Deposit, and the expansion of the Velardeña Tailings Deposit.

Production and reuse of tailings (circularity)

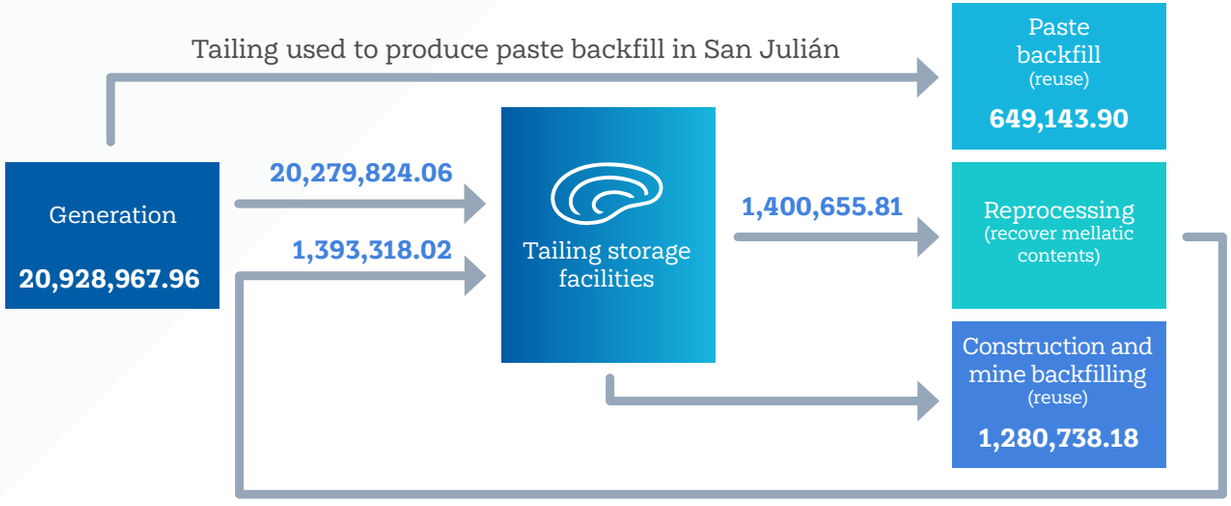
We continue to rigorously monitor the volume of tailings deposited across our facilities to assess storage capacity and forecast remaining operational life. In 2024, 20.92 million tonnes of tailings were generated. Of this total, 0.65 million tonnes were reused as paste backfill; 1.28 million tonnes were employed for construction and backfill of inactive mine workings; and 1.4 million tonnes were reprocessed to recover metallic content.

*We reuse the equivalent of **9.22%** of the tailings generated, representing savings in storage requirements and increasing the life of the tailings storage facilities.*

*We reprocess and reuse the equivalent of **15.37%** of the tailings deposited, confirming our commitment to circular economy and seeking a second life for our waste.*

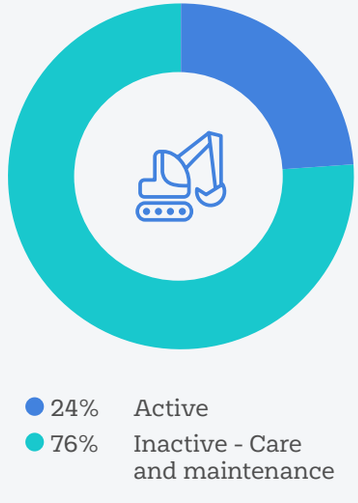
Tailings generation (tonnes)

2024	
Company	Tailings
Peñoles Mines	5,186,498.23
Fresnillo plc Mines	15,742,469.73
Industrias Peñoles	**20,928,967.96**



All figures reported in tonnes.
The difference between the input and output of the reprocessed material represents the mineral concentrate obtained.

Status of Tailings Storage Facilities



Waste rock piles, heap leaching, and jarosite deposits

In 2024, a total of 24.22 million tonnes of ore were placed on heap leaching pads for processing. During the same period, 80.71 million tonnes of waste rock were generated, and 0.69 million tonnes of jarosite were disposed of in safe storage facilities. These facilities are managed under a system inspired by best practices learned for the safe handling of tailings.

We apply rigorous engineering standards—such as the use of impermeable barriers—and implement robust monitoring programs, including groundwater wells and regular water quality testing, to ensure full compliance with environmental regulations.

Waste rock, heaps leaching and jarosite generation (tonnes)

2024			
Business division	Waster rock	Heap leaching	Jarosite
Peñoles Mines	4,104,284.50	2,226,336.18	-
Fresnillo plc Mines	76,608,132.70	21,989,426.89	-
Metals	-	-	689,151.00
Industrias Peñoles	**80,712,417.20**	**24,215,763.07**	**689,151.00**

Waste rock

In mining operations, barren rock must be removed to access ore bodies. These rocks, which have no economic value, are transported and stored in designated piles for either permanent or temporary storage. When feasible, waste rock is reused—for example, as backfill material in underground cut-and-fill operations.

Heaps leaching

Gold and copper oxides are processed using a hydrometallurgical method known as heap leaching. The ore is placed on leaching pads constructed with an impermeable barrier—typically high-density polyethylene (HDPE) geomembrane—at the base. A leaching solution percolates through the heap, dissolving the metals, and is then collected by the barrier and directed to a processing plant. There, the metals are recovered and refined into doré bars or copper cathodes.

Jarosite deposits

Jarosite is a byproduct generated during the hydrometallurgical extraction of zinc. Once stabilized, it is stored in dedicated deposits similar to engineered landfills. These facilities are constructed with impermeable barriers at the base to prevent any potential environmental impact.

Acid Mine Drainage (AMD) prevention

AMD represents a significant environmental challenge and a critical issue for the social license of the mining and metallurgical industry. Preventing and managing AMD is essential to minimize its potential impact on surface and groundwater resources during both mine operations and post-closure phases.

We fully comply with environmental regulations, including conducting geochemical testing to assess the AMD potential of ore minerals and waste rock, as well as evaluating the stability of jarosite. In operations identified with AMD risks, we implement site-specific management strategies designed to prevent, treat, and monitor AMD, ensuring long-term environmental protection.

Reportable and significant incidents related to mining-metallurgical waste

In 2024, we reported no incidents of non-compliance with water quality permits, standards, or regulations concerning tailings, waste rock piles, heap leaching pads, jarosite deposits, or acid mine drainage.

Company	Reportable Incidents	Significant Incidents
Peñoles	0	0
Fresnillo plc	0	0