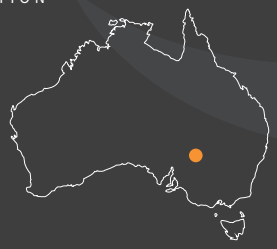
SGME | Engineering new environments

INDUSTRY EXPERIENCE

PROJECT

Sulfidisation-acidification-recycling-thickening application for a complex gold ore body

SECTOR	COMMODITY	LOCATION
Environmental Mgmt., Planning & Approvals	Au	

ISO

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SGME was engaged for our expertise in mine approvals to prepare an environmental licence application to modify an existing electro-winning process plant to include a sulfidisation-acidification-recycling-thickening (SART) circuit with the aim of improving gold recovery from a complex ore body.

Site description

The mine has operated since 2009 and is located approximately 80 kilometres south-west of Broken Hill in South Australia. Gold ore is extracted from two open pit operations and is primarily extracted by heap leaching using sodium cyanide.

The problem

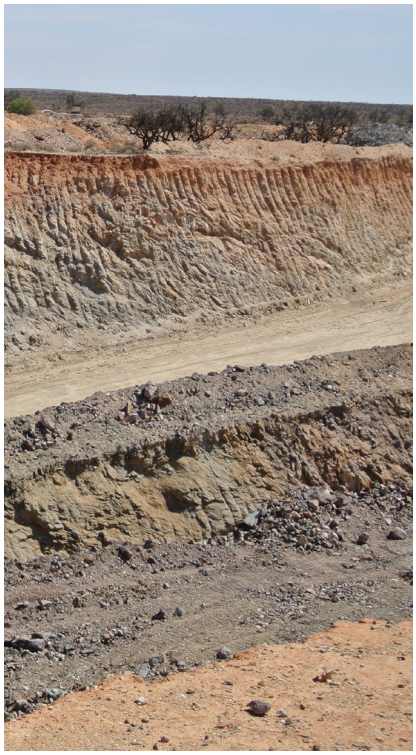
Gold recovery using heap leach extraction and electro-winning processing is difficult because the gold ore is complexed with copper. Copper preferentially complexes with sodium cyanide as weak acid dissociable complexes resulting in poor gold dorè purity and high concentrations of copper-cyanide complexes. The SART process removes metallurgical interference of cyanide-soluble metals and results in improved recovery and recycling of sodium cyanide.

SGME was engaged to prepare the environmental licence approval required to modify the existing process circuit.

SGME solution

SGME provided a cost-effective environmental licencing pathway that supported installation of SART infrastructure on an area that had been previously disturbed to ensure there was no increase in environmental disturbance. Through our structured approach, we evaluated the potential benefits of the SART process such as reduction in cyanide consumption and the extension of economic recovery of gold from existing ore deposits. Additionally, we evaluated alternative development options and locations that could potentially reduce adverse environmental, social and economic impacts.

The environmental licence application included determining specifications for the equipment and infrastructure required for the SART process, and describing how the system would be integrated into the existing cyanidation circuit. Potential environmental impacts were also identified with consideration of air quality, water quality, noise levels, biodiversity, vegetation, soil erosion, landscape aesthetics and cultural heritage. Mitigation measures were recommended including strategies to reduce pollution, protect sensitive habitats, control noise and vibration, manage waste and wastewater, and minimise disturbance. It was recommended that other environmental impacts are offset.



Overall, SGME's expedient environmental licence approval streamlined installation of the SART process infrastructure.

Our solution ensured that the project could proceed efficiently and effectively by minimising disruptions to existing operations while enhancing gold recovery.

SGME consistently demonstrates exemplary proficiency in preparing environmental approval, management and planning documents for the mining industry. We showcase meticulous attention to detail, comprehensive data analysis and a steadfast commitment to regulatory compliance. Our ability to succinctly encapsulate complex environmental processes into clear and compelling reports drives transparency and underscores our dedication to environmental stewardship, sustainable land management and creating enduring value.