

ERDENES SILVER RESOURCE SALKHIT MINE CLOSURE PLAN PILOT

Newsletter Issue 14

Dec 2022

DECEMBER ACTIVITY

A meeting to present and discuss landform design with ESR LLC was held in December 6, 2022. The working group assigned by ESR LLC has reviewed and accepted landform design drawings with the agreement that minor changes may be required as the landform design work progresses. The ESR working group suggested that the planning team can proceed to the next step which is to develop a detailed engineered designs for each landform and cost estimation.



Figure 1. Landform design review meeting with ESR LLC

CLIMATE CHANGE AND MINE CLOSURE



COP27
SHARM EL-SHEIKH
EGYPT 2022

Climate change is already having visible effects on the world. The Earth is warming, rainfall patterns are changing, and more frequent and more intense dust storms are occurring. The UN Climate change conference COP 2022 or COP27, the world's most significant summit on climate change was held from November 6-20, 2022 in Sharm El Sheikh, Egypt. The key aim of COP27 was to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change (IOM, 2022).

Climate change poses a significant challenge to mine reclamation and closure efforts worldwide. Mine closure and reclamation planning must consider the impacts of a changing climate and adaptation to climate change. In mine closure planning, risk assessment is conducted to understand the risks and opportunities associated with climate change. The planning team has reviewed risk assessment for closure of the Salkhit mine and will develop reclamation strategies to ensure reclamation is resilient to the projected climate change impacts.

Some examples of adaptation strategies that the planning team could incorporate into the reclamation and closure plan include:

- Include elements of roughness and irregularity on landforms to manage wind erosion and promote surface water percolation.
- Design soil covers and capping covers with sufficient thickness to be resilient to wind and water erosion.
- Prompt establishment of vegetation to mitigate soil erosion risk.
- Increase soil carbon content to improve water holding capacity.
- Establish drought tolerant vegetation.
- Design landforms to avoid surface run-off where subsurface contamination risks exist.
- Design landforms to manage surface drainage and reduce water erosion potential.

International consultants and climate change specialist will lead the development of adaptation strategies for Salkhit Mine Closure Plan with the contribution of each team members.

BIODIVERSITY AND MINE CLOSURE

Biodiversity considerations are integral to successful mine closure and long-term post-closure ecosystem resilience. The UN Biodiversity Conference COP 15 took place from December 7 – 19, 2022 in Montréal, Québec, Canada. The goal of the conference was to adopt the post-2020 global biodiversity framework, which will describe “a strategic vision and a global roadmap for the conservation, protection, restoration and sustainable management of biodiversity and ecosystems for the next decade” (UNEP, 2022). An agreement with four goals and 23 targets was successfully reached to protect 30% of earth’s habitats by 2030, to raise \$200 billion US by 2030 to finance the protection, and to reduce subsidies of \$500 billion US deemed harmful to biodiversity by 2030 (CBC, 2022).



Figure 2. Top soil sampling at Salkhit Mine Site

Mine closure and reclamation present an opportunity to rehabilitate native habitats and incorporate biodiversity. There are some basic methods to restore biodiversity at a mine site at closure. Preserving topsoil originally stripped from the land surface and replacing it after closure landforms are created helps to maintain a bank of native vegetation seed and propagules, and other important organisms, such as soil fungi and bacteria. Planting native vegetation species is preferable to seeding non-native invasive or agronomic species because they are adapted to the surrounding ecosystem. Planting a wide variety of species, across different areas of the mine, based on slope, slope position, aspect, water source, amongst other factors will encourage a mosaic of vegetation communities. In turn, this encourages local wildlife to recolonize the area. Monitoring is required to ensure species are establishing and reproducing, and that diversity is maintained or increasing.

The key stakeholder group and citizens involved in the Salkhit Mine Closure Plan recognize that biodiversity is a critical component of successful reclamation and closure at Salkhit. One of the two closure goals developed by the key stakeholder group show how important biodiversity is ecologically, culturally, and economically to the region: “Reclaimed sites exhibit characteristics and functions close to the natural ecosystem state, that support traditional land use type for local communities”.



Figure 3. Study on vegetation cover at Salkhit Mine Site

With this understanding, the vegetation specialists of the multidisciplinary closure planning team catalogued the vegetation species observed during June field work at Salkhit and have conducted a literature review of vegetation species native to the Salkhit area.

During quarter three (Q3) of the project, the vegetation specialists and soil specialists will work closely with the MERIT international consultant to prepare biological reclamation designs for the various landforms across the mine site. These designs will include a variety of native species, with the objective of long-term ecological resilience.

References:

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International Council on Mining and Metals. 2019. Integrated mine closure: good practice guide.

International Organization of Migration (IOM). 2022. UN Climate change conference 2022 (COP27). <https://www.iom.int/cop27-addressing-human-mobility-driven-climate-change>. Retrieved on December 20, 2022.

CONTACT INFORMATION

Merit aims to provide engaging and relevant content on the Salkhit mine closure plan project. We value our stakeholders feedback and would like to hear from you on how we can improve our newsletter.

For more information about the Pilot, please contact
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