SUB-HORISONTAL NARROW REEF MINING

Sub-horizontal narrow reef ore bodies are characterized by thin, continuous layers of valuable mineralization that are extracted. The most commonly used mining methods are **true dip** and **breast mining**, in which a significant amount of manual labor is required. These methods are generally characterized by low production capacity per mining team, with typical production rates of approximately **300 m² per month per team**. They also expose workers to direct hazards due to their proximity to the mining face. Panels are typically **30 meters long**, while the mining height ranges from **1.0 to 1.7 m**, with dip angles rarely exceeding **25°**. A conceptual layout of the panel is shown in the figure below.

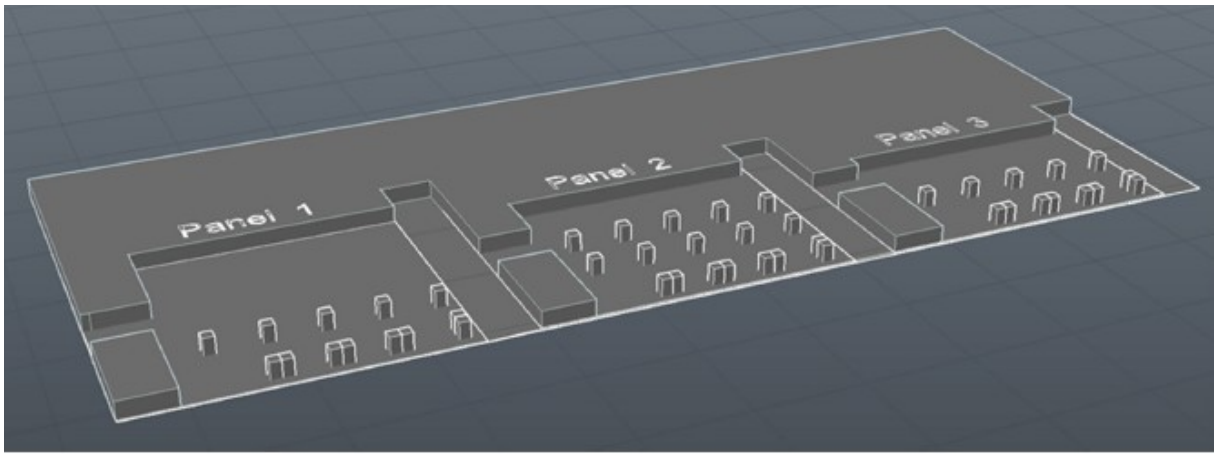

Figure 1 NRE Panel

NRE, ULP, and XLP machines offer a solution to these challenges. All of the above-mentioned machines are remotely operated by an operator using a remote-control system. This removes personnel from the immediate vicinity of the mining face and relocates them to a supported and safe area. The use of **DOK-ING MINING equipment** can significantly increase the efficiency and productivity of the section in which it operates.

The **NRE fleet (Dozer, Support Rig, and Drill Rig)** is designed to operate in spaces with a minimum height of only **1.0 m**. To use this equipment effectively, the panel must be designed with at least **6.0 m of free space between the mining face and the first row of support pillars**.

The **NRE Drill Rig**, with a drilling capacity of approximately **40 holes per hour**, enables rapid completion of panel drilling. The **NRE Dozer**, with a capacity of more than **50 tonnes per hour**, enables fast, efficient, and safe removal of blasted ore. The **NRE Support Rig**, equipped with two tools and an automated bolt-installation cycle, significantly improves safety in narrow reef panels. With a cycle time of approximately **8 minutes**, it enables rapid installation of ground support throughout the panel.

In cases where the panel cannot be accessed through wider access drives, but instead is accessed through a **narrow winch drive approximately 1.5 m wide**, with limited free space of approximately **4.0 m between the face and the last row of support pillars**, this type of layout is corresponding to typical conventional panel in platinum mines shown in figure below. The

ULP Drill Rig can be deployed. Thanks to its compact dimensions, the ULP Drill Rig enables mechanized drilling even in extremely confined working areas.

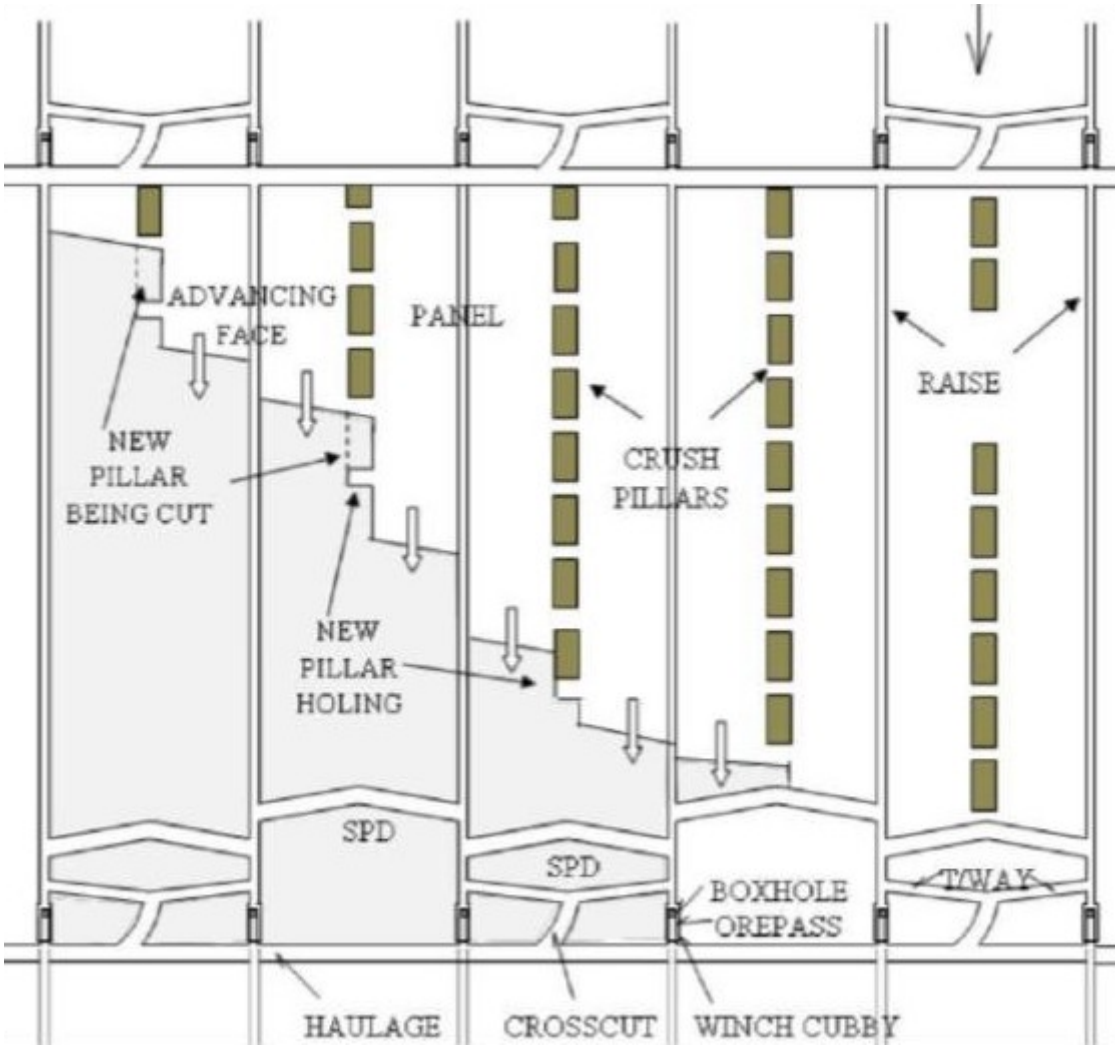

Figure 2 Conventional Panel