Abstract: Hadamengou large gold concentration area is located in the middle and eastern part of Wulashan Mountains. It belongs to Yinshan Mountains, between Mongolian Plateau and Hetao Plain. It is a rising and eroding landscape and a moderately cut mountainous area with temperate continental arid-semi-arid monsoon climate. Most of the area are bare bedrock areas with few vegetation. The concentration area has been proved more than 100 tons of gold resources reserves. Hadmen Gold Mine formally became a national green mine pilot unit in March 2013, and always carried on green prospecting in the process of prospecting.

Recently, Hadmen Gold Mine has successfully completed the national green mine short-term planning objectives, and achieved remarkable results. The planning and implementation of the overall green mine construction mainly includes the following aspects: (1) Resource saving and comprehensive utilization. By strengthening the management of geological prospecting and production prospecting, the ore body resources can be effectively delineated, the quality of mining engineering can be improved, the mining methods can be reasonably selected and the parameters can be optimized. Strengthen the management of mining, timely control the scope and scale of ore drawing, avoid waste rock mixing, reduce the loss and dilution rate; promote technical transformation, carry out unified planning for underground mining system, select efficient ore transporting and drilling equipment to improve production efficiency. Optimize the ore dressing process, improve the recovery rate of ore dressing and metallurgy, and strengthen the reuse of low-grade ore. (2) Technological development and technological innovation. Through in-depth study of pulp characteristics and relying on advanced technology, the dewatering process of ceramic filter is reformed, which greatly improves the technical level of dry drainage process of mineral processing. The mining capacity and operation safety of the stope are improved by using the layered approach mining technology, which recovers 2,000 tons more ore than the vertical slicing mining method. At the same time, it also provides a new idea for the mining of broken ore bodies. (3) Environmental protection and energy conservation. The use of clean gas boilers, the popularization of energy-saving equipment, the introduction of high-efficiency ore-drawing equipment, the recycling of mineral processing wastewater, the increase of waste rock filling and the utilization of underground drainage have achieved good environmental and ecological benefits.

At the same time, in the aspect of green exploration. Around the requirement of “maximizing the negative impact of burning on the ecological environment”, the following tasks are mainly deployed and carried out: (1) In the process of exploration and construction, around the principle of “giving priority to ecological protection”, minimize soil stripping projects and do a good job of soil restoration. If it is really necessary to strip soil, the basic rules of stripping each layer in sequence, storage management separately and backfilling in reverse order should be followed in the construction process. In order to reduce the use of trench exploration projects. Shallow drilling is preferred to replace trench exploration. (2) Priority application of new surveying and mapping technologies and new methods, such as aerospace remote sensing, global satellite navigation and positioning, which have little impact on the environment. It is forbidden to cut down trees in exploration work to avoid the influence of the occupation of land and vegetation. Optimizing the application of new technology and method without environmental disturbance. Accurate positioning of mineralized bodies by geophysical and geochemical prospecting. (3) In drilling construction, the best choice of all-hydraulic crawler-type, all-hydraulic modular portable drilling equipment, priority is given to the use of “one machine stationmany drillings” advanced drilling equipment and methods. The standardization construction of machine stations should be carried out, and the pollution treatment of mud, waste water, waste residue and waste oil should be strengthened, as well as the field treatment after construction. Use of environmentally friendly chemical materials to prevent pollution of groundwater environment caused by drilling fluids.

In the past, people’s low awareness of environmental protection, coupled with extensive industrial exploitation and exploration, caused great damage to the environment. Including the destruction of the original surface plants and the disturbance of shallow humus, many surface projects have not been backfilled, and the use of drilling fluid has caused some pollution to surface animals, plants and groundwater. In view of the fragile ecological environment of the mining concentrated area at present, Suggestions in the next step of mine construction and exploration construction: (1) Actively implement the concept of
“green development”, enhance the awareness of ecological environment protection, strengthen the protection of ecological structure of animals and plants, optimize new methods, new technologies and new equipment for green exploration, and rationally deploy geological exploration work; (2) Promoting the standardization of green exploration. Strengthening system construction, establishing and improving green exploration standards and norms, and innovating exploration and development model. Green mine construction and green exploration are the best way to solve the sustainable development of mines. They reflect the respect for nature and the treasure of resources. They are of great significance to geological work in the new era.

**Key words:** Hadamengou gold concentration area, green mine, green exploration, sustainable development

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**References**

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