

The CSH gold mine Inner Mongolia

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CSH Gold mine is located 126km north of Baotao city in Inner Mongolia. It lies on the northern margin of the North China Craton which comprises Archaean and Early Proterozoic high grade metamorphic rocks unconformably overlain by Mid to Late Proterozoic rocks of the Bayan Obo Group that are host to the gold deposit. These sequences are unconformably overlain by Phanerozoic sediments and volcanics. These sequences are intruded by granite of Caledonian (early Palaeozoic), Hercynian (late Palaeozoic) and Yanshanian (Mesozoic) age.

CSH Gold Mine is named after the Chang Shan Hao River which together with the Molengue River was mined for alluvial gold in the 1980's. In 1995 China National Nuclear Corporation (Brigade 217) commenced exploration and in 2002 Jinshan Gold Mines agreed to purchase a 96.5% interest and build a heap leach mine. Mining commenced in 2007 at 20000tpd capacity in oxide ore, increased to 30000tpd in 2009 in sulphide ore and to 60000tpd in 2014. Final recovery is expected to be 60%. China National Gold became the largest shareholder of Jinshan Gold Mines in 2008 and renamed the company China Gold International Resources Co. Ltd (TSX:CGG) in 2009.

Within the project area, only the middle portion of the Bayan Obo Group exists and occurs in an upright east plunging syncline. Stratigraphic units cropping out within the mining license from oldest to youngest include the Jianshan (sediments), Halahougete (carbonate) and Bilute (sediments) Formations. All mineralisation is hosted within the B2 unit of the Bilute Formation. The B2 unit is the first and most carbonaceous rock unit in this package. This sequence dips quite uniformly to the north at $82^{\circ} \pm 10^{\circ}$ but noticeably steepens and is even slightly overturned in the western part of the property.

Gold mineralisation extends over a 4.8 kilometre strike length and is locally up to 300 metres wide. It has been drilled to 700 metre vertical depth below surface. The ore zone is a fault (F1) which is mapped at the western end of the mineralised zone and mineralisation has created a large zone of fabric development and flattening. The mineralised zone is intruded by numerous syn-mineral, layer parallel, dykes of diorite to granite composition typically 1 to 3 metres wide and locally by lamprophyre. The mineralised zone is cut by later faults (F2). The orebody is mined as two discrete open pits called Northeast (larger) and Southwest (smaller).

Gold mineralization consists of thin (1 to 10 mm) sulphide and quartz-sulphide seams/veinlets (locally boudinaged) concordant with bedding and foliation. Quartz vein density increases in higher-grade gold sections. In cross-section, higher-grade intervals shows relatively consistent dip angles ranging from $82-85^{\circ}$ N in the Northeast Zone, and $87-89^{\circ}$ S in the Southwest Zone. Gold is either free particles (77%) or associated with arsenopyrite and pyrrhotite (22%). Pyrrhotite is nickeliferous frequently showing strong pentlandite flame structures.

Resources were estimated in 2012 at 0.3gmAu/t cut-off grade to be

Measured and Indicated 247mt @ 0.62gmAu/t 4.9mozs

Inferred 118.9mt @ 0.52gmAu/t 2.0mozs