

LI Shanglin, MA Boyong, LUO Yanjun, MA Zhongping and QIAO Gengbiao, 2014. Geologic Features of Yongqu Iron Ore, Nierong County, North Tibet. *Acta Geologica Sinica* (English Edition), 88(supp. 2): 13-14.

Geologic Features of Yongqu Iron Ore, Nierong County, North Tibet

LI Shanglin¹, MA Boyong², LUO Yanjun¹, MA Zhongping¹ and QIAO Gengbiao¹

¹ Xi'an Center of Geological Survey, CGS, Xi'an 710054, Shaanxi Province, China

² Geological Survey of China, Beijing 10037, China

1 Introduction

Yongqu iron ore is located in the northern to Dangqu River upstream, Nierong County, 24 km south to Yongqu Town. Integrated brigade, Tibet Bureau of Geology and Mineral Resources, conducted the surface inspection and peripheral census work in 1979. This ore has a certain scale and high grade, so it has great value of development and utilization. Regionally, it belongs to the late Paleozoic-Mesozoic Qiangtang Sanjiang tectonic zone (I), Changdu-Mangkang-Simao continental block (II), the Changdu Lanping Mesozoic bidirectional retroarc foreland basin (III) of Pan Cathaysian region (Pan Guitang et al, 2003); Southern China formation region (I), north Qiang-Changdu stratigraphic region (II) and the northern Qiangtang stratigraphic division (III).

2 Geology of Mining Area

The Middle Jurassic Quemocuo Formation outcrops in the mining area, there are the Late Triassic monzonitic granite in the southern mining area. Fracture and fold are developed. Fault in NE with large scale, results from multi period activities. Tectonite now seen are mainly cataclasite, fault breccia and fault gouge. The fault zone alteration is developed, and silicification, limonitization, baritization are existed. This set of fracture is an important ore-controlled and ore-bearing structure. There are at least 4 ore bodies along its distribution. The fold axis is mainly NWW-SEE trending showing ejective folds combination. Quemocuo Formation, Buqu Formation are involved in the fold. The syncline is open with the dip angle of 28°–42°. The anticline is tight, and its turning end lifted

to the west. Ore bodies mainly occur in the two wings of syncline, and also are developed in the turn end of anticline.

3 Geological Characteristics of the Deposit

The iron ore is developed in the middle part of Quemocuo Formation. Within the range of 24–32 km south to the Yongqu Town, it is found that there are 4 ore bodies with about 9 km long and 22–59.5 m wide. The ore bodies are exposed bedded, pod, saddle into a beaded along the NE trending fault zone. Ore body is slightly steep with dip angle of 34° to 65°. Surrounding rocks show inconsistent in the top and bottom floor rock. Some bottom floor rocks are limestone, some gray-green calcareous siltstone, and some amaranth ferrous siltstone. The top floor rock is different, so there are the ore bodies. Some rocks are the grey calcareous mudstone, siltstone, gray green calcareous siltstone combination; some rocks are white gypsum-bearing sandstone. This reflects in the overall ore bodies are controlled by stratigraphic horizon, and not strictly by a lithologic layer.

4 The Characteristics of Ore

Ore shows massive, nodular and vein structure with granular and scaly structure. The ore minerals are mainly siderite and hematite, and gangue mineral is barite, quartz and calcite. Specularite is generally fine veinlike in the siderite. The ore grade of TFe is 5.6–61.02%, with the average of 42.74%. The grade of P is 0.02–0.05%, and the S grade is 0.08–0.1%. The grade of $(\text{CaO}+\text{MgO})/(\text{SiO}_2+\text{Al}_2\text{O}_3)$ in the ore is 0.352–9.479, which indicates acid ore.

* Corresponding author. E-mail: shanglinli888@163.com

5 Genesis

High-Fe beaded parent rock shaped globose, lenticular, kidney in Quemocuo Formation is the main source of ore-forming materials of Yongqu iron ore. The spatial distribution of the ore body was controlled by the horizon of Quemocuo Formation, which shows that it is sedimentary iron. Ore body is stratoid, lenticular, saddle-shaped, which is distributed among the two wings, or turning point of the fold (part contact

with the surrounding rock with fracture). And their dip angle is generally greater than that of stratum. Different ore bodies show different lithology between the roof and floor. This indicates it is not strictly controlled by some a lithology but by the fracture structure. Accordingly, it is believed that Quyong iron ore is strata bound-type deposit.

Key words: iron ore, strata bound-type deposit, Yongqu, North Tibet