

## Primary halo anomalies and prospecting in No.77 exploration line of Dashui Deposit in Maqu, Gansu, China

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Dashui Gold Deposit had very unique ore-forming characteristics in West Qinling mountain area. Its mineralization was strongly related to silicification and hematitization. The ore was red, brown and very poor sulfide. It was high economic value for shallowly buried, high grade, simple composition, easy acquisition and sorting. With deep mining, the grade declined sharply. Therefore, research primary halo anomalies had significant meanings on finding new ore bodies in deep. The paper selected No.77 exploration line and every five meters one sample at five levels:3815m, 3795m, 3765m, 3730m, 3690m and 3650m. The results showed that: 1) Au had obvious correlation with Hg, Mo, As; 2) There were two or three of the primary halos overlapping, which might be caused by two little apart ore bodies. It was consistent with the actual geological conditions at ore body's 'lens' shape of output and the 'pinch-out reproduction'. The complex features of the primary halo zoning sequence reflected the multi-stage and complexity in ore mineralization. 3) The zonation features of the eight series of geochemical parameters had verified the existence of three beaded ore body in the lower left No.3 and No.7 ore bodies; 4) The Ag and Zn anomalies in the second beaded tail ore might be the middle-upper position in last beaded ore body. It could be predicted that below 3650m level there was still a certain degree of prospecting perspective.

## Distribution characteristics of heavy metals in soil of uncontaminated agricultural products base of Guangyuan city

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Soil heavy metal pollution has become one of the most important environmental problems in the world. Guangyuan city is the key agricultural products base of Sichuan province. In order to make agricultural products base develop in a scaled, high quality and industrialized direction as well as provide a scientific foundation for the construction of national uncontaminated agricultural products base, 145 soil samples from 7 county of Guanyuan agricultural products base were collected and evaluated by the indexes of single contaminants and combined pollution according to the national standard for evaluation of soil environmental quality, finally the soils were divided into different levels and the correlations of the heavy metals in the soil were analyzed [1].

According to the indexes of single contaminants pollution, the results show: heavy metals indexes in the soil of Cangxi, Jiange, Yuanba, Shizhong county are less than 1.0 indicating that they meet the requirements of soil environment for producing uncontaminated food, but Cd, As from Qingchuan and Wangcang county are more than 1.0 as well as Cd, Cr, Cu from Chaotian district.

According to the indexes of combined contaminants pollution, the results show: only 3 heavy metals indexes of the 145 soil samples are more than 1.0, belonging to slight pollution. The others are less than 1.0 indicating that the level of the soil belong to cleanness, so they meet the requirements of soil environment for producing uncontaminated food.

According to Cluster Analysis, the results show: the representative element in soil of Jiange, Wangcang, Cangxi, Shizhong county is Cd, Pb, Hg and As respectively. The heavy metals in soil of Qingchuan, Chaotian, Yuanba district have no representative element. Cr and Cu, Cd and Hg of Chaotian district, Pb and Hg of Shizhong Jiange district have obvious correlation. The heavy metals of Cangxi, Wangcang, Qingchuan county and Yuanba district have unobvious correlation. As a result, the soil of agricultural products base in Guangyuan city is in good condition and it is fit for producing uncontaminated food.

[1] Xia X.H. (1997) *Environmental Science* 3(18), 72-76.