water-consumption electric power and iron and steel enterprises; those in south China, which are distributed in Zhejiang, Fujian and Hainan provinces, are mainly for civil use and are primarily hundred-ton and kiloton-class projects (Fig. 4).

In addition, the direct use of seawater has also achieved great development, particularly the thermal power, petrochemical and nuclear power industries in coastal provinces. By the end of 2013, the annual use of seawater as cooling water had reached 883×10^8 t, and the newly increased used seawater in 2013 was 42×10^8 t (Fig. 5).

The sea desalination projects also lead the development of salt industry. In 2013, seawater was utilized to extract potassium, magnesium and bromine aside from salt, and the products include bromine, potassium chloride, magnesium chloride and magnesium sulfate. The concentrated seawater-utilization technology has attracted much attention with the expansion of the seawater desalination projects. Currently, our country has conducted demonstration studies of the concentrated seawater Mechanical Vapor Compression (MVC) method and chemical resource utilization engineering, researches on the extraction of bromine and purification of crude bromine from concentrated seawater using a high-efficiency packing tower, and salt-making technology by concentrated seawater solar ponds. All have made great progress.

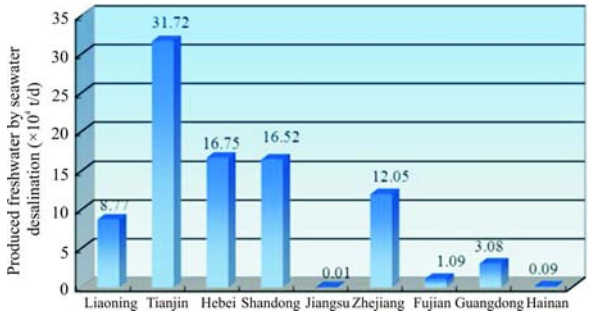

Fig. 4. Distribution of seawater desalination projects in China's coastal provinces and cities.

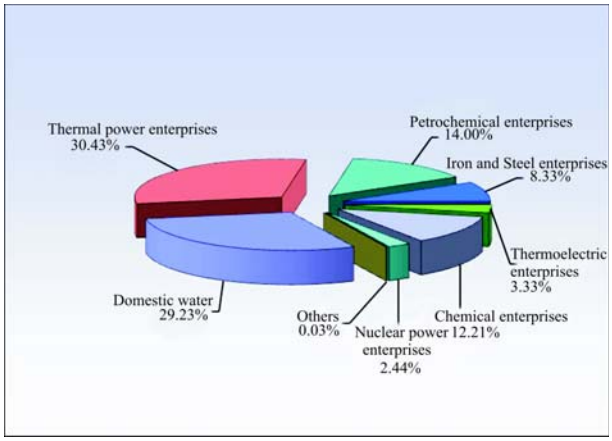

Fig. 5. Utilization of produced freshwater by China's completed seawater desalination projects.

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World's Third-Largest Molybdenum Deposit Discovered in Caosiyao Area, Xinghe County, Inner Mongolia

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On 11th September 2013, the Inner Mongolia Mineral Resources and Reserves Evaluation Center estimated that the world's third-largest molybdenum deposit had been found in the Caosiyao area of Xinghe County, Inner Mongolia, NE China. The find has 130235.60×10^4 t of (122b)+(333) molybdenum ores, a metal amount of 1327649.27 t, with Mo grade of 0.102—a super-large one.

The Caosiyao molybdenum ore district is located 5 km south of Chengguan town in Xinghe county (40°26′–41°27′N, 113°21′9″–114°7′47″E), Inner Mongolia, and covers an area of 38.99 km^2. The district is located in the south of the Yinshan uplift north of North China Block, and is in a southwestern joint position among the Datong-Shangyi NE-trending tectonomagmatic belt, Daihai-Huangqihai NEE-trending fault zone, Shangdu-Wei county NW-trending tectonomagmatic belt and Hohhot-Ji'ning-Chicheng EW-trending deep fault. This deposit is a porphyry-type, of super-large scale, and the

exploration type is I.

Characterization is as follows:

(1) The deposit occurs in the leucoleptite of the 3rd lithological member in the Archean Huangruyao Fm., and the orebodies are hosted in the outer contact zone of granite porphyry within a certain range, showing a control by rock bodies. The silicification, biotitization and sericitization in the deposit are closely associated with the mineralization. The altered mineralization is distributed around the rock bodies, and shows weaker alteration and mineralization intensity further away from the deposit.

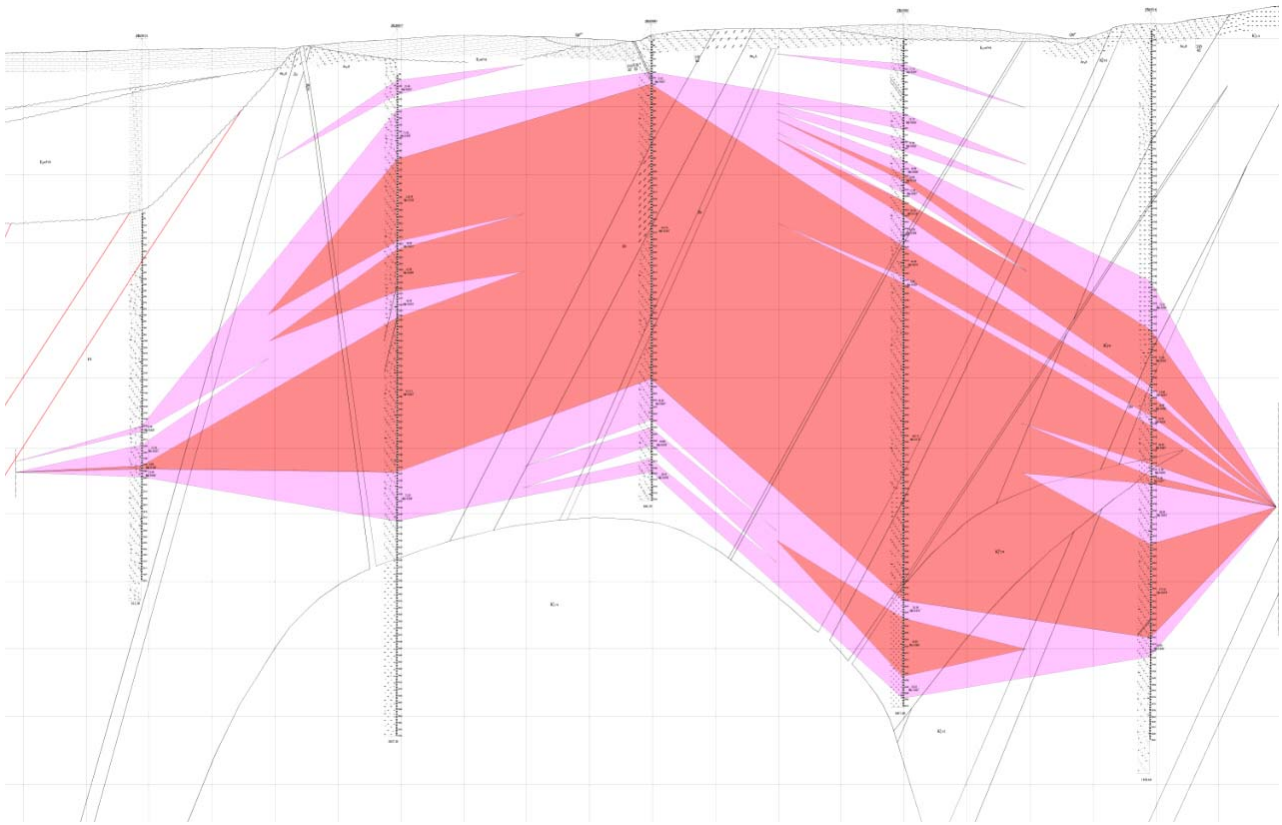

Fig. 1. Geological profile showing orebody shapes along the transverse prospecting line No. 8 in the Caosiyao deposit, Inner Mongolia.

(2) Four molybdenum orebodies were delineated, i.e., No. Mo 1, lower Mo 2, lower Mo 3 and lower Mo 4. The main orebody of Mo 1 has a nearly equiaxial oval shape in plane view, and a uniformly thick saddle shape in profile, with an overall reverse bowl shape. The orebody Mo 1 has a shallow burial depth, great thickness and high grade, and is suitable for large-scale mechanized open-pit mining (Fig. 1).

(3) The total (122b)+(333) class molybdenum ores are estimated to be 130235.60×10^4 t, and the metal amount is 1327649.27 t, with an average grade of 0.102%. Among them, the (122b) ores are 79384.30×10^4 t, and the metal amount is 820035.09 t, with an average grade of 0.103%, occupying 62% of the total resource reserves; the (332) ores are 31658.42×10^4 t, and the metal amount is 132467.18 t, with an average grade of 0.042%; the (333) ores are 76631.82×10^4 t, and the metal amount is 326935.76 t, with an average grade of 0.043%. The estimated overall molybdenum ores are 238525.84×10^4 t, and the metal amount is 1787052.21 t, with an average grade of 0.075%.

(4) The ores in the ore district are of simple type. Laboratory tests indicate a good beneficiation result, and the beneficiation feed grade is 0.092%; the concentrated ore grade is 45.48%; the recovery rate is 93.02%; the production rate is 0.19%.

(5) Pre-feasibility studies suggest that the construction scale of the mine is 1500×10^4 t ores per year, and the service life is about 80 years supposing a 330-day work time per year. The external supply of water, power and transportation for the molybdenum mine development project is fairly good. Financial analysis shows that the profit and tax investment ratio of this project is 66.63%, the investment profit rate is 33.80%, and the static investment recovery period is 0.65 pa (construction period excluded).

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