

## CASE STUDY

OYU TOLGOI COPPER-GOLD MINE IN MONGOLIA  
EXPANDS TETRA SYSTEM



# OYU TOLGOI COPPER-GOLD MINE IN MONGOLIA EXPANDS TETRA SYSTEM TO IMPROVE PRODUCTION SAFETY



Oyu Tolgoi (OT) is a copper-gold mine in the south of Mongolia's South Gobi Province, 500 kilometers south of Ulaanbaatar, the capital of Mongolia. OT mine is a world-class mining project. As one of the world's largest undeveloped high-grade copper mines, its initial proven reserves have more than 30 million tons of copper, 1,328 tons of gold and 7,600 tons of silver, in addition to molybdenum ore and other rare mineral resources. Construction on OT began in 2010 and the mine delivered the first batch of 5,800 tons of copper concentrate on July 9, 2013.

In 2007, OT signed an agreement with Motorola to use Motorola's Dimetra IP digital trunking system. A total of three MTS4 ground stations were built, covering the main park, the north and the south of OT respectively. Later, an outdoor MTS1 base station and a MTS2 base station for the open-pit mine coverage were built subsequently. At present, there are 1,800 subscribers in the system, including the portable and mobile.

Motorola's Dimetra IP system provides powerful, redundant backup capabilities that deliver mission-critical high-quality voice and data services, enabling OT to secure safe and efficient production of copper and gold at all times. OT's Dimetra IP system is stable and provides strong communication protection for the company's busy day-to-day production. At the same time, as one of the important means of communication in an emergency situation, TETRA digital trunking system provides a very important means of communication for the company's emergency management and employee safety.

## CUSTOMER PROFILE

### Company

- Oyu Tolgoi Copper-Gold Mine

### Location

- South Gobi Province, Mongolia

### Industry

- Mine

### Motorola Solutions Products:

- Dimetra IP digital trunking system
- 3 MTS4 base station、
- 1 MTS2 base station
- 1 outdoor MTS1 base station
- MTP850/MTP3000 hand held radio
- MTM800E mobile
- MTM5000 mobile

## CASE STUDY

### OYU TOLGOI COPPER-GOLD MINE IN MONGOLIA EXPANDS TETRA SYSTEM

Located in the south of Mongolia desert, OT has a very harsh natural environment, and in a cold winter day, its lowest temperature is close to -20° C, while its highest summer temperature can be 28° C, with the average annual temperature difference being 36° C or so. In addition, the region has less precipitation, very low vegetation coverage and blowing sands on Gobi. Since 2007, Motorola MTP850/MTP3000 portable, MTM800E/MTM5000 mobile of Motorola Solutions operate stably and reliably in the OT's cold, dry and harsh environment. All terminals have an excellent voice quality, and even in the noisy environment of the plant, users can also hear a clear voice.

In 2012, with the development of the open pit project, OT needed to provide a flexible, mobile base station solution for the open pit based on actual usage requirements. The base station needed to be able to flexibly change its site as needed as the open pit mining area advances. OT and Motorola Solutions jointly developed a total solution. The solution uses solar power and is equipped with power modules and batteries. MTS1 outdoor base station provided by Motorola is installed in a mobile mast, and through the microwave link, it is connected to the Dimetra IP switching center. MTS1 base station with industry-leading low-power characteristics (100W) can guarantee the base station's work on a 24\*7 basis and ensure scheduling requirements of the daily production.

This innovative approach on the one hand provides open coverage to the open pit mine, providing clear voice and, on the other hand, meets the requirements for flexibility and maneuverability due to the expansion of the open pit mine. In the solution, it is impressive that Motorola MTS1

outdoor base station can work stably in harsh environments. The MTS1 base station meets IP66 dust and water resistance criteria and can be used in environments from -30° C to +55° C.

In 2012, OT received the Best TETRA Enterprise Solution from TCCA (TETRA and Critical Communications Association). TETRA adopted by OT provides a highly efficient and reliable communication system for mining, and at the same time, TETRA's GPS data service can provide applications based on the locations of employees and equipment, thus ensuring the production safety of workers.

At the end of 2016, OT signed a new contract with Motorola Solutions to update the switching center currently in use. In addition to using the latest hardware platform and the latest software version, the new switching center adopts the offsite redundancy scheme of more reliable disaster prevention backup. This scheme installs the key equipment of redundant hot backup in two cabinets located in different places separately. The two cabinets are linked through the Gigabit Ethernet connection, providing automatic image backup for the call business and other related data. The base station is connected to two MSOs by two different physical links. When an active MSO cannot provide services due to unpredictable events such as a power outage or a fire, the standby MSO can automatically start and resume service immediately. The scheme ensures that the redundant backup measures are provided on the nodes providing the key voice services in the whole system, which can prevent the irreversible impact of catastrophic events on the whole system.



#### Advantages :

- Reliable communication system
- Clear voice
- Capacity increase
- Emergency call priority

"We are honored to be working with OT again, and appreciate OT's vision of promoting digital mining. The modern communications system established by OT to support operations can be said to be a leading industry example of communication scheduling management solutions for the international mining industry. Motorola Solutions will also focus on and further combine the communications needs of the mining industry and get committed to providing high-quality digital trunking communications solutions for the mining industry, thus contributing to operational safety and efficient output in the industry."

- Michael Jiang  
Chairman and President of  
Motorola Solutions (China) Co., Ltd.

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