MINING
The First Step in the Copper Production Cycle

It has taken about 100 years - and a long-term team effort - for Kennecott Utah Copper's Bingham Canyon Mine to become one of the largest copper mines on earth. The Mine is more than 2 3/4 miles across at the top and more than 3/4 of a mile deep. By the year 2018, it will be about 800 feet deeper than it is today.

The open pit mining methods invented at the turn of the century are still used today. The equipment, however, has grown in size and complexity with advances in technology. Today, the monstrous haulage trucks can carry 240 to 320 tons per load. The Mine's largest electric shovels have 56-cubic yard dippers that can scoop up to 85 tons of material in a single pass. Computer models help with Mine planning and sophisticated communications systems monitor all truck and shovel operations.

Information collected by geologists is used by mining engineers to develop a complex mining plan on a daily, weekly, monthly, yearly and multi-year basis. The plan divides the mine into ore and waste zones. Ore is material that can be mined and processed at a profit. Waste, or overburden, is material that is not economic to process, but must be removed to expose the ore. Economics, therefore, determine what is ore and what is waste.

The mining operation at Bingham Canyon includes drilling and blasting, loading and hauling, and crushing and conveying:

DRILLING AND BLASTING
Based on the mine plan, nine large drills prepare a specific pattern of holes 55 feet deep in front of the electric shovels throughout the mine. The drill holes are loaded with about 1,200 pounds of explosives, which are detonated daily to break up the rock.

LOADING AND HAULING
Electric shovels and haulage trucks move into the blasted areas. After the shovels load the ore and waste, the fleet of 70 haulage trucks transport the material to the in-pit crusher or waste rock repositories.

CRUSHING AND CONVEYING
At the 60” x 109” gyratory crusher, approximately 150,000 tons of ore per day are reduced to pieces about 10 inches in diameter. The crushed ore is transported by a five-mile conveyor system: three miles through a tunnel in the mountain and two miles above ground to the Copperton Concentrator. The conveyor moves at a speed of 900 feet per minute. Ore arrives from the Mine at the Copperton Concentrator in about 28 minutes and is temporarily stored in a 500,000-ton coarse ore stock pile.

This sequence of drilling, blasting, loading, hauling, crushing and conveying is carried out 24 hours per day, seven days a week, 52 weeks a year. This process has also allowed the Bingham Canyon Mine to become known as one of the engineering wonders of the world.