Relocating The Reload: Project Is Nearing Completion

In order to get ore to the Bonneville Mine, haulage trucks take the ore to a reload point where it is loaded into railcars. The project of moving the reload from outside the pit to below the Dry Fork shops is progressing, and should be finished shortly, reports Bruce Ream, development engineer. The new reload facility should start up by mid-March.

The project provides at least three major benefits:
1. It frees up room for mining high grade ore in the pit which has been tied up by the existing reload area
2. It allows us to start dumping waste in Bingham Canyon
3. By shortening the haul, we should save about 10 cents per ton, and we are moving about 300,000 tons a day. The return on investment for this $10 million project will be about two years.

Putting The Concentrate Pile To Good Use

The concentrate pile, which rises as high as 50 feet and contains about 120,000 tons of concentrate, may look like an awful lot of left overs. But we're finding that it does, in fact, contain a considerable amount of material we can use to improve smelter throughput.

The first step was to find out what the pile contained. Mike Fulton, strategic planning project engineer, along with Earth Probe Environmental Field Services of Bountiful, Utah, and the smelter sampling group, took about 180 samples from the concentrate pile. Each sample was an inch-and-a-half in diameter and five feet long and together they provided a comprehensive picture of what was contained in the pile. The analysis was done at the assay lab at the smelter, and included 17 different items.

What was found was: the iron to magnesium ratio was 23:1, and the copper to sulphur ratio was 0.96:1. Both were desirable. These are the two most important ratios. What this means is that we can use the pile in an economically useful way, while providing the flash smelter furnace with better feedstock than it is now getting.

Some of the pile will be moved to the patio staging area and fed directly into the furnace, while the rest will first go to the blending pad, where it will be blended into a consistent feed and then taken to the patio to be fed into the furnace. Over the next three months, this material will displace some of the poorer quality concentrate we have been using. The result will be an increase in throughput and, ultimately, more copper produced.

In addition to increased productivity, there is another benefit to this project. We have been wanting to clean up Kessler Canyon, but the concentrate pile has been in the way. Once the pile is moved out of the canyon, we will be able to start the cleanup process in earnest.

New/Old System To Replace Current Rail Dispatch System

Progress isn't always measured by technological advancement. Improvements are being made to

the rail dispatch system by using older technology than is currently in place. This may seem backwards, but it comes from a recommendation from a focus group that included engineers, train attendants and track repairmen, along with supervisors from the different groups.

The current dispatch system, which serves as the central traffic controller, has a dispatch supervisor. Using a computer, he changes rail switches to align trains on the desired rail. The system we will be going to is a simplified automatic blocking system. It will not have a dispatch supervisor (who will leave the dispatch center and go into the field). Instead, the new system will consists of a lot of hand thrown and spring switches. “We will be going from something more modern to something a little old fashioned,” notes Dan Janney, manager of the north concentrator and rail haulage.

Why the step “backwards”? The system now in use was implemented when there were concentrators, which required 12 or 14 trains a day. Now, we feed just one concentrator which requires about six trains a daily. That’s a lot less traffic.

We are not keeping the current central traffic control system because of its high maintenance costs and frequent problems. In fact, the track crews believe the new system will be safer, too. In addition to saving on maintenance costs, we could get a one-time gain of $200,000 to $250,000 from the sale of obsolete equipment.

Water Reclamation Project

We initiated a water project to reclaim the over flow from the slag thickener, reports the superintendent of the filter plant, Brent Wilson. Previously, the water was discharged to the clarifier and any excess water ended up in the east ponds. And we had to bring in a new water source because there wasn’t enough water. The driver behind the project was to eliminate the use of sand filters, which can save $50,000 in maintenance costs.

Also, we are now using water that we previously discharged, eliminating the need to bring in new water. This is resulting in 250,000 gallons per day of water that was previously discharged to the smelter being reclaimed.

The water is used by our cloth wash tank and is transported via a 12-inch pipe that’s about 70 feet long and has an automatic value. An in-house crew fabricated the pipe, and installed it and the valve. The idea for the project came from Brent Wilson, Larry Llewelyn and Ken McCauley.

Making Use Of Cheaper Sodium Silicate We’re Already Buying

An operation as large as Kennecott Utah Copper can have internal inconsistencies that are not readily apparent. Tracy Stamatakis spotted one and, as a result, we may be able to save several thousand dollars a year.
Stamatakis noticed that the anode plant pays more for sodium silicate than does the acid plant. That’s because the anode plant buys in smaller quantities -- 55 gallon drums -- versus the acid

plant which buys in bulk. As a result, the anode plant pays $.38 per pound while the acid plant pays $.08 per pound. The anode plant consumes approximately 60,000 lb/yr of sodium silicate. If the anode plant uses sodium silicate from the acid plant, the savings would be approximately $18,000 per year.

The analysis is now out to operations for review. If approved, the implementation would entail the development of a system for using the sodium silicate from the bulk tank in the anode plant. Filling a tote at the bulk tank and transporting it to the anodes is a potential solution.

Business Improvement Keeps KEEP Going

After the recent reorganization, the KEEP program is continuing in 2000. It will be conducted out of the same offices as in 1999 -- the Copperton headquarters in the South and the trailers just North of the anode plant in the north.

The KEEP process will be similar to what it was last year, but will focus more on implementation and a bit less on generating ideas, which was emphasized in 1999. The idea generation program was very successful, which is why we are now able to spend more time and resources on implementation.

Currently, there are 20 Tier 1 level projects in progress (these are each worth $1 million or more per year in savings) as well as many Tier 2 projects. The Maintenance and Materials Program, a big KEEP initiative, is continuing with much of the implementation in place and being managed by operations. Of course, good ideas are always welcomed and they do still come. KEEP is still functioning as before, so anyone with additional suggestions should notify the KEEP team.

KEEP is now a part of Business Improvement (BI) group, which is a new group created as a result of the KUC reorganization. BI includes the KEEP program and the Maintenance and Materials Program, much as it did last year. But it also includes Procurement. Procurement was brought into BI to assist in aligning procurement with the maintenance and materials program, and the warehousing and inventory control that is now under operations. Also in BI is strategic analysis, whose mission is to help guide KUC regarding major issues and in setting our future direction. Several of BI’s members are also heavily involved with the Metallurgical Model 2000, which is designed to optimize the core processes of Kennecott, from the mining all the way through the production of cathode copper.

Among the people working on the maintenance and materials management program is Scott Lawson, who is the leader and will be helping the maintenance support teams in both the North and South operations groups. He will be assisted by Gary Westerdale, who is working with several different departments in the development of preventive maintenance systems. Scott is also leading the effort to improve MIMS functionality regarding maintenance and materials and is supported by John Steindl who came from the Business Systems group. Scott is also working closely with the Finance and Control group regarding the improvement of MIMS.

Micheal Hairr will lead the Procurement group and will be working to closely align the

procurement function with maintenance and warehousing functions. Harold Schickler will lead the strategic analysis effort. His objective is to optimize KUC's business value by facilitating cross-plant integration, reducing process variability and creating value at the interface of the individual plants. He'll be working closely with Chris Carter, manager of technical services at the mine to support the development of the Metallurgical Model 2000. John Kinneberg will join BI and will be in the KEEP program and heading it up for the South operations. Heading up BI is Tom Probert.

Extending Life Of Tap-Hole Inserts

Bob Leary, metallurgical engineer, is analyzing a project that shows considerable promise at extending the life of tap hole inserts. These inserts currently last 19 days, reports Leary. When they have to be replaced, the furnace is shut down for the 14 hours it takes to put in new inserts. The new program indicates that the inserts can be made to last up to 28 days. If this holds true (an initial test found the inserts lasted 27 days), the number of times the furnace will need to be shut down and the maintenance crew will have to go down to install new inserts will drop from the current 21 times a year to 12 times. This will increase our annual run time by five-and-a-half days, resulting in an additional 6,000 tons of copper being produced.

The idea came from Steve Bailey, hot metals superintendent. Until now, the inserts were in two pieces and were installed and removed as two pieces. The new program has the inserts as three pieces. After the insert has been in the furnace for about seven to 10 days, the first part of the insert is replaced. This is the part that gets the most wear. By replacing this part, the remainder of the tap hole insert can last a considerably longer time. And, replacing this part can be accomplished during the one-hour shutdown that is part of the daily inspection and routine cleaning.

Smelter Mobile Equipment Maintenance Plan

We all know that the mine has plenty of pieces of mobile equipment, but the smelter is rarely associated with things on wheels. In fact, the smelter has 170 pieces of mobile equipment, and while the size of the investment in this equipment is no where near that of the mine, the smelter spends a large chunk of change maintaining its mobile equipment -- $3 million in 1998, and $2.7 million in 1999.

Our maintenance costs are higher than they need to be and, says Gary Westerdale, an analyst with Business Improvement, and he and BI are working to significantly reduce those costs. In addition to the $300,000 drop in maintenance costs that occurred between 1998 and 1999, the goal is to cut costs an additional $500,000 in 2000.

The reason maintenance costs have been so high is that the equipment has not been properly maintained. For example, the big Caterpillar 3406 engines that should be rebuilt after 8,000 hours of use have been run as long as 15,000 hours. While they can run that long, when they break down, they are junked and totally replaced because the cost of repairing them is not

economical. If serviced after 8,000 hours, the rebuild process is much simpler -- and less expensive. To date, maintenance has been prolonged to the point where some equipment is beyond economical repair. Good maintenance saves money and that is the goal of the maintenance program being implemented with the smelter's mobile equipment.

This program also includes a new effort to involve the hourly workers, who will have a hand in how PMs (Preventive Maintenance) are written. If they don't agree with how a PM is written, they can recommend changes.

It is expected that once the maintenance plan is implemented and equipment is being well maintained, the amount of equipment can be reduced, which will further cut maintenance expenses. Not until we are properly maintaining our equipment, though, will we be able to shed the excess equipment.

The program includes placing into MIMS information about preventive maintenance procedures, spare parts and planned component replacement schedules. "When you make a record in MIMS," notes Westerdale, the craftsman can now take those task instructions and improve on them." Also part of the program is an effort to better organize parts for the craftsman. For example, a shrink-wrapped pallet with all the parts needed for a particular task will be organized for the craftsman. "We want to kit the parts to increase wrench time," says Westerdale.