

ELECTRICAL POWER EVALUATION



KEY POINTS:

- Finding power problems that may cause motor failures.
- Preventing further damage of solid state electrical components. And how strong is the power system at a certain location?
- Maintaining a safe working environment.

Conclusion: Power system satisfactory.

The use of voltage and current recording devices can be a beneficial tool in projecting upgrades to equipment and planning for mine expansion. A tool to monitor for excessively high voltage on down shifts and weekends, that may cause serious problems.

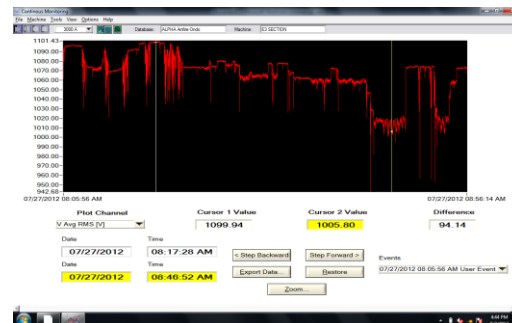
Power Study to check stable voltage during production

Objective of this study:

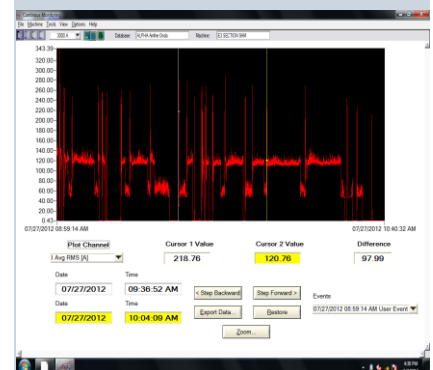
Using the Baker EXP4000 unit we can evaluate 41 data points in real time for accurate power analysis and quality. The unit is a motor current signature tester for all size motors. Analysis on motors gives a good overview of rotor bars, voltage, current, and incoming power conditions. Can be used on AC, DC and VFD systems.

This study was to evaluate the drop in voltage from the idle shifts to the production shifts. Newer equipment is more susceptible to voltage drops and the mine was concerned with how stable the power was at the section. The power center supplied 995 volt power to the miner and bridge conveyor. We connected to the buss work after the main breaker. Placing CTs and voltage clamps on the buss work we could record voltage, current, KW, kVAr, KVA, Power factor, Hz and other components of the power system.

The graph above shows the production voltage averages. The graph below shows the idle shift and the starting of a day production, belts starting, mobile bridge and continuous miner.



The Baker EXP4000 is an excellent motor tester for AC rotor bar problems, DC commutator, field and drive problems. Plus testing of VFD drive problems on AC Motors. With the continuous monitoring feature the power system can be recorded for evaluation and recommendations as in this study.



Above is a graph showing the current during a portion of the shift.

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