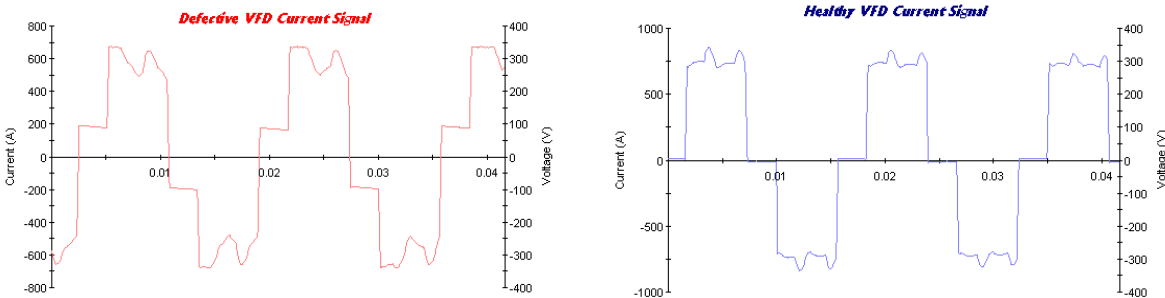


# CASE STUDY # 9111

Industry: Mining	Fault Zone: Power Quality
Motor: Induction VFD	Location:
HP: 500 HP	Voltage: 480
FLA: 568	Speed: 1787

## Summary

During routine maintenance, EMAX dynamic testing was performed on a motor driven by a variable frequency drive. Testing was performed from both the load and line side of the drive. The data collected on the load side indicated an abnormal current waveform on all three phases for a six-pole rectifier. Voltage waveforms were normal. Additional testing was performed on the VFD in an effort to determine the cause.



After reviewing motor data and comparing signals from like systems, it was determined that the VFD was the source of the problem. Resources were dedicated to aid in the troubleshooting effort. Subsequent investigations into the VFD revealed a failed SCR. The SCR was replaced, the VFD operation and signal production confirmed healthy, and the system restored to operation. Following this repair, additional laboratory testing was performed on the failed SCR. It was discovered that the SCRs were breaking down when temperature reached 100 degrees C at 600V. After checking all warehouse spares, it was discovered that 68% of the SCRs could not meet this requirement. Specifications were set up by the company to address this issue and eliminate the future failures.

**Total Cost Savings: \$250,000**

