

Case Study: Shaft Voltage and VFD Motor

Abstract: Repeated bearing failures were occurring, and EDE was called in to take shaft voltage measurements.

EDE Engineering arrived at the site February 2014. Went to the motor pump room in B1 level. There were 2 motors. The left 10HP motor has had multiple bearing faults and winding faults the last few months. The right motor has been in steady service since 2006.

A loud bearing shriek was clearly evident, as well as the sound would modulate up and down. Each motor was driven with a drive. Drive carrier frequency was not checked.



This the implementation. Pump A was where the problem was happening.

So, rotor shaft voltage measured on the “Left” side pump motor. This voltage would vary up and down all the time, and fluctuated quite a bit.

Occasional voltages greater than 8 volts Pk-Pk were detected. These fluctuations are usually indication that the bearing grease has blackened, and failed, with balls and races nearing total breakdown.

There was a lot of jitter and instability in the wave forms. A loud bearing sound was heard. The bearings are probably due for replacement.