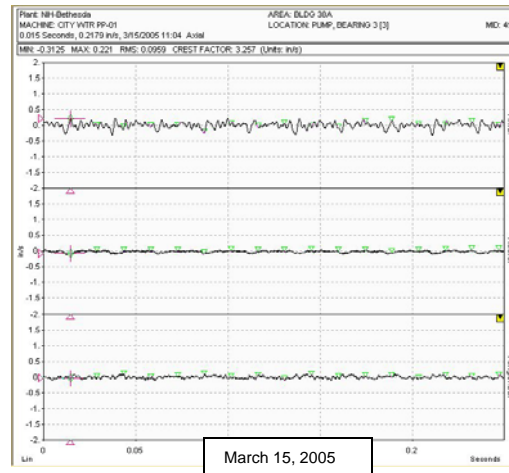
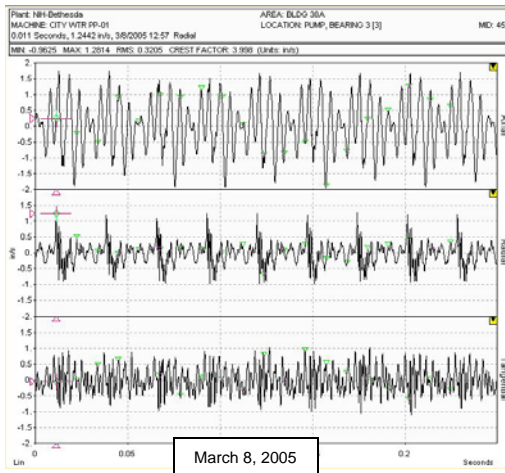


NIH CBM improves City Water Pump in National Library of Medicine

Todd Loveless requested NAVSEA TEAMM assistance to evaluate an unusual noise coming from the city water pump number #1 in building 38A. Vibration analysis indicated a condition of looseness and the Ultraprobe 9000 pinpointed the problem at the coupling. Below at left, you can see the actual waveform taken from this water pump on March 8, 2005. This shows a severe vibration that needed to be addressed immediately. The waveform showed a peak vibration of nearly 1.0 inches per second. The center spectrum, from the radial direction, also indicates an impact, or heavy hit, once per revolution of the shaft.



George Peters and Todd Loveless disassembled the coupling. Contact between the motor half key and the face of the pump coupling hub along with a significant misalignment of the shaft were found to be contributing factors to the vibration. The coupling was reassembled after relocating the shaft keys, and a recommendation was made to realign the pump, and documented into the TEAMM online system.

On March 15, 2005 George Peters and Ken Gilliam of NAVSEA realigned the pump. With the motor alignment being out as much as 95 thousandths, shims were installed to bring the alignment down to just 4 thousandths.



Vibration measurements were taken after the alignment and the resulting waveform is shown above, at right. The scale on this spectrum is the same as the spectrum on the left. This pump is now running at acceptable vibration levels and the exception has been closed within the TEAMM system. Without these corrections, this pump would have ultimately suffered a catastrophic failure.