



## CASE STUDY: NORTH TAHOE P.U.D.

**RAPID CUSTOM PARTS DELIVERY GETS A CRITICAL PUMP BACK ONLINE JUST AHEAD OF LAKE TAHOE'S CHRISTMAS VACATION TIME, THE SECOND BUSIEST SEWAGE HANDLING DAY OF THE YEAR.**

### HISTORY

The North Tahoe Public Utility District (NTPUD) serves residents and vacationers in the Lake Tahoe area. Vaughan Co. provided a 50 HP, 1750-RPM model PE4P6CS-118 vertical pedestal chopper pump for the Carnelian Bay Pump Station to replace an existing pedestal pump, which was having difficulty with ragging. The Vaughan pump was intended to be driven by a Variable Frequency Drive (VFD) to provide 1150 GPM at 84' TDH at less than 1750 RPM, but because of costs the VFD was eliminated from the project.

### THE PROBLEM

During startup Vaughan's representative, Rockwell Engineering & Equipment, found that the pump was vibrating because it was operating in high-flow cavitation. With no installed VFD, the pump couldn't be slowed down to reduce head and flow. With all organizations working together (Vaughan, Rockwell, Resource Development, Kennedy / Jenks Consultants, and NTPUD), static pressure gauge readings showed that the discharge elevation established in the 1950's was off by 14 ft. This resulted in less static head than expected, causing the pump to operate in a cavitation region of the head/flow curve. Here was a critical pump operating in a severely vibrating condition because operating conditions were different from those specified, just 5 days before Christmas. And overflowing the lift station into Lake Tahoe was certainly not an option.



*Norm Moore of NTPUD with a Vaughan Model PE4P Chopper Pump.*

### THE SOLUTION

Vaughan Engineering recommended that the impeller diameter be changed from the installed 11.8" to a smaller 10.9" dia. Since Vaughan chopper pump impellers are not machinable (they are heat-treated to 60 Rockwell C for good wear resistance), Vaughan quickly arranged to take a factory stock impeller and grind it down to a custom 10.9." The order for the impeller was

received late morning, and the impeller was ground down, balanced, and shipped out by the end of that same day. The part was received in Reno before 10 AM the next morning. Bob Evans of Resource Development then drove the impeller to the Lake Tahoe, Carnelian Bay Pump Station, installed the new impeller, and restarted a now smooth-running pump before noon. The problem was identified and resolved within 24 hours of discovering it. Norm Moore from NTPUD said, "We just don't see this kind of service way out here."

### CONCLUSION

Vaughan Company's 48 years of experience in the chopper pump market provides the exceptional ability to troubleshoot problems, provide rapid solutions, and provide parts quickly, often overnight. Vaughan Company prides itself on its unparalleled customer service, superior product design, and multi-million dollar inventory.



Quality Chopper Pumps Since 1960.