

**MEMORANDUM**

**TO:** Mayor and Council Members  
Toby Hammett Futrell, City Manager

**FROM:** Juan Garza, General Manager  
Austin Energy

**DATE:** June 29, 2005

**SUBJECT:** Critical Business Need: Rebuilding "A" and "C" Circulating Water Pumps  
for the Sand Hill Energy Center Combined Cycle Unit 5

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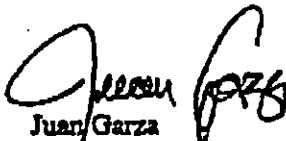
Sand Hill Energy Center Combined Cycle Unit 5 was designed with three 60,000 gpm circulating water pumps. These pumps primarily provide required cooling for the steam turbine condenser and also supply the auxiliary unit cooling load through the closed cooling water heat exchangers. Normal summer conditions require that two pumps be in operation with the third provided as an "in place" backup. High vibration was observed on Pump "C" and it was removed from service and pulled on May 26, 2005 by Smith Pump Company (Waco) for determination of the cause of the vibration. It was immediately noted that the pump impeller had cracks in two of the vanes with imminent failure noted on the larger of the cracks. While disassembly and root cause analysis was in progress on this pump, a similar high vibration was noted on Pump "A". The Smith Pump Company was awarded the bid to pull and evaluate this pump as well. The pump was pulled on June 2, 2005. When the impeller was inspected, a section of one impeller vane was missing with the crack initiating in the same location as that observed on Pump "C". Later examination revealed other small cracks on both impellers.

Although the plant circulating water system is designed for two pump operation, we have been able to generate at full capacity with only one pump and a subsequent slight loss of efficiency. The combined cycle unit is the most cost efficient gas unit in the AE system and it is competitive with the best gas units in ERCOT. If we develop problems with the one remaining pump, we will be forced to shut down 300 MW's of efficient, low emitting generation.

Austin Energy, Smith Pump Company, and the Circulating Water Pump OEM (Goulds), have all examined and evaluated the failed impellers. The conclusion is that there was likely some problems with the original casting of the impellers and that a material change from brass to stainless steel will add required strength to a new impeller. This change is due, in part, to some system design conditions of the unit. We have a quotation from Smith pump to purchase the new impellers and rebuild both pumps at a cost of \$110,411.81 per pump. We also received independent quotations for the impellers and are confident that the price offered by Smith for these parts is fair to Austin Energy. The impellers have a seven-week lead-time.

Due to possible failure of the one remaining pump and the critical nature of operation of this unit both economically and environmentally, I am designating the procurement of parts and repairs of Sand Hill Circulating Water Pumps "A" and "C" as a Critical Business Need of Austin Energy.

Please let me know if you have any questions or concerns. I can be reached at 322-6002.

  
Juan Garza  
General Manager  
Austin Energy