Pump Analysis Report
City of Rocky Mount
Pull and Inspect RWP #1
Job #32890

CRU Job No-	32890
Customer-	City of Rocky Mount
Customer Contact-	
Pump Manufacturer-	Fairbanks-Morse
Model/Stage(s)/Serial	16”-8312 / 2 stg. / N.A.
GPM / Head / HP	7600 GPM / 45’ TDH / 100 HP
CRU Project Manager-	Zach Hinnant zhinnant@crupumps.com / (919)-775-2463

Following the disassembly and inspection of your RWP #1, we have composed the following pump analysis report. Overall, the pump is in serviceable condition requiring the repair or replacement of several items to bring it back within the manufacturer’s specifications.

Please review the following report of our inspection.

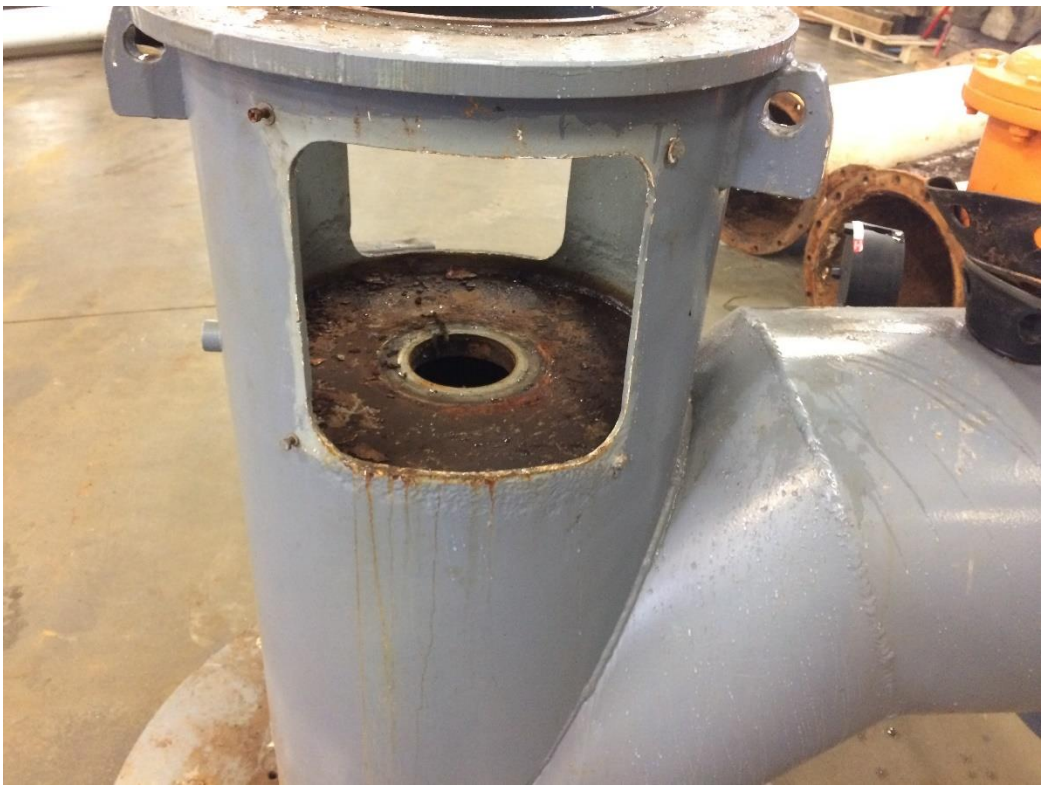

Figure 1: The discharge head is in reusable condition requiring sand blasting and a new coating of two-part epoxy.

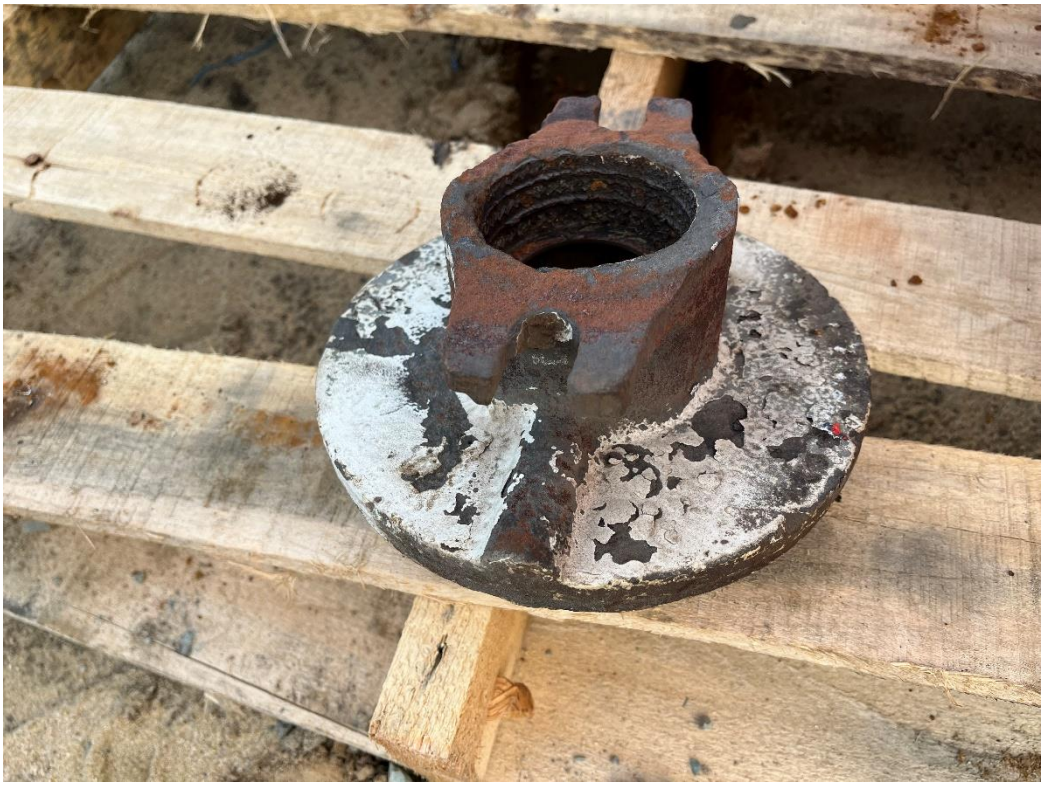

Figure 2: The tension assembly was found to be in reusable condition. It will need to be rebuilt with a new tension bearing and packing.

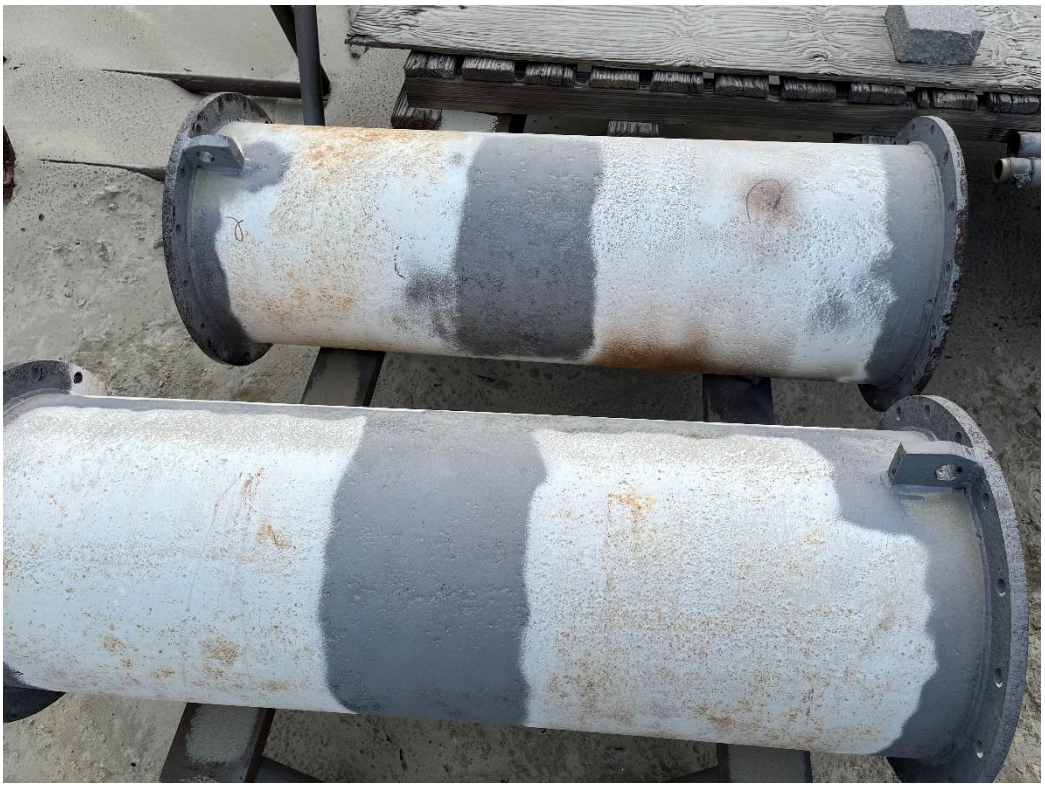

Figure 3: All column pipes were inspection blasted and found to be in reusable condition. They will need a new coat of two-part epoxy.

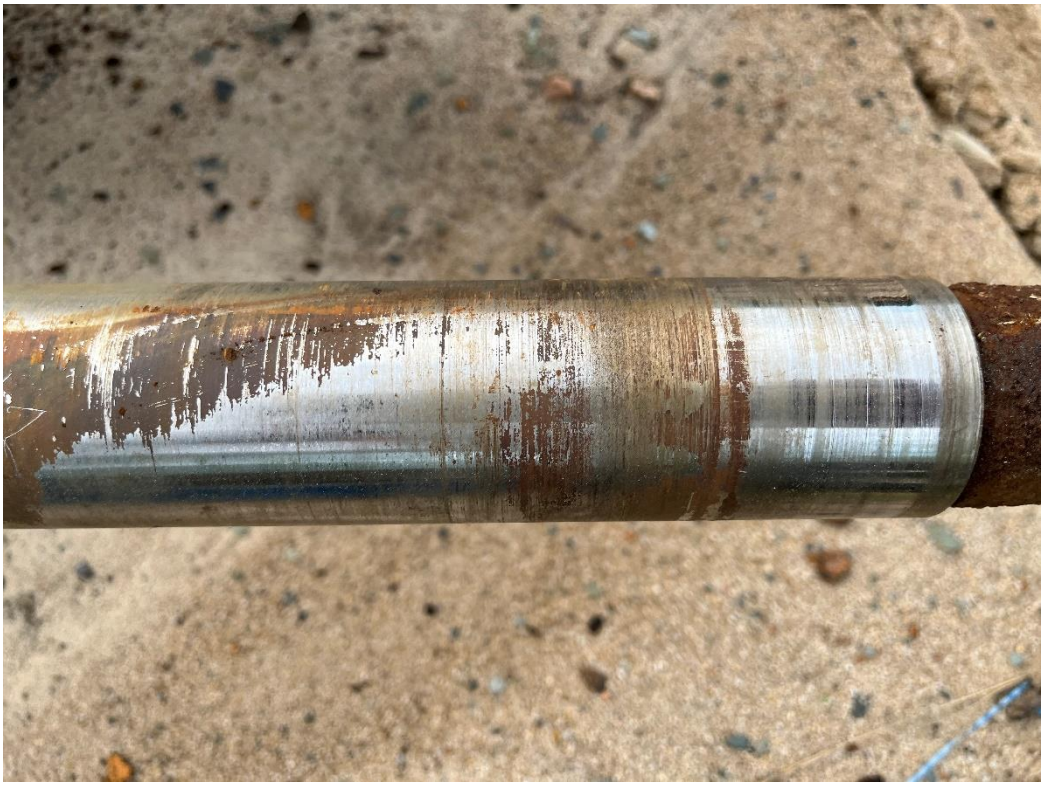

Figure 4: Top shaft is worn in the enclosing tube bearing area and the sleeve is worn from the tension bearing and packing. Both will need to be replaced.

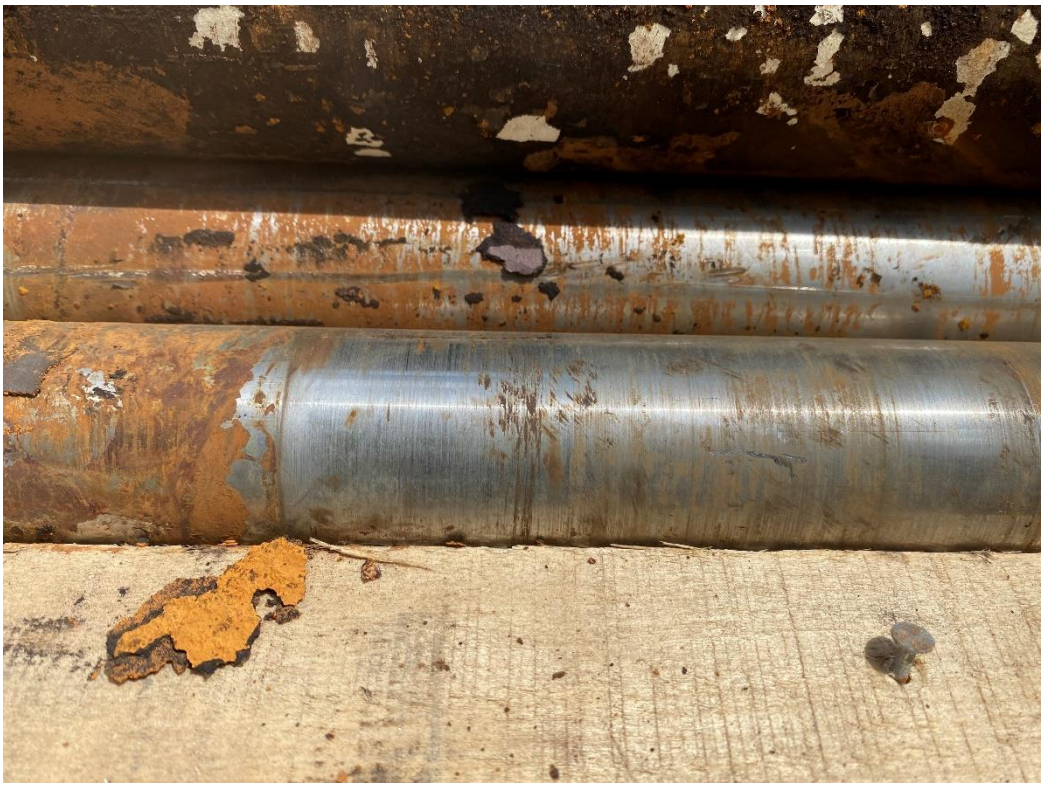

Figure 5: The line shafts are worn in the enclosing tube bearing areas and will need to be replaced.

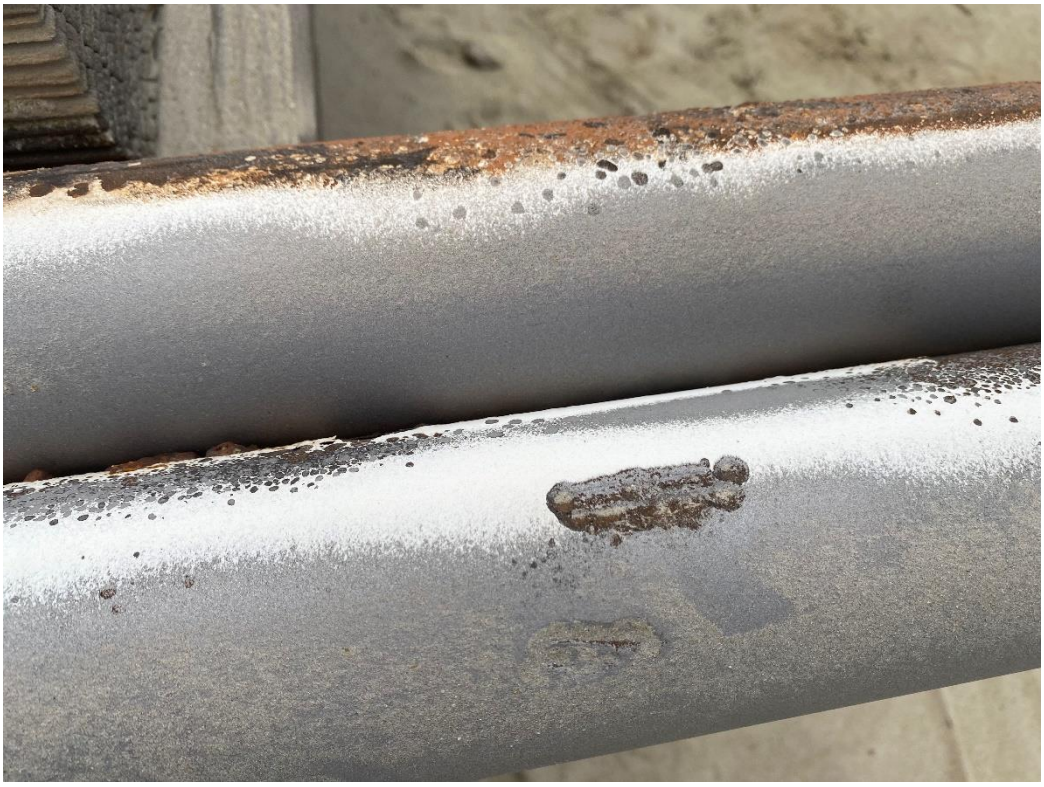

Figure 6: The enclosing tubes are pitted and are not in reusable condition. All enclosing tubes will need to be replaced.

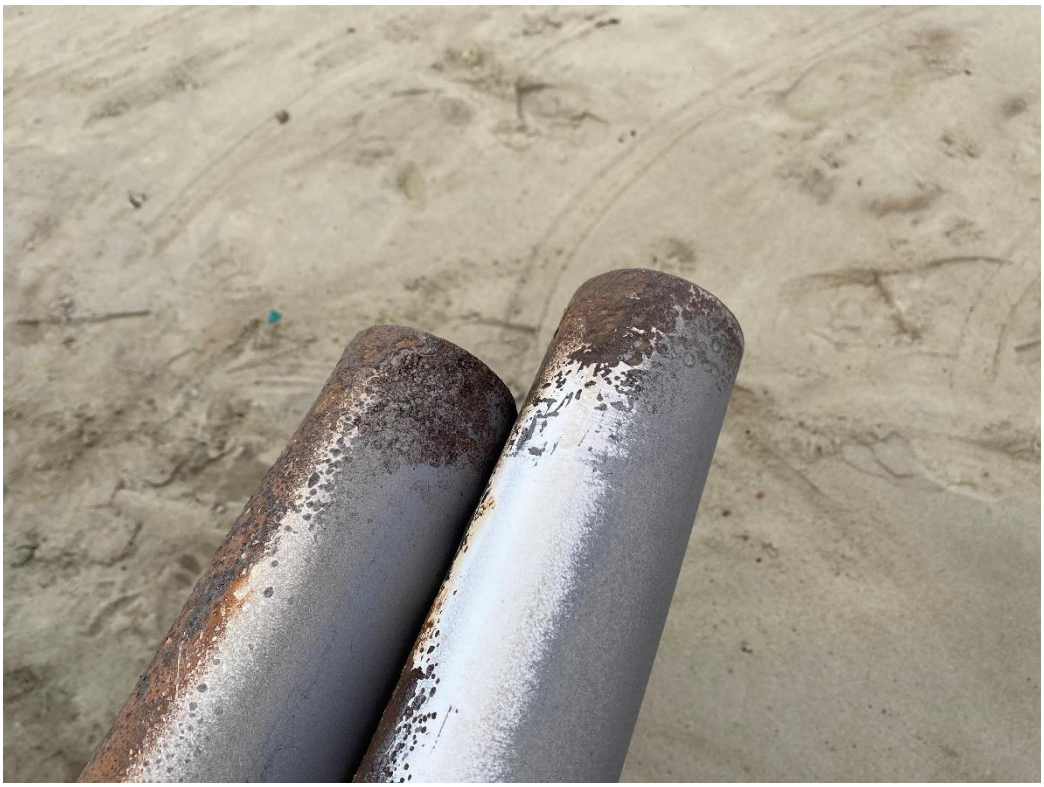

Figure 7: Detail showing the pitting on the ends of the tubes.

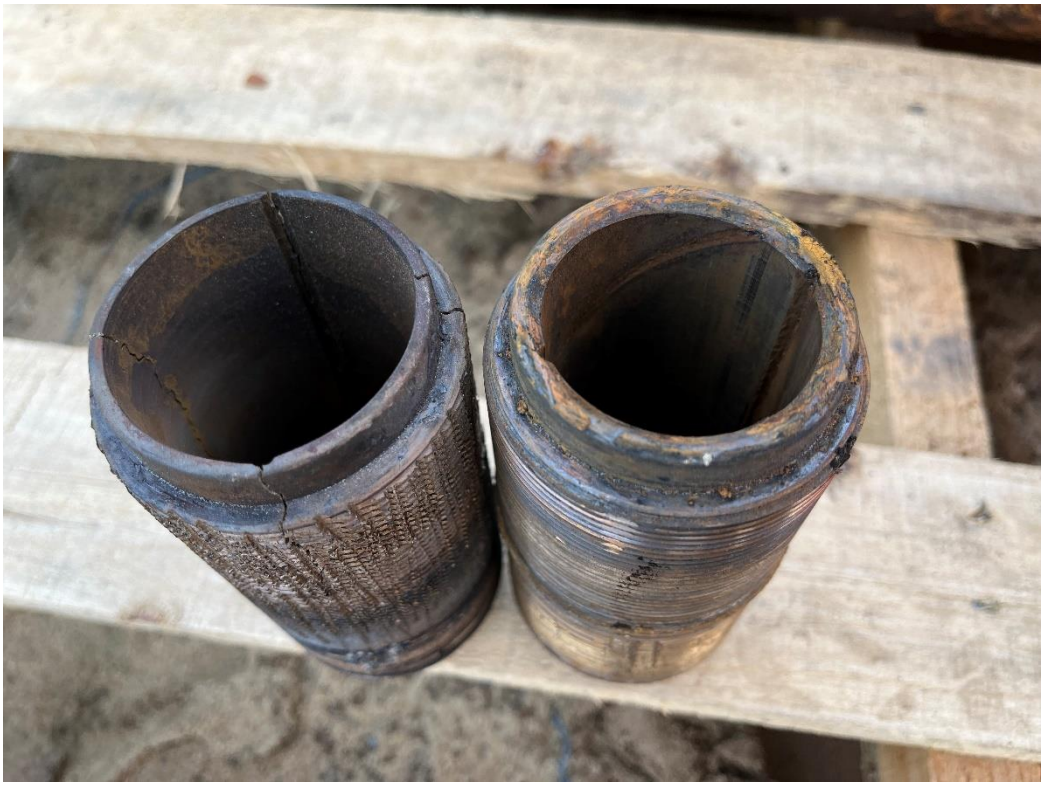

Figure 8: The enclosing tube bearings are worn and cannot be reused. All tube bearings will need to be replaced.

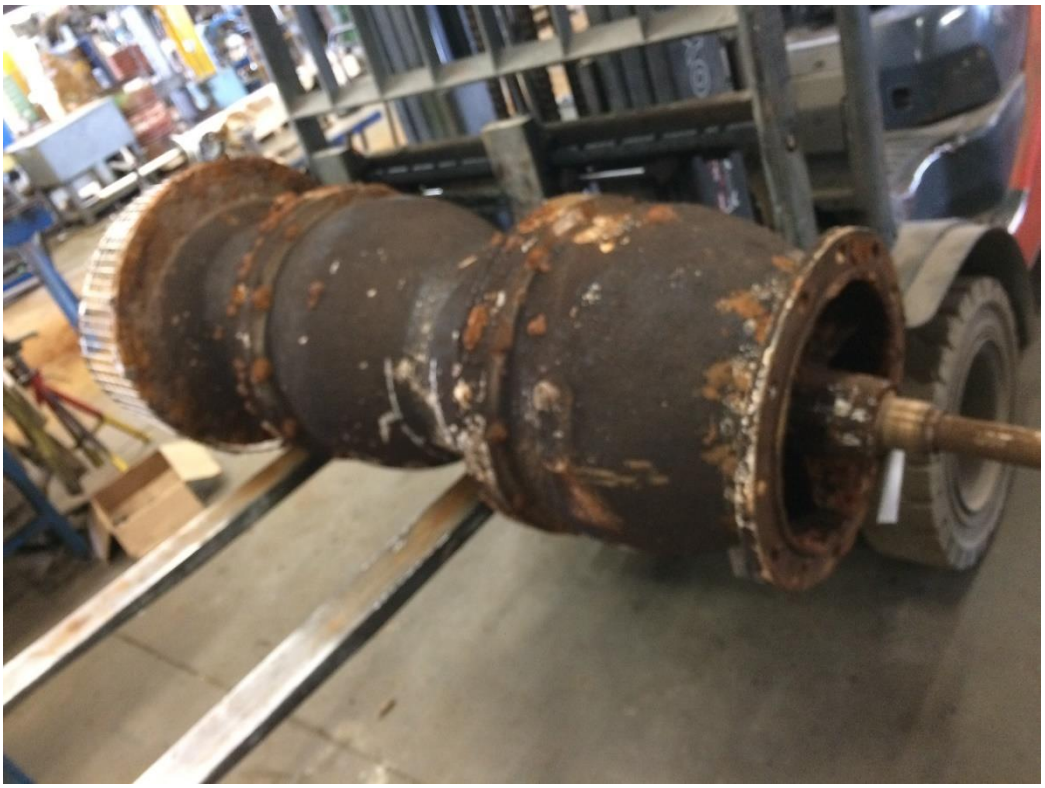

Figure 9: Bowl as received before disassembly and inspection.

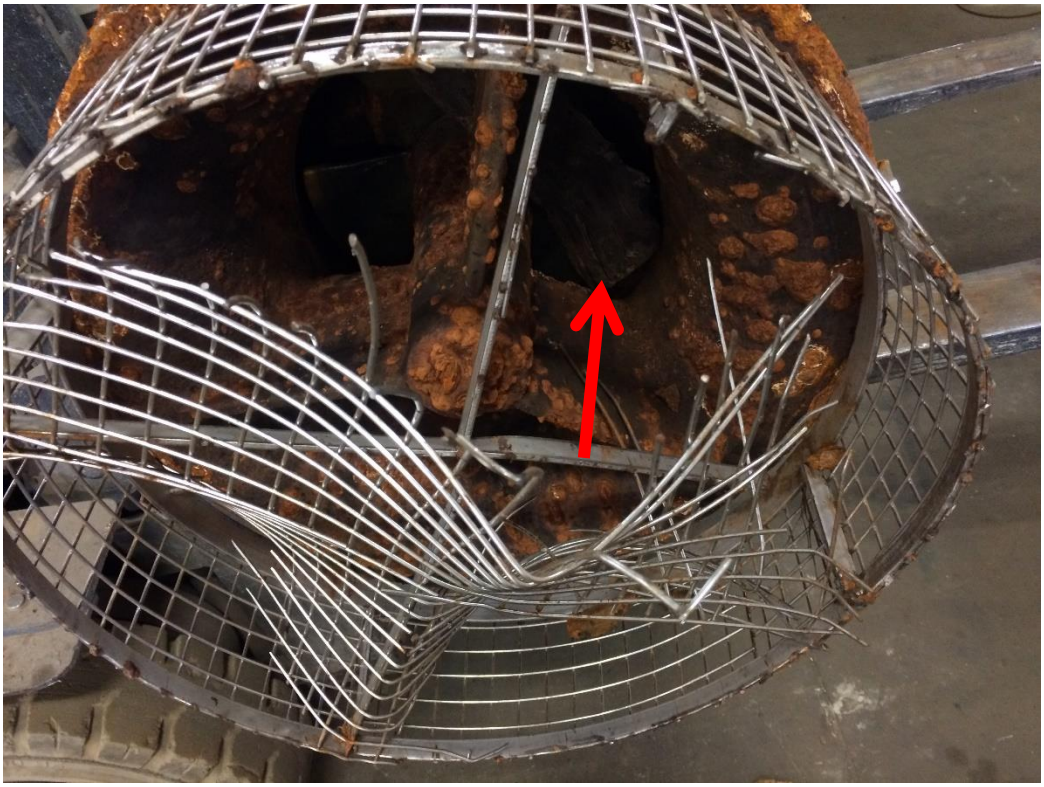

Figure 10: The basket was found to be destroyed upon arrival, and a large piece of wood was found lodged in the impeller. The basket strainer will need to be replaced.

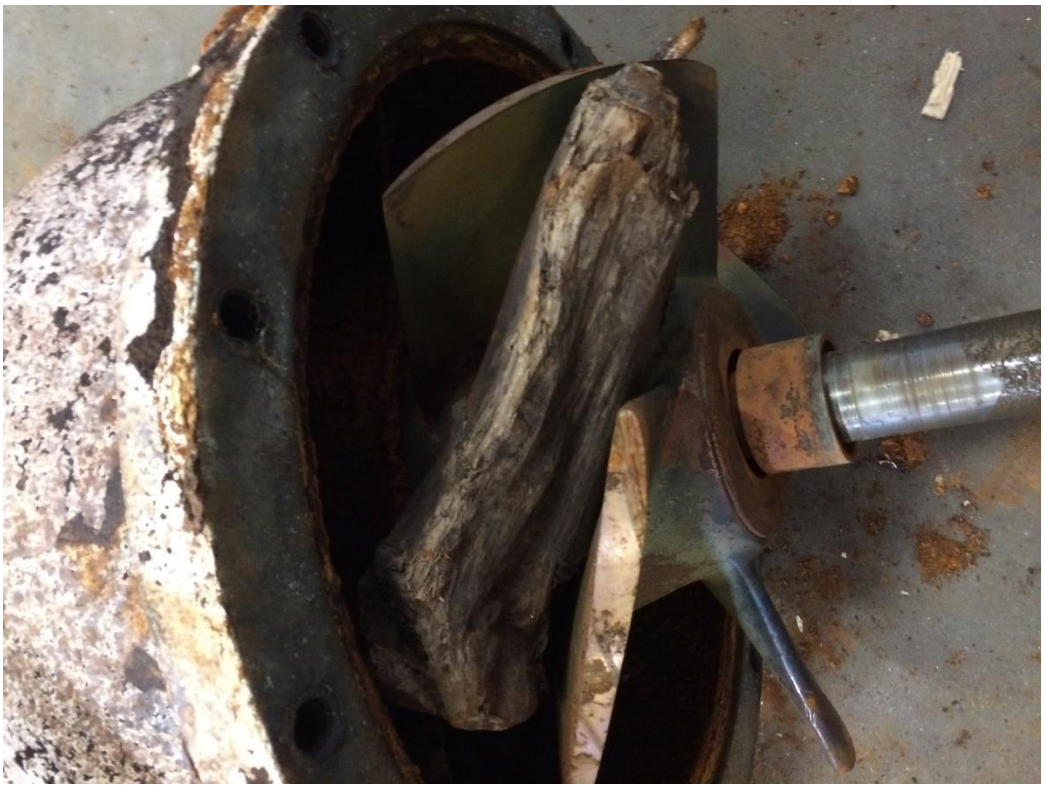

Figure 11: Detail showing the large piece of wood that was found in the bowl.

Figure 12: The carbon steel impeller nut is severely rusted and had broken loose of the threaded collette. It will need to be replaced.

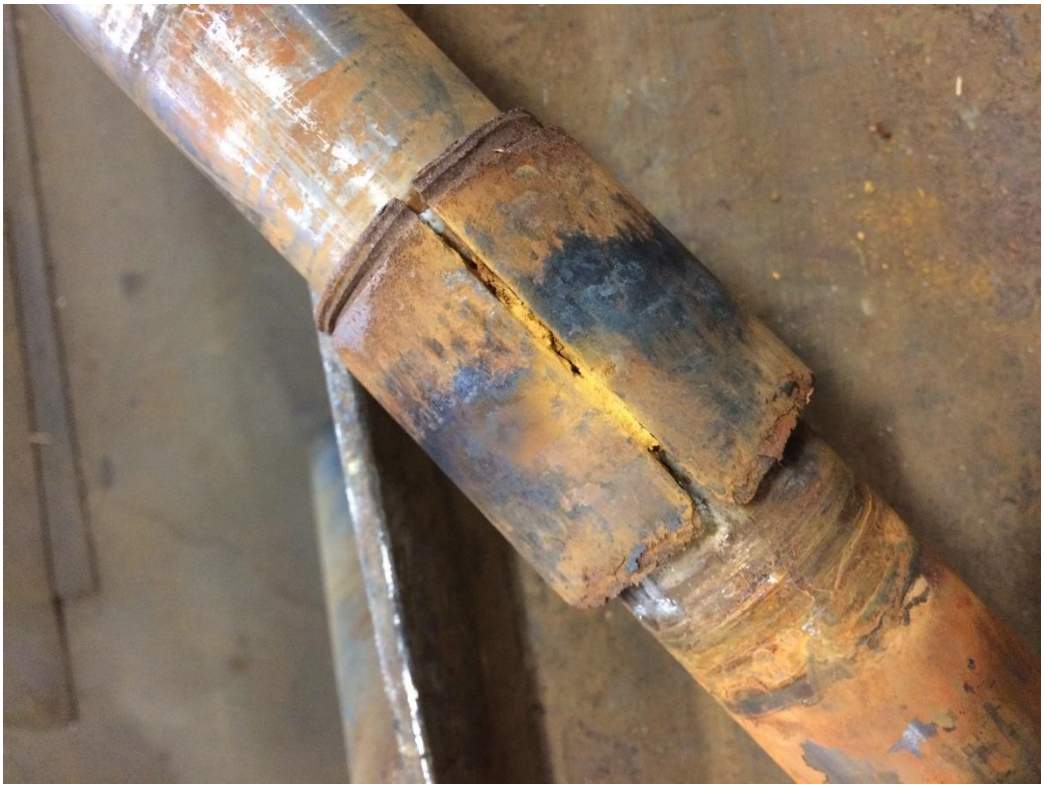

Figure 13: The carbon steel collettes will need to be replaced, as the impellers have spun on the collettes.

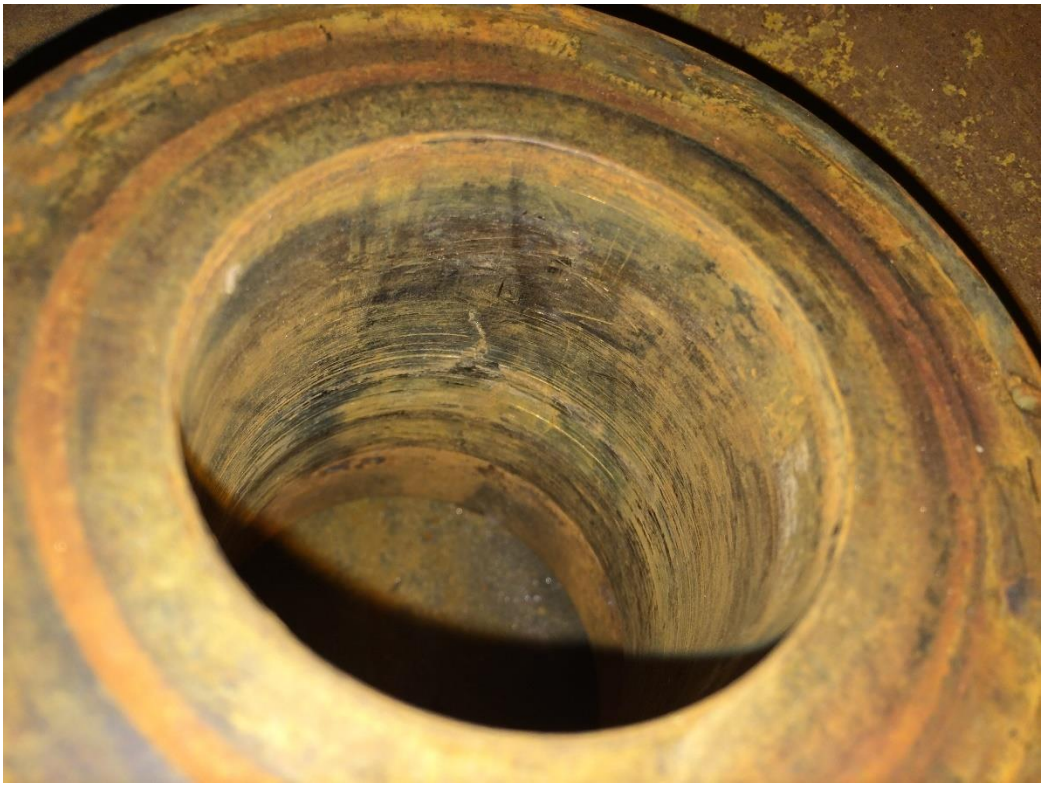

Figure 14: The piece of wood lodged in the bottom impeller caused it to break loose from the collette, and the collette spun in the bore. This caused the bore to become oversized.

Figure 15: Detail showing a different angle of the bottom impeller's bore.

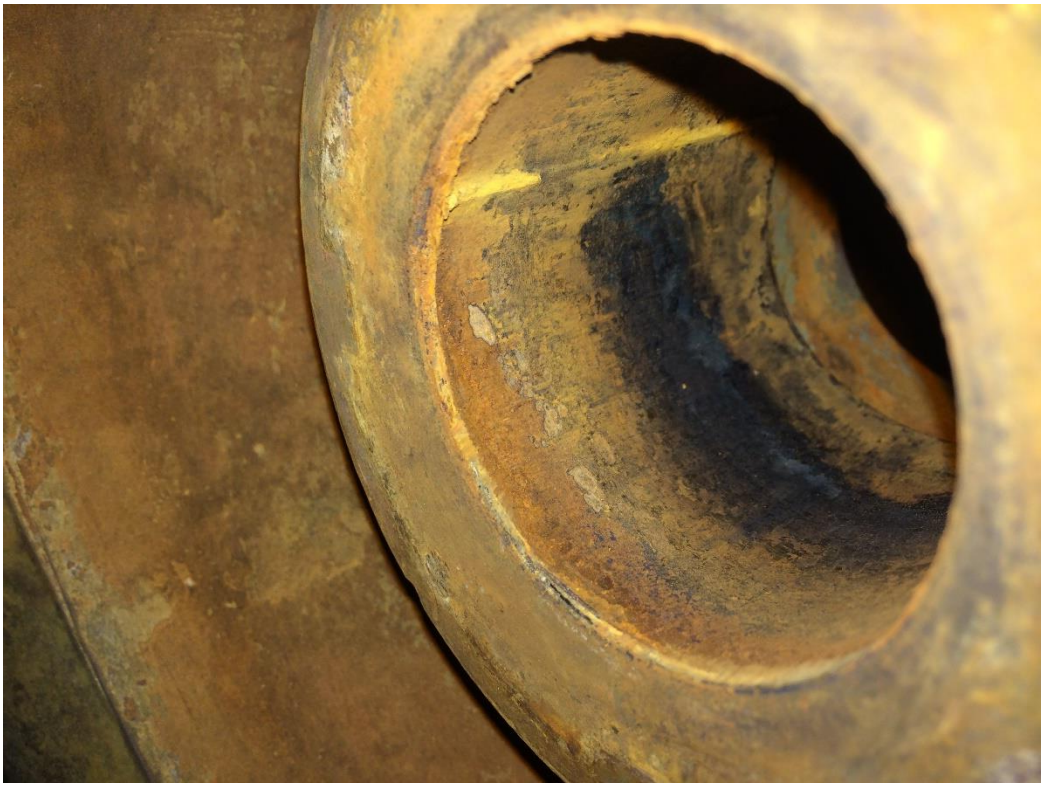

Figure 16: The black area in the bore is indicative of a presence of water between the collette and impeller bore.

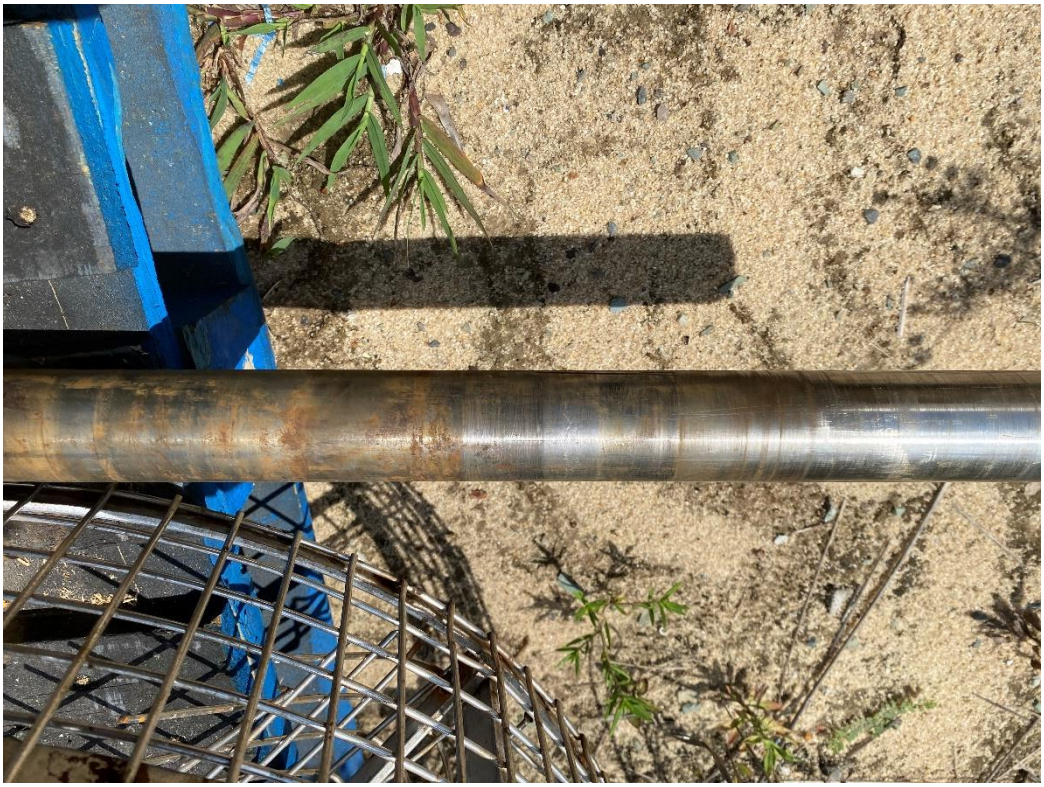

Figure 17: The bowl shaft is worn in the bearing areas and will need to be replaced.

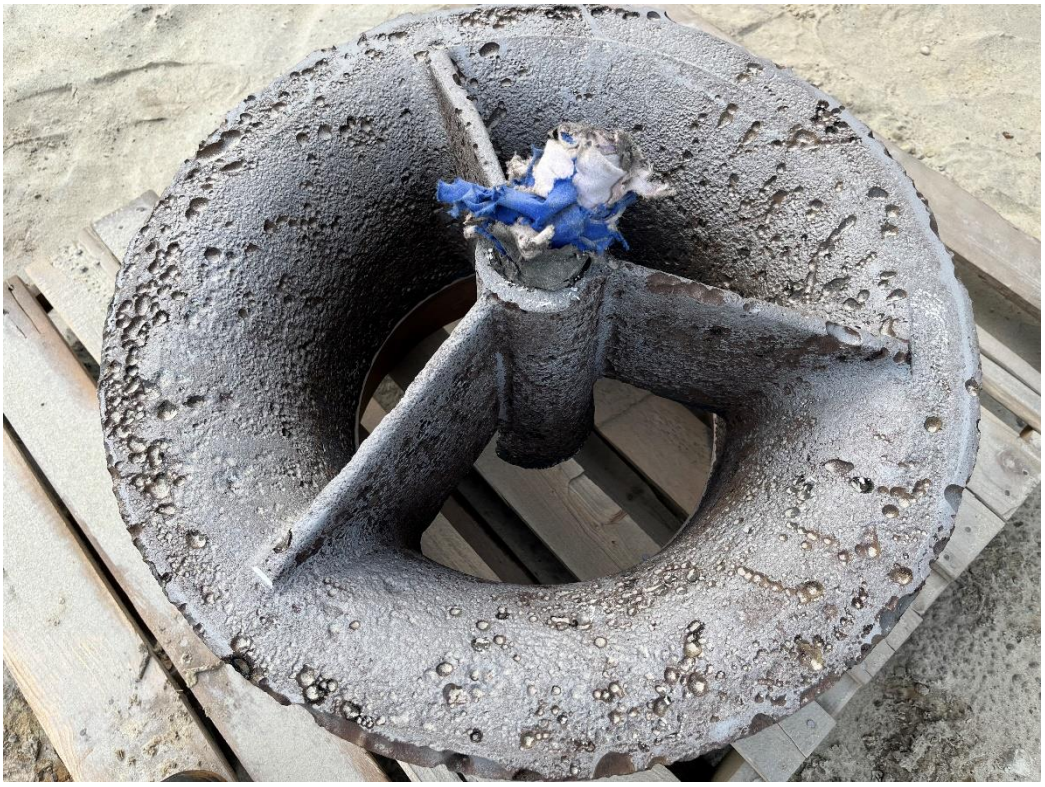

Figure 18: The suction bell has some major pitting, as well as some corrosion on the bell lip.

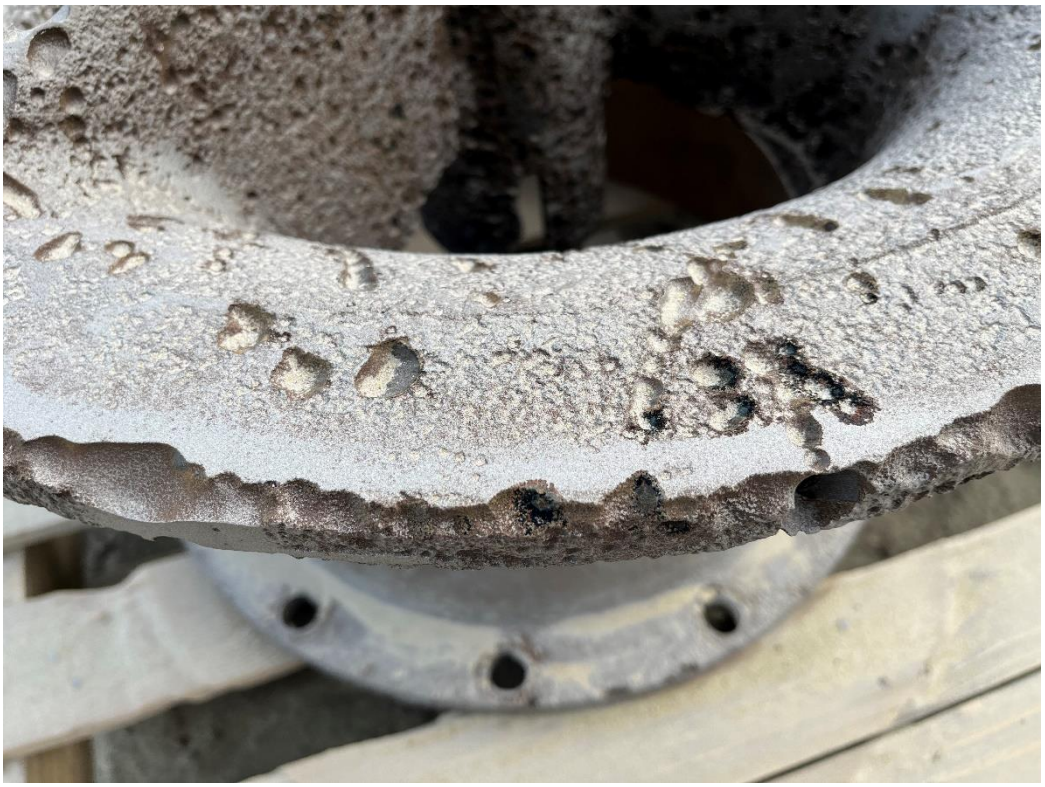

Figure 19: Detail showing the corrosion on the suction bell lip.

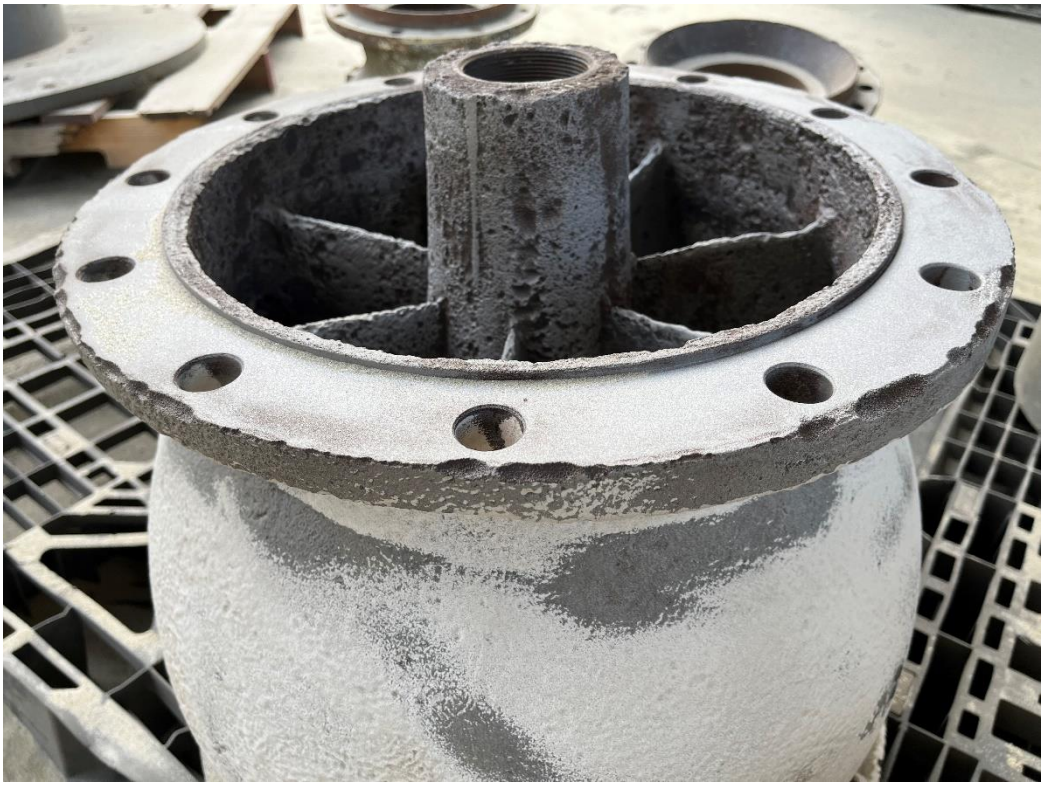

Figure 20: The bowl castings have some slight pitting and corrosion on the flanges.

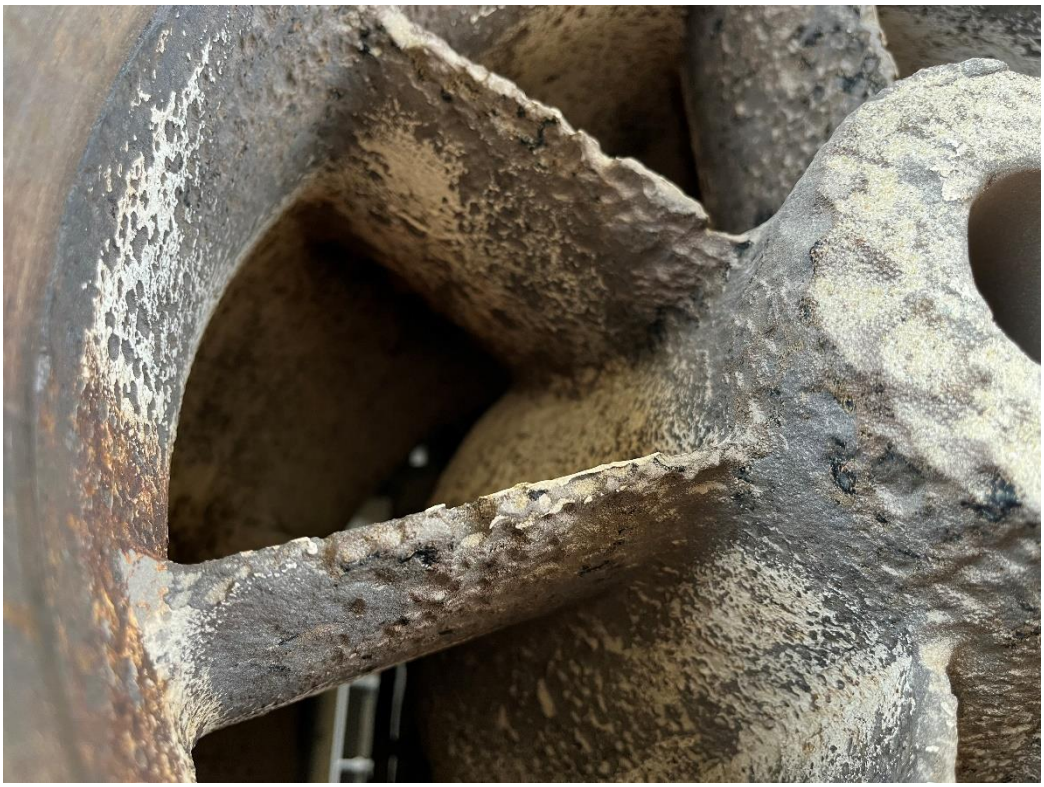

Figure 21: The edge of the vanes in both bowls are also pitted and corroded.

Inspection Summary

1) The discharge head and tension assembly are in reusable condition. Both will require sand blasting and a new coat of two-part epoxy. The tension assembly will also need to be rebuilt with a new tension bearing, packing, and hardware.

2) The motor shaft and three-piece coupling are in reusable condition. Both will need to be cleaned, and the motor shaft will need to be polished and straightened. The top shaft is worn in the enclosing tube bearing area, and the top shaft sleeve is worn from the tension bearing and packing. The line shafts are worn from the enclosing tube bearings and cannot be reused. All shafting and the top shaft sleeve will need to be replaced.

3) The enclosing tubes are corroded and are not in reusable condition. The enclosing tube bearings are worn and cannot be reused. All tubes and tube bearings will need to be replaced.

4) The column pipes were inspection blasted and found to be in reusable condition. All pipes show some slight pitting, but that can be corrected with a new coat of two-part epoxy.

5) The bowl assembly was found with a destroyed basket strainer and a large piece of wood lodged in the bottom impeller. This piece of wood caused the bottom impeller to break loose from the collette. The collette then spun in the bore, causing abnormal wear. The bottom impeller bore is now oversized and will not properly seat on a new collette. The bottom impeller needs to be replaced. The black ring in the bore of the top impeller is indicative of improper impeller seating on the collette.

6) The bowl shaft is worn in the bearing areas and, in turn, the bowl bearings are too worn to be reused. The bowl shaft and all bowl bearings will need to be replaced. All bowl castings show signs of pitting and corrosion on the flanges and on the suction bell lip. With the current state of the castings, and the work required to repair the impellers, it is more economical to replace the bowl assembly.

As always, we greatly appreciate the opportunity to work with you on this project. If you have any questions or need anything else, please contact us at your earliest convenience.

Sincerely,

Jared Thomas, E.I.
Shop Engineer
Charles R. Underwood, Inc.