Layne Christensen Company
721 W. Illinois Avenue
Aurora, IL 60506

630/897-6941
graniteconstruction.com

September 30, 2021

Mr. Robert Leible
City of Aurora
44 E. Downer Place
Aurora, IL 60507

Re: River Intake Booster Pump 5

Mr. Leible:

The Aurora River Intake Booster 5 line shaft pump has been removed due excessive vibration. The bowl assembly, column assembly, and discharge head assembly have been inspected. Please find the Aurora River Intake 5 Pump Inspection Report (PIR) attached.

Based upon the recommendations of the PIR, estimated project cost is as follows:

1.	Labor and equipment to remove pump, clean and inspect components	$10,500
2.	Replace Byron Jackson 1 stage 18KXL bowl assembly	$17,195
3.	Repair column assembly, estimate	$14,800
4.	Recondition Discharge Head Assembly, estimate	$ 3,850
5.	Assemble and Reinstall Pump, estimate	$12,800
	Total Project Estimate	$59,145

Lead times for the column assembly repair components run between 3 weeks and 8 weeks. The declared factory lead time for the bowl assembly is 10 to 12 weeks.

These estimates include the Professional Service Agreement discounts.

If you have any questions or comments, please do not hesitate to contact me.

Layne Christensen Company

William Balluff, P.E.
Account Manager III

721 WEST ILLINOIS AVE.
AURORA, IL 60506
630.897.6941 PHONE
630.897.6976 FAX

CITY OF AURORA
RIVER INTAKE 5 PUMP INSPECTION REPORT

JOB NAME	Aurora		River Intake	5	DATE	09/23/2021
JOB NO.	1135081	INSPECTED BY	J. Kopp			
		BOWL ASSEMBLY	Byron Jackson 1 stage 18KXL			
		COLUMN ASSEMBLY	16'-11" of 12" flanged x 2 ½" x 1 11/16"			
		MOTOR	US 100 HP, 460V, VSS			

MOTOR

Motor Observations

The US 100 HP VSS motor was left on site for City motor service pick up.

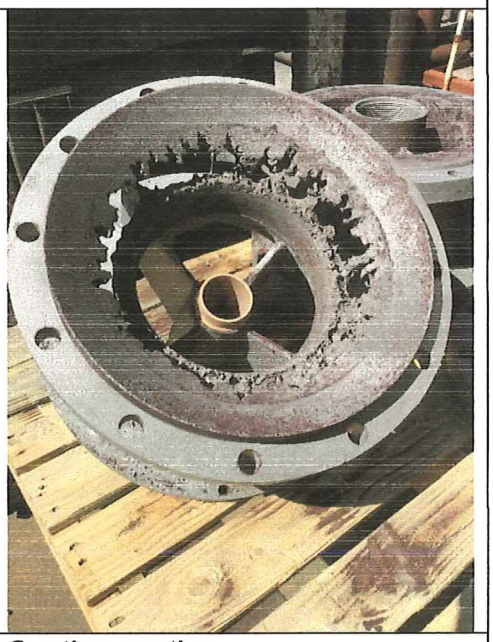
Motor Recommendations

Per motor service

BOWL ASSEMBLY

Side view of bowl after sandblast

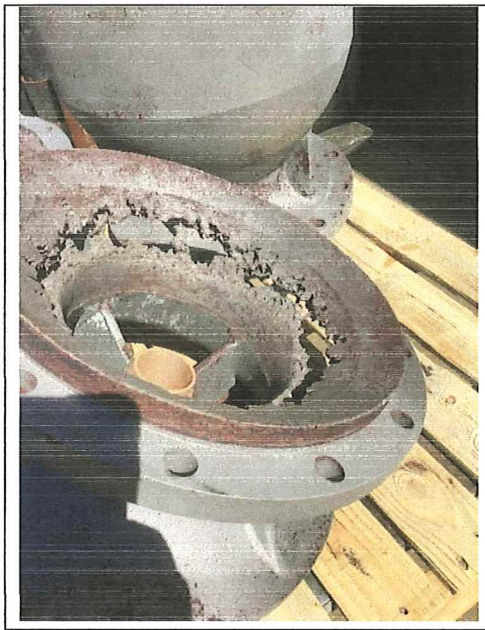
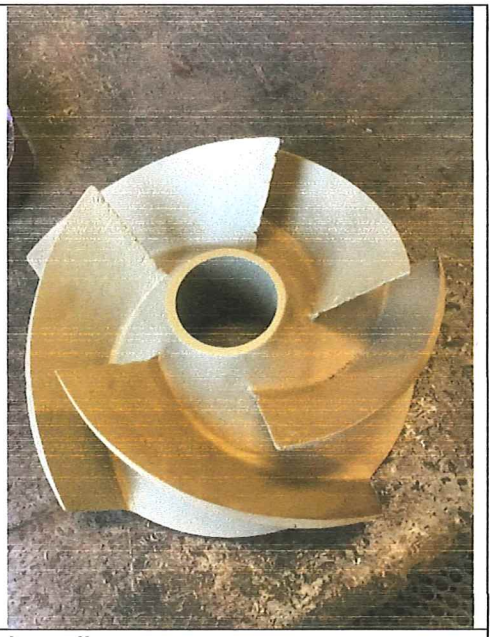
Suction casting and bell end.



Suction casting.

721 WEST ILLINOIS AVE.
AURORA, IL 60506
630.897.6941 PHONE
630.897.6976 FAX

CITY OF AURORA
RIVER INTAKE 5 PUMP INSPECTION REPORT

		
Suction casting.	Intermediate casting	Impeller.

Bowl Assembly Observations

The 1 Byron Jackson stage 18KXL impeller has a 10.50" impeller trim. The shaft projection is 14" (1 11/16" 8THD) and the oil tube projection is 11". The suction casting is destroyed due to cavitation wear at the volute. The stainless suction screen is in good condition.

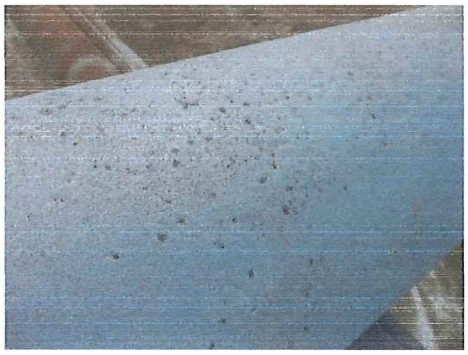
Bowl Assembly Recommendations

Replace bowl reusing stainless suction screen.

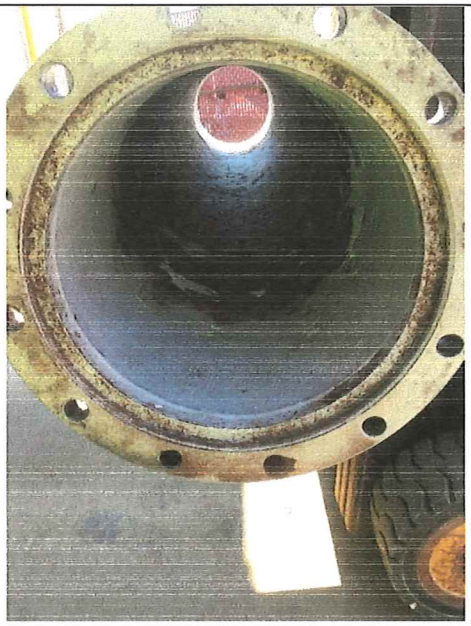
721 WEST ILLINOIS AVE.
AURORA, IL 60506
630.897.6941 PHONE
630.897.6976 FAX

CITY OF AURORA
RIVER INTAKE 5 PUMP INSPECTION REPORT

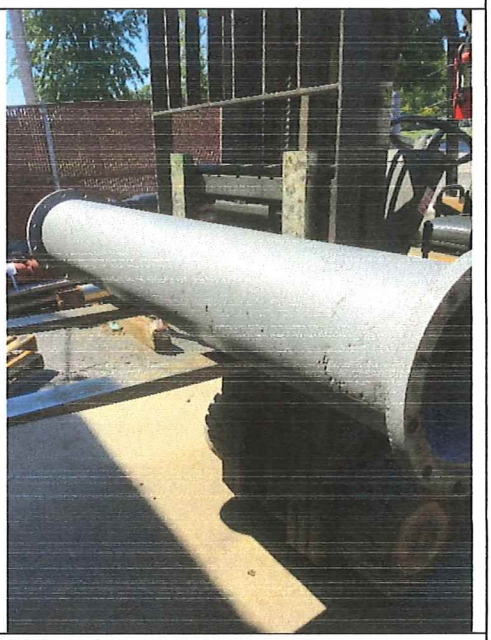
COLUMN ASSEMBLY



12" column exterior – typ.

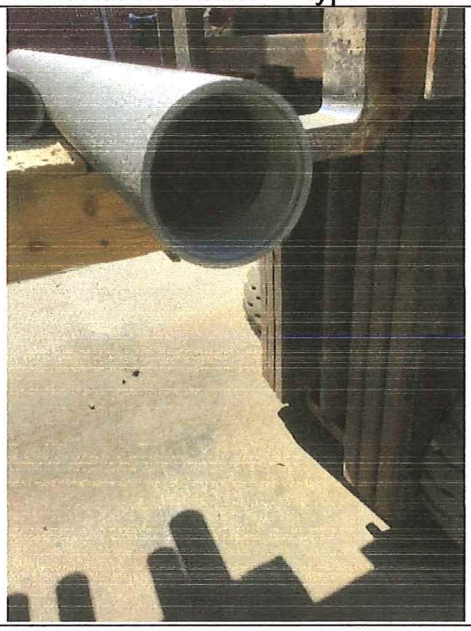


12" column exterior – typ.

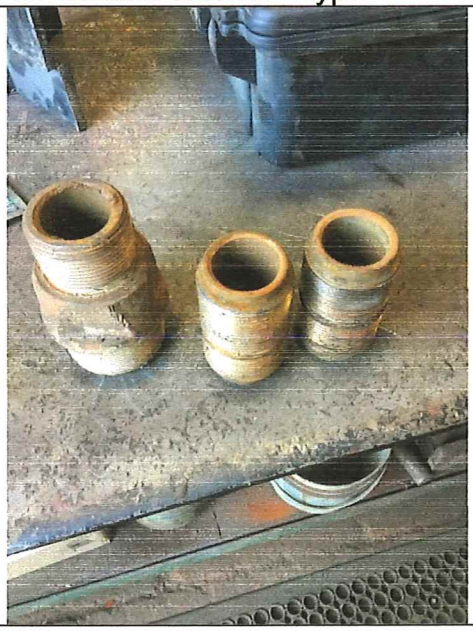


12" column exterior – typ.

"Oil" tubes exterior



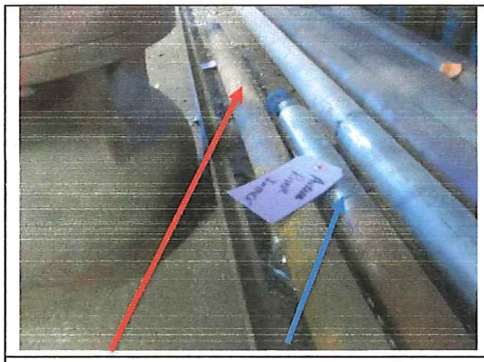
"Oil tube threads, typ.



Tube bearings

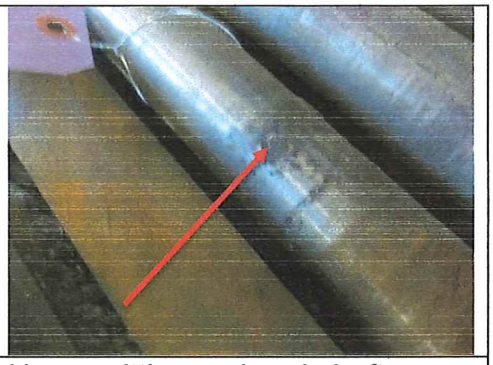
721 WEST ILLINOIS AVE.
AURORA, IL 60506
630.897.6941 PHONE
630.897.6976 FAX

CITY OF AURORA
RIVER INTAKE 5 PUMP INSPECTION REPORT



Intermediate and head shafts

Light grooving on intermediate shaft



Heavy pitting on head shaft

Shaft couplings

12" x 2 ½" inner column support spyders

Stainless basket strainer

Column Assembly Observations

The 12" flanged column show wear but appears OK for reuse with secondary blasting to remove the residual build up inside and application of steel epoxy filler to divots/pits on exterior and epoxy coat to OD and ID.

Intermediate shaft (1 11/16" – 8 THD x 10' SST) appears reusable with complete polish and check for straightness. Head shaft (1 11/16" – 8THD x 100 ¼" SST) needs to be replaced due to excessive pitting at the top of the shaft. (Custom fit for 4-piece solid shaft coupling.) Shaft couplings OK for reuse with clean.

All tubing needs to be replaced due to excessive pitting/erosion on the interior. Tubing bearings are OK for reuse. The inner column spyder supports are in very poor condition.

721 WEST ILLINOIS AVE.
AURORA, IL 60506
630.897.6941 PHONE
630.897.6976 FAX

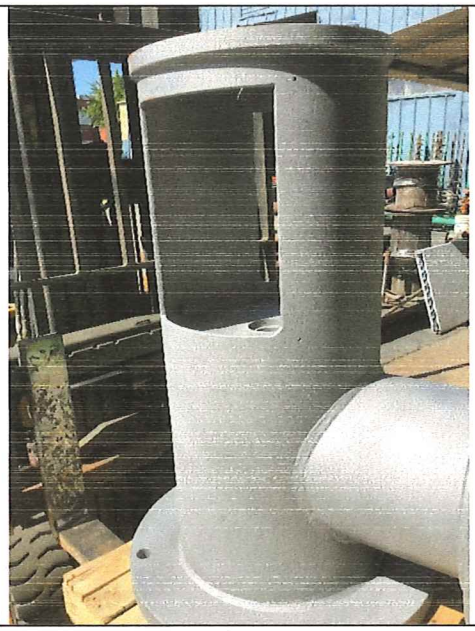
CITY OF AURORA
RIVER INTAKE 5 PUMP INSPECTION REPORT

Column Assembly Recommendations

Apply steel epoxy filler to divots/pits on column exterior. Epoxy coat column OD and ID.
Replace head shaft.
Replace all tubing and support spyders.

DISCHARGE HEAD

Dischagre Head



Discharge Head

John Crane mechanical seal component

Discharge Head Observations

The discharge head is OK for reuse. The mechanical seal is in poor condition.

Discharge Head Recommendations

Standard recondition of flanged face. Epoxy coat ID and exterior of the head inside the rotating safe guards. Replace or rebuild mechanical sleeve.