



**AGENDA ITEM EXECUTIVE SUMMARY**

Agenda Item:	Repair Wastewater Plant Return Activated Sludge Pump		
Presenter & Title:	Bob Van Gyseghem, Superintendent of Water & Wastewater		
Date:	October 21, 2024		
<b><i>Please Check Appropriate Box:</i></b>			
<input checked="" type="checkbox"/>	Committee of the Whole Meeting	<input type="checkbox"/>	Special Committee of the Whole Meeting
<input checked="" type="checkbox"/>	City Council Meeting	<input type="checkbox"/>	Special City Council Meeting
<input type="checkbox"/>	Public Hearing	<input type="checkbox"/>	Other -
Associated Strategic Plan Goal/Objective: EMS-II			
Estimated Cost: \$31,087.65		Budgeted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Other Funding? <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Executive Summary:</b>			
<p>The Return Activated Sludge (RAS) pump station consists of three Hidrostral submersible pumps. The pumps take the solids that have settled from the clarifiers and brings them to the start of the aeration bioreactor for treatment. One of the pumps failed and has been inspected by the manufacturer Hidrostral. A new motor and repairing of pump are required to return it to service. Staff has obtained a quote from the factory authorized service facility LAI, Ltd, whom the City has worked with in the past. Costs associated with the repairs will be accommodated within the existing budget and reflected in a future budget amendment if necessary.</p>			
<b>Attachments:</b> <i>(please list)</i>			
<ul style="list-style-type: none"> <li>• Staff Memorandum</li> <li>• Inspection Report</li> <li>• Resolution</li> <li>• Quote</li> <li>• Sole Source Letter</li> </ul>			
<b>Voting Requirements:</b>			
<p><i>This motion requires 6 affirmative votes for passage. (City Council Only)</i></p> <p><i>The Mayor may vote on three occasions: (a) when the vote of the alderpersons has resulted in a tie; (b) when one half of the alderpersons elected have voted in favor of an ordinance, resolution, or motion even though there is no tie vote; or (c) when a vote greater than a majority of the corporate authorities is required by state statute or local ordinance to adopt an ordinance, resolution, or motion.</i></p>			
<b>Recommendation / Suggested Action:</b> <i>(how the item should be listed on agenda)</i>			
<p>Recommend approval of a Resolution Waiving Competitive Bidding &amp; Authorizing the repair to the Hidrostral pump at the wastewater plant by LAI, Ltd. in the amount of \$31,087.65.</p>			



## Public Works Department

### Memorandum

September 18<sup>th</sup>, 2024

**Memo To:** Bob VanGyseghem, Superintendent of Water & Wastewater

**From:** Tom Price, Lead Wastewater Operator

**RE:** **Recommendation for repair of one (1) Hidrostal Model F10K-MD4R+FE4A6-MIAK1FG+XC1A6MA-25 Pump for the WWTP Return Activated Sludge Station.**

This is for repair of RAS Pump #3, a Hidrostal Model F10K 20 horsepower pump located inside the Return Activated Sludge station wet well. This pump suffered a failure and was pulled by Hidrostal for inspection. The inspection found that the bearing housing was badly worn down, leading to the shaft vibrating until an explosion happened within the motor, mechanical seal failure and fluid entering the motor. The repair costs for the damaged motor exceeded the cost of a new motor and so a replacement was quoted. There is also damage to the suction liner which is being recommended to be repaired/replaced.

The RAS Pump Station consists of three RAS pumps, one of which is always in service and the other two are required during higher flows. These pumps were installed in 2020 and currently all three pumps are Hidrostal because they match the design criteria of the RAS Pump Station. Staff does not recommend mixing and matching pump brands/types in the same pump station to avoid complications in operation, service and maintenance.

The City has received one (1) quote from the sole source manufacturer for repair parts for one (1) Hidrostal Model F10K-MD4R+FE4A6-MIAK1FG+XC1A6MA-25 Pump:

Hidrostal LLC (Aurora, IL) = \$ 31,087.65

Hidrostal LLC is the sole provider of parts/products for Hidrostal submersible pumps. This Hidrostal pump is designed specifically to meet the required flows, pressures, sizing, etc. of the Return Activated Sludge pumping station. Staff also acquired a quote for the cost of a complete replacement pump as a comparison:

Hidrostal LLC (Aurora, IL) = \$ 40,368.53

**The cost difference between the repair and replacement is \$9,280.88 and repair cost is 77% of total replacement cost. However, staff recommends repair due to this pump being only 4 years old with 23,000 hours of operation. Approve for purchase repair parts of one (1) Hidrostal Model F10K-MD4R+FE4A6-MIAK1FG+XC1A6MA-25 pump from Hidrostal LLC at a cost not to exceed \$31,087.65.**



## Pump Inspection Report Submersible/Immersible Configuration

Customer	<i>City of Geneva</i>
Original Contract Reference	<i>SO17520</i>
New Contract Number	<i>SO26956</i>
Pump Model	<i>F10K-MD4R+FE4A6-MIAK1FGS+XC1A5MM-25</i>
Serial Number	<i>272817</i>
Facility for Disassembly	<i>Hidrostal North America, Aurora IL</i>
Date of Report	<i>07/15/24</i>
For the Attention of	<i>Tom Price</i>
Report Prepared By	<i>Trevor Bateman</i>

**Background and Pump History**

Purchased on 03/25/20.

**Symptoms Reported**

Seal fail grounded. Water came out of the dry chamber.

**Inspection Findings** (major areas)

The following table gives a brief confirmation of the condition of the pump components during inspection.

Component	Results & Condition Report	Image/Fig #
Impeller	<i>Good</i>	
Impeller Flange	<i>Good</i>	
Impeller Bolt	<i>Good</i>	
Liner/Suction Cover	<i>Gouged</i>	4
Wear Ring	<i>Good</i>	
Volute	<i>Good</i>	
Shims	<i>Good</i>	
Back Cover	<i>Good</i>	
Outer/Lower Mechanical Seal*	<i>Good</i>	
Inner/Upper Mechanical Seal*	<i>Good</i>	
Seal Plate	<i>Good</i>	
Mech Seal Housing (Inner)	<i>Good</i>	
Mech Seal Housing (Outer)	<i>Good</i>	
Oil Chamber	<i>Good</i>	
Oil Circulation Impeller	<i>Good</i>	
Oil Condition	<i>Contaminated</i>	
Shaft/Rotor	<i>Dented and Scratched</i>	6
Shaft/Rotor Alignment	<i>Out of Alignment</i>	
Upper Bearing*	<i>Internal Scratch Marks</i>	9
Lower Bearing*	<i>Good</i>	
Bearing Housing (Upper)	<i>Internal Scratch Marks</i>	10
Bearing Housing (Lower)	<i>Good</i>	
Motor Cover	<i>Chipped</i>	7
Stator Casing	<i>Exploded</i>	5
Cap and Cable Assembly	<i>Good</i>	
Cable Entry Glands	<i>Good</i>	
Cables	<i>Good</i>	
Electrical Test	<i>Failed</i>	
Motor Cooling Jacket	<i>Good</i>	
Seal Chamber Pressure Test	<i>Failed</i>	
Motor Pressure Test	<i>Failed</i>	
Dry Chamber (Float)	<i>Flooded</i>	
Other	<i>N/a</i>	
Other	<i>N/a</i>	

\*-Standard Replacement

**Summary of inspection**

- Water and oil passed mechanical seal
- Oil contaminated
- Small debris in the motor cap
- Bearing has excessive wear lines
- Bearing Housing has deep groove
- Burn marks and corrosion on the winding
- Burn marks on the shaft/rotor and Stator

**Conclusion**

It appears that the bearing housing was badly worn down, leading to the shaft vibrating until an explosion happened within the motor, the mechanical seal failed, and fluid entered the motor. The shaft/rotor contacted the stator and the bearing scraped against the bearing housing. The liner was gouged, likely from something temporarily catching on the impeller. The damage to the motor exceeds the cost of a new motor and should be replaced. The liner does not need to be replaced but is worth considering.

**Recommendations**

- New Motor
- Optional: New Liner

**Additional Comments**

FIG 1 – Pump as Received



FIG 2 – Nameplate



FIG 3 – Debris from Shaft



FIG 4 – Damaged Liner



FIG 5 – Stator Burn Marks

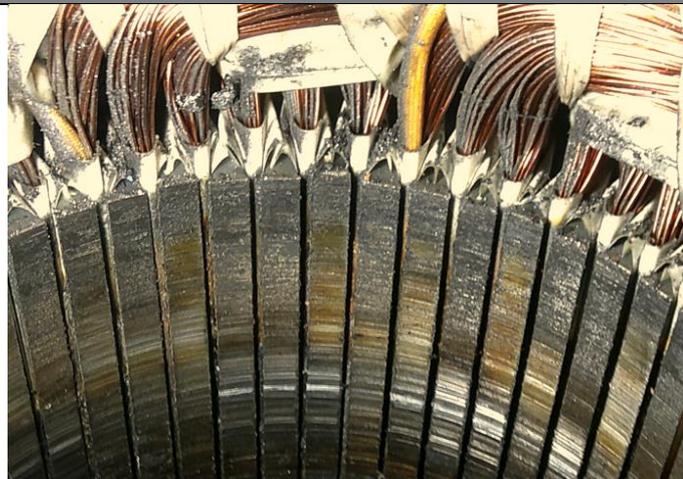


FIG 6 – Shaft/Rotor



FIG 7 – Damaged Motor Cover



FIG 8 – Contaminated Bearing



FIG 9 – Bearing Damage



FIG 10 – Bearing Housing Damage



FIG 11 – Minor Exterior Damage to the Cap and Cable



**RESOLUTION NO. 2024-103**

**RESOLUTION AUTHORIZING THE WAIVING OF COMPETITIVE BIDDING FOR REPAIRS TO HIDROSTAL PUMP FOR RETURN ACTIVATED SLUDGE PUMP STATION AT WASTEWATER PLANT**

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**WHEREAS**, all electronics and interior components of the pumps at the return activated sludge pump station are specific to the Hidrostal brand; and

**WHEREAS**, LAI-LTD is the exclusive authorized representative in the municipal markets for the pumps, parts, and service in Kane County for Hidrostal; and

**WHEREAS**, a Hidrostal pump at the station failed requiring repairs;

**NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GENEVA, KANE COUNTY, ILLINOIS**, as follows:

**SECTION 1:** That the City Council of the City of Geneva, Kane County, Illinois acknowledges LAI-LTD as the exclusive authorized representative for Hidrostal brand pumps and therefore waives competitive bidding for the repair of such pumps; and

**SECTION 2:** That the City Administrator is hereby authorized to execute, on behalf of the City of Geneva, an agreement with LAI-LTD for the repair of a Hidrostal pump by LAI-LTD for the return activated sludge pump station at the Wastewater Treatment Plant in the amount of \$31,087.65.

**SECTION 3:** This Resolution shall become effective from and after its passage as in accordance with law.

**PASSED** by the City Council of the City of Geneva, Kane County, Illinois, this \_\_\_\_ day of \_\_\_\_\_, 2024

**AYES: \_\_ NAYS: \_\_ ABSENT: \_\_ ABSTAINING: \_\_ HOLDING OFFICE: \_\_**

Approved by me this \_\_\_\_ day of \_\_\_\_\_, 2024.

\_\_\_\_\_  
Mayor

ATTEST:

\_\_\_\_\_  
City Clerk



## QUOTATION SHEET

To: Tom Price From: Peter J. Lynch  
Geneva WWTP LAI, Ltd.  
e-mail: [tprice@geneva.il.us](mailto:tprice@geneva.il.us) Pages: 1  
Phone: (630) 532-0160 Date: October 1, 2024  
Re: Hidrostral Pump Repair

One (1) Model: F10K-MD4R+FE4A6-MIAK1FGS+XC1A5MM-25 SN: 272817

Qty	Description	Price Each	Extension
(1)	3222510 IMMERSIBLE MOTOR, 20HP 1152RPM 1.10SF, STANDARD OIL COOLING, 82 FEET CABLE, FM, 230/460V, FE4A6-MIAK1FG+XC1A5MA-25 (MAX VFD POWER 19.2HP)	24,634.57	<b>24,634.57</b>
(1)	3491116 SUCTION LINER REGULABLE F10K-MD/-RLN HI-CHROME A532-III-A	4,819.67	<b>4,819.67</b>
(1)	2843388 HAZARDOUS WASTE DISPOSAL	44.29	<b>44.29</b>
(9)	6427975 WORKSHOP LABOR (DURING BUSINESS HOURS)	176.57	<b>1,589.12</b>
	<b>TOTAL</b>		<b>\$ 31,087.65</b>

**NOTE:** Credit Card Orders are subject to 3% CC company charge.

**Freight** is pre-paid and add or will call at Hidrostral in Aurora

**Quotation** is valid for 60 Days.

If you should have any questions or need additional information, please do not hesitate to contact this office.

Sincerely

Peter J. Lynch

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Date: 8/29/2024

Re: LAI-LTD

**SUBJECT: Sole Source Letter**

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To whom it may concern,

This is to certify that LAI-LTD is our exclusive authorized representative in the Municipal markets for the pumps, parts, and service for the following counties:

- Illinois-counties north of and including Henderson, McDonough, Fulton, Mason, Logan, McLean, Champaign, Vermillion
- Indiana for Lake, LaPorte and St. Joseph counties
- Wisconsin counties east of and south of including Vilas, Oneida, Lincoln, Taylor, Clark, Jackson, LaCrosse Hidrostal Pumps and Bedford Pumps in industrial and municipal markets.

**LAI-LTD**

5400 Newport Dr. Suite 10  
Rolling Meadows, IL 60008  
(847) 392-0990  
<http://lai-ltd.com/>

All Hidrostal products are solely provided by Hidrostal LLC. We appreciate your continued interest in Hidrostal products, and we thank you again for the opportunity to serve you.

Sincerely,



Richard Fowler  
President/General Manager  
Hidrostal LLC  
E: richard.fowler@hidrostal.com