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## Influent Pump Follow Up

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**Auster, Jennifer** <jauster@hoyletanner.com>

Mon, Mar 13, 2023 at 2:29 PM

To: Allen Carpenter <acarpenter@richmondvt.gov>

Cc: Josh Arneson <jarneson@richmondvt.gov>, "DiPietro-Worden, Kirstin A." <kworden@hoyletanner.com>

Allen and Josh,

As you need to replace the influent pumps as soon as possible and do not have time for us to evaluate the peak hydraulics through the system, we would advise you to contract directly with Champlin and Phil Laramie to replace your influent pumps. Since your current operating flow rate is so much lower than the peak flow rate, it appears that replacing the pumps at the original design pump capacity of 800 gpm each will continue to have ragging issues and potential cavitation issues. However, please understand that any pump you install at a lower pump capacity will not meet redundancy requirements (handle full peak flow with one pump out of service) and you will need to identify a schedule and plan to replace them with the properly sized pumps and number of pumps. We are not able to participate in procurement of any pump that does not meet the redundancy requirements and this plan should be seen as a temporary solution.

Without having started the study, I am going on what we already know of the facility and believe that our likely recommendation for the full influent pumping upgrade will be a 3-pump arrangement with either of the following pumping arrangements:

- Each of 3 pumps sized for being able to accommodate  $\frac{1}{2}$  the peak hydraulic flow rate and being able to be turned down to the current day flow rate, or
- 2 pumps sized to meet full peak hydraulic flow rate and 1 "jockey" pump sized for current flow rates.

If you replace 1 or 2 pumps now at the lower pump capacity, just realize that the pumps selected may not have enough hydraulic capacity to meet the peak conditions once we have evaluated your system and redundancy requirements, and you may need to add an additional pump and/or replace pumps.

Let us know if you have any questions.

Jennie



**Jennie Auster, PE**

Vice President, Senior Project Manager

T: 802-489-7334 • C: 802-343-8426

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**From:** Allen Carpenter <[acarpenter@richmondvt.gov](mailto:acarpenter@richmondvt.gov)>  
**Sent:** Monday, March 13, 2023 12:58 PM  
**To:** Auster, Jennifer <[jauster@hoyletanner.com](mailto:jauster@hoyletanner.com)>  
**Cc:** Josh Arneson <[jarneson@richmondvt.gov](mailto:jarneson@richmondvt.gov)>; DiPietro-Worden, Kirstin A. <[kworden@hoyletanner.com](mailto:kworden@hoyletanner.com)>  
**Subject:** Re: [External] Influent Pump Follow Up

It will be too expensive to rebuild it. There need to be replaced with a new pump as soon as possible. So a quick solution would be good. Long term there would be savings on power to have a pump that was smaller for low flow times. It would also give a quick solution until later when there could be bigger pumps put in. The power saving would meet the state's energy saving goals.

Richmond Water Resource Dept.

Allen Carpenter

Allen Carpenter

On Mon, Mar 13, 2023 at 10:39 AM Auster, Jennifer <[jauster@hoyletanner.com](mailto:jauster@hoyletanner.com)> wrote:

Josh – Sorry for the delayed response. I picked up a bug on vacation and that derailed most of last week. I did hear back from Allen on the issues with the hydraulics at the WWTF. And, sounds like we're going to need to look at all the treatment path hydraulics as it does not seem obvious what the issue is. Vermont WWTF design guidance that has been around before Richmond's original design require fully redundant treatment trains (meaning only one aeration tank needed). Secondary clarifiers and filtration to be able to provide treatment/meet design guidance at 75% of the design peak hourly flow with one unit out of service. Allen has described that this is not the case, which is where it's going to require more work to understand what the issue is.

Has there been any further discussion with options with Phil Laramie?

Jennie



**Jennie Auster, PE**

Vice President, Senior Project Manager

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**From:** Josh Arneson <[jarneson@richmondvt.gov](mailto:jarneson@richmondvt.gov)>  
**Sent:** Wednesday, March 1, 2023 12:04 PM  
**To:** Auster, Jennifer <[jauster@hoyletanner.com](mailto:jauster@hoyletanner.com)>; Allen Carpenter <[acarpenter@richmondvt.gov](mailto:acarpenter@richmondvt.gov)>  
**Subject:** [External] Influent Pump Follow Up

Jennie,

I understand that Allen got back to you regarding the question on the capacity of the wastewater treatment facility and running the pumps at maximum flow. Do you need any more details on this item? What are the next steps in getting specs for replacement pumps?

Thanks,

Josh Arneson (he/him)

Town Manager  
Town of Richmond  
P.O. Box 285

Richmond, VT 05477  
(802) 434-5170

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