Ralph Dsouza

From: Mark Wilson <markw@ramservices.com.au>
Sent: 28 February 2024 14:07
To: Ralph Dsouza
Cc: Samuel Burke
Subject: UPDATE: Recreation Lagoon Pumps - Flushing, Run Times and Levels.

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Hi Ralph,

With the remote login, there are two screens that are of interest – Control and Data Log. This is a commissioning account, upon handover we will have our own account.

A brief overview is below, but they are finalising the Operating Philosophy document and will share that with us shortly.

According to the original Flushing System Design Philosophy documentation (2006) , there needs to be 23,000m3 of water flush through the lagoon each day. I'm now working with the pump supplier to calculate accurate flow rates based on tides, head pressure and frequency to motor from the Variable Speed Drive. At the moment we are using pump curves.

Control Screen

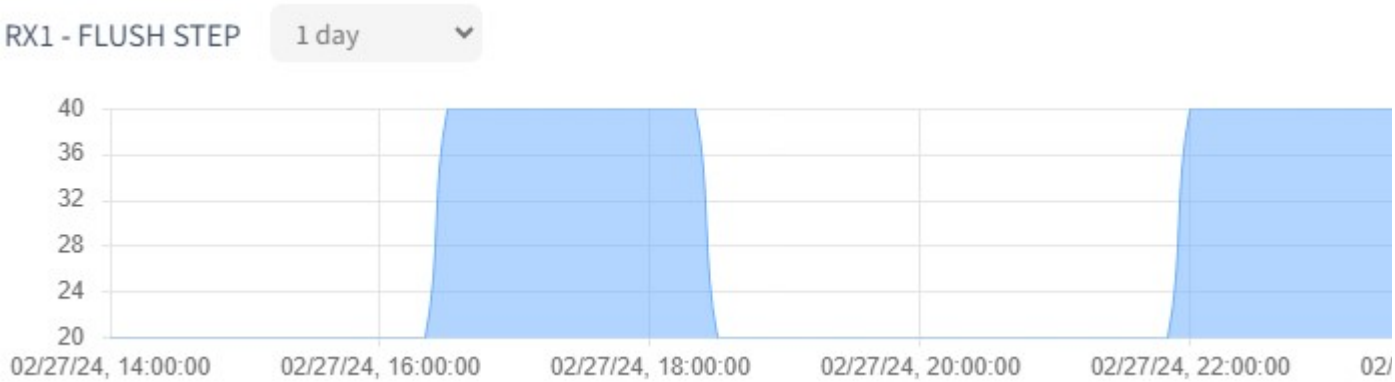
RX1 Flush Step – Green means Lagoon is flushing by 'any' pump, '40' means that we are in the flushing 'window' and pumps running. Need to look for '41' which would be in flushing window, but problem with pumps.
RX3 – Hold time remaining, manually applied, or can be in between tidal windows.
RX2 – Lagoon level – controlled between 2.45m and 2.6m – If the lagoon reaches 2.6m, the pumps will cut out, we will likely increase this range.
RX5 – Ocean Water Level – Was Flushing between 3.5m and 6.0m tides since install, changed to 3.0m and 6.4m today. Tide below 3m – no flushing, above 6.5m no flushing.
TX5 – You will be able to 'Hold' pumping manually for the time that is set in TX4. Eg, if there is an event in the lagoon and you want the pumps 'off' for 6 hours, you can do this remotely. Need to agree to TX 4 figure.
Rest is pretty self-explanatory.
RX10/11/12 we will change these to run hours, so we can keep an eye for when maintenance is due. Can still see current inside the panel.



Data Log (Graphics) –

I've set to 1 day for the example below

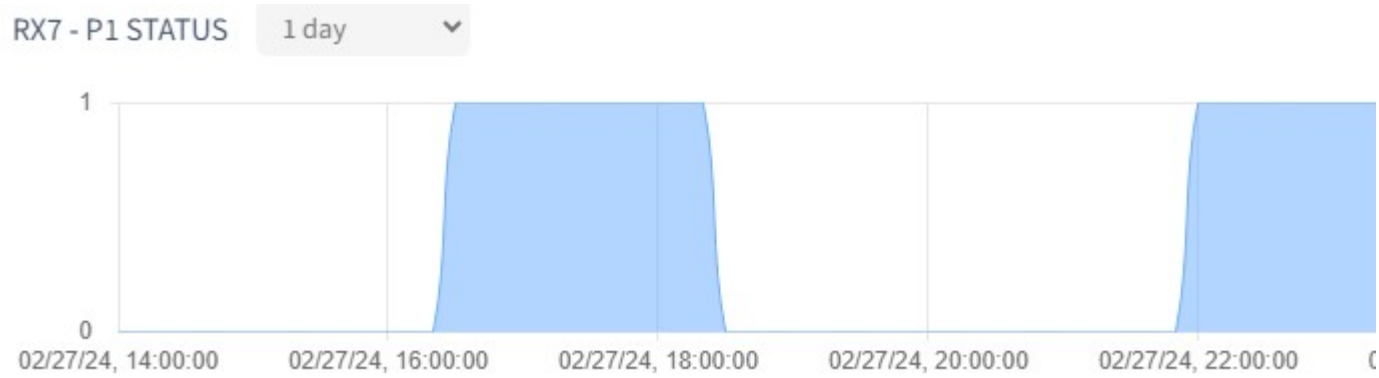
RX1 – Flush Step – The Lagoon is flushing during the blue peaks. Flush starts at 16:30, stops at 18:20 as shown below. The pumps will be Mushroom, then the other two equally. As above, just waiting on pump flow rates to calculate if there needs to be a priority.



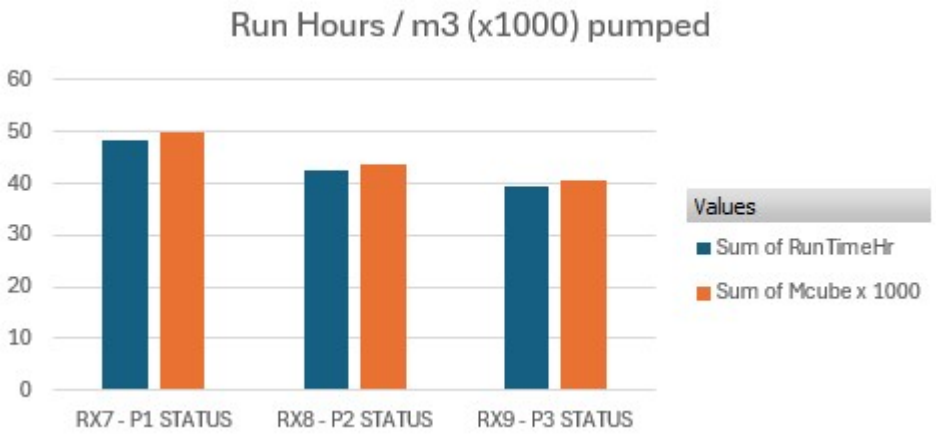
RX 5 – Ocean Water Level – When tide rises past 3m (16:30), start flushing, when it hits 6m (18:20), stop flushing – this matches the graph above.



RX7 – Pump Status – this shows alignment with the flush request, tide window ok and then pump running.



You can also do a data dump and come up with some funky graphs…



Cubic meters is based on 4,500US Gallons / Minute (my interpretation of pump curve), but am clarifying this. Aprox. 1020m3 / hour / pump.

Using this calc delivers an average 20,000m3 per day v's target of 23,000m3 – this is why we need very accurate flow rate calcs.

Regards,

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