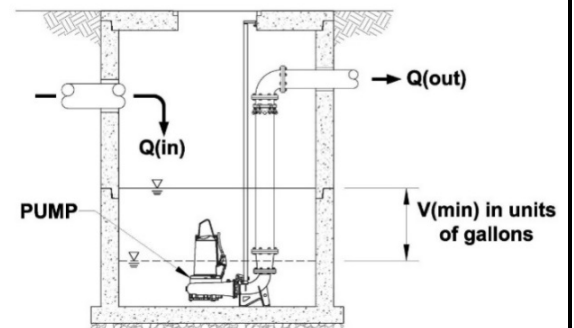


Flow Metering at Wastewater Pumping Stations Using OmniSite

Method #1 - Pump Run Times & Manual Wet Well Draw Down Test

OmniSite's GuardDog website records run times for each pump. On duplex pumping stations, use the third pump input to record run times when two pumps are running simultaneously.

Conduct manual drawdown tests to determine pumping rates for each pump and the pumping rate when two pumps are running simultaneously.



Run time and total flow for each pump are logged on the OmniSite GuardDog website on a daily basis. The information can also be downloaded to an Excel spreadsheet. This method is not accurate under the following conditions:

- If pumping rates determined by wet well drawdown tests are not accurate
- If pumping rate changes for any reason, data will be inaccurate
- Pumps with variable speed drives
- Reduced voltage solid state (RVSS) starters with long ramp up/down times

Method #2 - Volumetric Flow Calculations from OmniSite

The volumetric flow data calculated by the OmniSite device and recorded on GuardDog website are very accurate under most flow conditions; however, they are less accurate for some conditions:

- When the inflow rate exceeds the pumping rate of one pump
- When the inflow rate into the wet well has sudden and significant variations, such as when there is a pump station upstream of the wet well
- When the wet well dimensions and pump drawdown distance is not accurately entered into the OmniSite device
- For pumps that use variable speed drives (VFD)
- With long ramp up/down times when using RVSS "soft start" motor starters



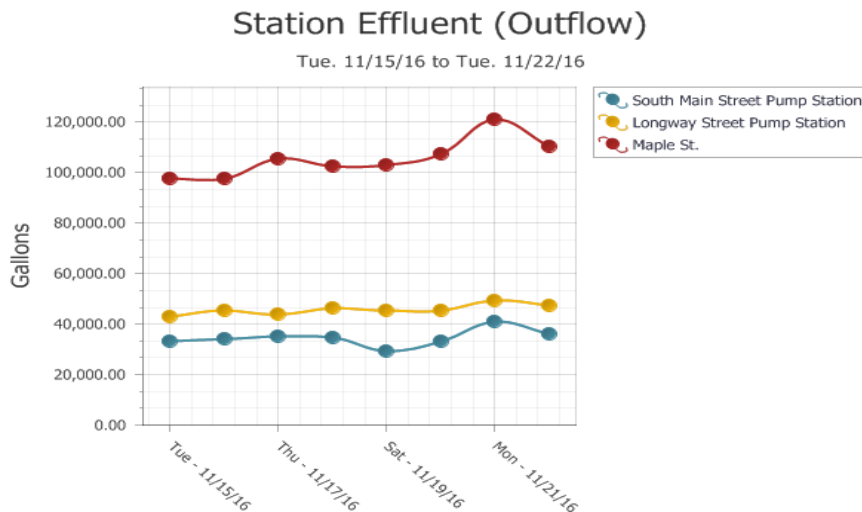
Due to these limitations, the OmniSite volumetric flow calculations are very useful for monitoring the condition of the pumps, but are not recommended when accurate flow metering is required or for billing purposes.

To record the flow when two pumps operate simultaneously in a duplex station, a Combined Run Time Relay Panel must be installed and utilized as follows:

- Use the third pump input on the OmniSite as a “Simultaneous Run” input. Activation of the “Simultaneous Run” input automatically deactivates the individual “Pump Run” inputs.
- Perform a manual drawdown test to determine the flow rate when two pumps operate simultaneously.
- Enter the measured flow rate for pump 3 into the GuardDog website to setup the Pump 3 input to log the “Simultaneous Run” pump information.
- When two pumps run together, the OmniSite will only record the flow for Pump 3 using the simultaneous run time and calculated flow rate, and will not add the simultaneous flow to Pump 1 and Pump 2.
- The OmniSite GuardDog website calculates the total station flow (Pump 1 + Pump 2 + both pumps running simultaneously) each day and logs the total pump station flow for each 24 hour time period in the “Total Effluent” column.



Flow data within a user selectable date range from GuardDog can be exported to an Excel spreadsheet for tabulating and graphing total flow.



Method #3 - Flow Meter and OmniSite

Use a magnetic flow meter on the force main or open channel flow meter on the wet well influent pipe. This is the best and most accurate method of recording flow rate as long as the flow meter is installed and calibrated properly.

The OmniSite unit requires a pulsed input from the flow meter. If the flow meter does not have a pulse output, a signal converter can be added.

Determine gallons per pulse from flow meter recorder. Enter gallons per pulse in OmniSite GuardDog webpage.

Flow data within a user selectable date range from GuardDog can be exported to an Excel spreadsheet for tabulating and graphing total flow. Peak hourly flow is also available with **Elite Cellular Service**.



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Cellular Service Options

Standard Cellular Service includes immediate alarm notifications and automatic reporting on the following items once every 24 hours:

- Pump Calcs: Pump runtimes, on/off cycles, average pumping rate, total daily flow
- Influent flow rate
- Counter for flow totalization when using Method #3 flow meter
- Analog inputs (4), 4-20 ma inputs
- Rain gauge

Elite Cellular Service is used when more frequent data reporting is needed, especially when using the recorded flow data for reporting purposes. Elite service includes immediate alarm notifications and automatic reporting of one (1) of the previous listed items every fifteen (15) minutes and once every twenty-four (24) hours for the other items.

Please call us if you have any questions concerning flow reporting using an OmniSite or the GuardDog website.

ENVIREP
3705 Trindle Road
Camp Hill, PA 17011
717-761-7884
sales@envirep.com