



Department of Public Works
Infrastructure Services Division

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October 19, 2009

Honorable Michael J. Murphy
Alderman, 10th Aldermanic District
Room 205, City Hall

Subject: Sanitary Bypass Pumps in the
10th Aldermanic District

Dear Alderman Murphy:

This is in response to your request during the September 17, 2009 Finance and Personnel meeting for additional information about City of Milwaukee sanitary bypass pumps.

The City of Milwaukee has 83 permitted sanitary bypass pumps, located throughout the City. These are broken down by aldermanic district in the enclosed table. Bypass pumps are located in the sanitary sewer and are designed to protect property owners adjacent to the pumps from basement backwaters during large rain events by pumping excess sanitary flow to the storm sewer.

Bypass pumps are individually programmed to engage at predetermined elevations based on surveys of low basements in the vicinity of the pump. Generally they are set to turn on approximately two to four feet below the low basement. Setting this elevation too low (further below the low-basement elevation) increases the likelihood that the pump will run more frequently. While pumps are in place to protect property owners, their operation becomes a Sanitary Sewer Overflow (SSO), which is a violation of the City's Water Pollution Discharge Elimination System (WPDES) permit with the Department of Natural Resources (DNR). These violations can also result in financial penalties to the City if the DNR determines the overflows are occurring in storm events that are not considered extreme.

As stated above, the pumps are designed to engage at predetermined levels that are programmed into each pump station. This means that the pumps respond only to the actual water level in the pump manhole, and not to the specific rain event recurrence intervals (10-year, 100-year, 500-year event). Sanitary systems in the City have different levels of inflow and infiltration (I/I), and therefore do not react the same way during the same event, or even from rain event to rain event. Large rain events will impact each

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sanitary system differently, which results in water levels in individual pump manholes to vary.

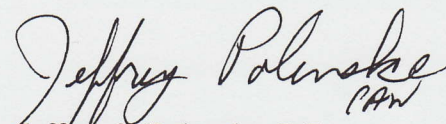
The specific pump at West Potomac Avenue and North Chapman Place utilizes an electronic level sensing device. This device did not function properly and has since been replaced. There is also a mechanical float located in this manhole (and many others) that is not part of the pump control system, but is an additional tool we use to monitor how sanitary systems perform during rain events.

The City has contracted with ASC Pumping Equipment to perform monthly checks of all bypass pumps. They submit to us a report each month noting 15 electrical readings and observations at each site, along with recommendations (see enclosed summary and detailed reports). We use this information to prioritize work for City forces to investigate and troubleshoot the pumps. We also selectively perform a more comprehensive evaluation of the pumps by simulating a high water condition in the pump manhole. This form of investigation consumes significant time and man power and is only done as needed. We are in the process of working with the DNR to prepare a more comprehensive testing procedure that can be done more efficiently. While we are confident in the results provided by ASC, they only provide a preliminary electrical evaluation of the pumps, and are not able to perform the more comprehensive testing.

If you would like to discuss any of this further, please contact my office.

If you have any questions please contact Mr. Martín A. Aquino at (414) 286-2462.

Very truly yours,


Jeffrey S. Polenske, P.E.
City Engineer

 TJT: krs

Enclosures

KRS: 1-3