



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 in 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.

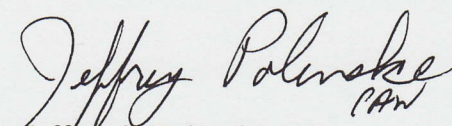
The specific pump at West Potomac Avenue and North Chapman Place utilizes an electronic level sensing device. This device did not function properly and has since been replaced. There is also a mechanical float located in this manhole (and many others) that is not part of the pump control system, but 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

City of Milwaukee
By-Pass Sewer Pump Station Inspection Report
June 2009

Permit No.	Site Location	Alm. Circ.	Entered By	Inspection Personal	Review Date	San Manhole Condition	Discharge Pipe	Pump	Power Cable	Wiring	Float	Level Transmitter	Shear Gates	Pump Control Cabinet	Voltage	Phase Voltage	Amperage	Thermal Protection	Mag Readings	Pump Operation	Work Requirements	Comments
214	N 072nd St & W Hope Ave	01	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	241/243/241	3-Phase	12.3/13.2/13.6	.1/.1/.1	550/550/550	good	none	None
215	N 072nd St & W Capitol Dr	01	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		good	needs paint	245/245/243	3-Phase	14.5/13.8/14.1	.1/.1/.1	550/550/550	good	none	multi ranger
216	W Potomac Ave & W Chapman Pl	01	Tom & Kyle	Tom & Kyle	12-Jun-09	some loose brick	good	good	good	good	none		good	good	243/243/242	3-Phase	12.5/13.5/12.3	.1/.1/.1	39.8/40.0/40.3	good	none	bricks loose in manway
220	N 049th St & W Luscher Ave	01	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	no panel
223	N 066th St & W Ruby Ave	01	Tom & Kyle	Tom & Kyle	15-Jun-09	Good	good	good	good	good	none		None	good	241/239/239	3 Phase	7/6.2/6.5	.1/.1/.1	237/246/255	good	none	pump noise on shut down
041	N 037th St & W Kiley Ave	02	Tom & Kyle	Tom & Kyle	15-Jun-09	Good	good	good	good	good	none		good	good	243/242/242	3 Phase	11.9/13/13.5	.1/.1/.1	44.2/44.2/44.0	good	none	mini ranger reads short
042	N 053rd St & W Silver Spring Dr	02	Tom & Kyle	Tom & Kyle	15-Jun-09	Good	good	good	good	good	none		good	good	238/236/236	3 Phase	20.6/19.7/19.5	.2/.2/.2	354/360/326	good	none	None
069	N 061st St & W Sheridan Ave	02	Tom & Kyle	Tom & Kyle	16-Jun-09	good	good	good	good	good	none		gppd	good	242/242/242		14/16.5/13.6	.1/.1/.1	10.8/10.4/11.0	good	none	gates multi ranger
072	N 055th St & W Custer Ave	02	Tom & Kyle	Tom & Kyle	16-Jun-09	does not operate	do no operate	does not operate	does not operate	does not operate	does not operate		none	does not operate	does not operate	does not operate	does not operate	does not operate	does not operate	operate	none	line loss, panel smells burnt
200	N 035th St & W Oriole Dr (40' n/o)	02	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip
040	S Burrell St & W Van Norman Ave	03	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip
048	W Green Ave & W Ramsey Ave	03	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	241/241/240	3-Phase	13.2/13.6/12.7	.1/.1/.1	.57/.57/.57	good	none	mini ranger/cabinets leaning
050	S Pine Ave & E Cudahy Ave	03	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	245/245/245	1-Phase	10.7/11.1	.1/.1/.1	1.64/1.61	good	none	no gates
077	S Whitnall Ave (400' w/o) & E Waterford Ave	03	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip
205	S Quincy Ave & E Ohio St	03	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	485/485/486	3-Phase	21.6/22.3/22.3	.1/.1/.1	.9/.9/.9	good	none	no gates/mini-ranger/test@1000v
211	S 001st Pl & W Bolivar Ave (S/S)	03	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	244/246/246	3-Phase	13.6/13.3/15	.1/.1/.1	550/550/550	good	none	mini ranger/no gates
032	S 046th St & W Cleveland Ave	04	Tom & Kyle	Tom & Kyle	12-Jun-09	excellent	good	good	good	good	none		None	good	244/244/244	3-Phase	7.5/7.2/7.2	.1/.1/.1	550/550/550	good	none	mini ranger
033	S 036th St (170' w/o) & W Lincoln Ave	04	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	240/240/240	3-Phase	6.4/6.8/7.0	.1/.1/.1	282/296/302	good	none	called in to r. c. talley
037	S 077th St & W Oklahoma Ave	04	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	242/243/242	3-Phase	18.2/16.8/17.8	.1/.1/.1	550/550/550	good	none	mini ranger/no gates
038	S 054th St & W Midland Dr	04	Tom & Kyle	Tom & Kyle	12-Jun-09	very good	good	good	good	good	none		None	good	240/239/239	3-Phase	20.6/19.7/19.2	.1/.1/.1	4.38/4.48/4.44	good	none	no gates
039	S 092nd St & W Howard Ave	04	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	241/242/242	3-Phase	26.3/23.7/25.8	.1/.1/.1	6.37/6.42/6.46	good	none	mini ranger/no gates
045	S 086th St & W Ohio Ave	04	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	246/248/247	3-Phase	13.3/12.9/13.3	.1/.1/.1	no reading	good	Possible bad ground	Possible bad ground
074	S 099th St & W Oklahoma Ave	04	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	247/247/248	3-Phase	27.7/29.4/27.6	.1/.1/.1	no reading	good	Possible bad ground	Possible bad ground
209	S 057th St & W Euclid Ave	04	Tom & Kyle	Tom & Kyle	12-Jun-09	some loose brick	good	good	good	good	none		None	good	236/237/237	3-Phase	20.7/20.3/20.6	.1/.1/.1	184/183/186	good	none	some loose and cracked bricks
225	S 072nd St & W Honey Creek Dr (N/E)	04	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	very good	246/245/246	3-Phase	12/13.2/12.4	.1/.1/.1	68.2/66.5/65.6	good	none	None
230	S Honey Creek Dr & W Riverbend Dr (S/W)	04	Tom & Kyle	Tom & Kyle	12-Jun-09	some loose brick	good	good	good	good	none		None	very good	246/245/245	3-Phase	12.3/13.8/12.5	.1/.1/.1	55.8/56.1/56.4	good	none	loose bricks
240	S 094th St & W Howard Ave	04	Tom & Kyle	Tom & Kyle	12-Jun-09	very good	good	good	good	good	none		None	very good	242/242/242	3-Phase	9.5/9.4/9.4	.1/.1/.1	.94/.95/.97	good	none	no gates
241	W KK River Pkwy & W Cleveland Ave	04	Tom & Kyle	Tom & Kyle	12-Jun-09	cover tarred shut	good	good	good	good	none		None	good	243/243/243	3-Phase	23.4/25.5/24.0	.1/.1/.1	296/316/320	good	none	manhole shut could not open
025	N 060th St (W/S) & W Custer Ave	05	Tom & Kyle	Tom & Kyle	16-Jun-09	good	good	good	good	good	none		None	good	241/241/241		9.6/9.4/9.6	.1/.1/.1	16.3/17.3/18.4	good	none	noise on shut down
026	N 060th St (E/S) & W Custer Ave	05	Tom & Kyle	Tom & Kyle	16-Jun-09	Good	good	good	good	good	none		None	good	242/242/242		10.4/7.5/10.1	.1/.1/.1	11.8/11.7/12.0	good	none	None
027	N 061st St & W Lawn Ave	05	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	246/245/245	3-Phase	28.3/28.4/27	.1/.1/.1	no reading	good	Possible bad ground	Possible bad ground
028	N 060th St (W/S) & W Custer Ave (150' s/o)	05	Tom & Kyle	Tom & Kyle	16-Jun-09	Good	good	good	good	good	none		None	good	241/241/242		5.9/6.1/5.6	.1/.1/.1	550/550/550	good	none	none
029	N 060th St (Center) & W Custer Ave (320' s/o)	05	Tom & Kyle	Tom & Kyle	16-Jun-09	Good	good	good	good	good	none		None	good	242/242/242		15.2/16.5/18.2	.1/.1/.1	550/550/550	good	none	none
030	N 063rd St & W Fairmount Ave (95' w/o)	05	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip
073	N 056th St & W Villard Ave	05	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	241/239/239	3 Phase	15/15.6/16.0	.1/.1/.1	118/121/126	good	none	echo multi ranger / no gates
232	N 062nd St & W Fairmount Ave	05	Tom & Kyle	Tom & Kyle	12-Jun-09	skip	skip	pump locked-up	skip	smells burned	none	unknown	None	skip	242/239/240	skip	8.5/7.7/7.8	.1/.1/.1	24.3/24.3/23.7	None	electrical	burned smell in control cabinet
238	N 049th St & W Rohr Ave	05	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	240/240/240	3-Phase	21.6/19.3/19.3	.3/.3/.2	550/550/550	good	none	echo multi ranger/hang elect.box
046	N 107th St & W Lawn Ave	06	Tom & Kyle	Tom & Kyle	16-Jun-09	Good	good	good	good	good	none		None	good	243/243/243		16.4/16.9/16.6	.1/.1/.2	530/530/530	good	none	None
047	N 107th St & W Silver Spring Dr (100' s/o)	06	Tom & Kyle	Tom & Kyle	16-Jun-09	Good	good	good	good	good	none		None	very good	239/239/239	3-Phase	10.7/16.3/12.9	.1/.1/.1	550/550/550	good	none	None
075	N 110th St & W Harvest Ln	06	Tom & Kyle	Tom & Kyle	16-Jun-09	Good	good	good	good	good	none		None	good	241/241/241	3-Phase	32.6/28.6/28	.1/.1/.1	.48/.53/.55	good	None	no gates
226	W Crossfield Ave & W Monrovia Ave	06	Tom & Kyle	Tom & Kyle	16-Jun-09	seal rough	good	good	good	good	none		None	good	236/236	1-Phase	2.9/2.8	.2/.2	4.57/4.55	good	None	manhole seal rough
008	N 089th St & W Townsend St	07	Tom & Kyle	Tom & Kyle	12-Jun-09	excellent	excellent	good	good	good	none		None	excellent	245/243/245	3-Phase	16.3/17.4/17.8	.1/.1/.1	550/550/550	excellent	none	None
009	N 090th St & W Townsend St	07	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	excellent	244/244/245	3-Phase	13.3/12.8/12.5	.1/.1/.1	550/550/500	good	none	None
016	N 095th St & W Metcalf Pl	07	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip
031	N 096th St & W Auer Ave	07	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	238/238/238	3-Phase	9.1/8.6/9.4	.1/.1/.1	442/426/436	good	none	None
060	N 088th St & W Concordia Ave	07	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	244/245/244	3-Phase	12.2/11.8/12.1	.1/.1/.1	550/550/550	good	none	cabinet still leaning
061	N 080th St & W Townsend Ave	07	Tom & Kyle	Tom & Kyle	12-Jun-09	excellent	excellent	good	excellent	good	none		None	excellent	243/242/243	3-Phase	11.1/11.4/10.7	.1/.3/.1	550/550/550	excellent	none	None
062	N 075th St & W Hadley St	07	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip	skip
199	N 086th St & W Center St	07	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	239/240/240	3-Phase	19.2/19.4/19.2	.1/.1/.1	550/550/550	good	none	None
201	N 088th St & W Center St	07	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	237/238/238	3-Phase	17.4/16.4/16.7	.1/.1/.1	502/535/544	good	none	None
203	N 089th St & W Center St (N/S)	07	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	good	238/237/237	3-Phase	15.6/15.9/16.2	.1/.1/.1	550/550/550	good	none	None
204	N 087th St & W Center St	07	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	Fair	242/243/243	3-Phase	11.2/13.8/14.1	.1/.1/.1	550/550/550	good	none	None
210	N 089th St & W Center St (S/S)	07	Tom & Kyle	Tom & Kyle	12-Jun-09	Good	good	good	good	good	none		None	leaning	239/239/239	3-Phase	10.9/11.1/10.7	.1/.1/.1	.60/.60/.60	good	none	No display on mini-ranger